# The Valparaiso Project

## A Tropical Forest Conservation Project in Acre, Brazil

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# A Climate, Community and Biodiversity Standard Project Design Document

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**I. Project Name:** The Valparaiso Project

**II. Project Location:** Near city of Cruzeiro do Sul, State of Acre, Brazil

**III. Project Proponent:** The three main Project Proponents are CarbonCo, LLC ("CarbonCo"), Freitas International Group, LLC ("Freitas International Group or Carbon Securities"), and Manoel Batista Lopes, ME. CarbonCo's contact and address is:

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**IV. Auditor:** Environmental, Services Inc. (ESI) was the auditor. ESI's contact and address is:

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Phone: +1 (330) 833-9941 Email: smcmahon@ESINC.CC

**V. Project State Date, GHG Accounting Period, and Project Lifetime:** The Valparaiso Project's Start Date is March 19, 2011. The initial GHG Accounting Period is 10 years and the Project Lifetime is 60 years.

**VI. Full or Gap Validation:** This CCBS Project Design Document relates to full validation.

**VII. History of CCB Status:** This is the initial CCBS Project Design Document submitted for validation.

**VIII. Edition of CCB Standard Being Used:** Second Edition.

**IX. Summary of Expected Climate, Community and Biodiversity Benefits:** 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 S.O.S. Amazônia and the Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul for agricultural extension training, to beginning patrols of potential deforestation sites in the early stages of the Project, to eventually establishing an association to assist with the local production of açaí and manioc flour.

**X. Gold Level Criteria Being Used and Summary of Gold Level Attributes:** The Valparaiso Project has exceptional community benefits. The Project Proponents will assist all communities

in and around the Valparaiso Project, and specifically the most vulnerable communities within the Project.

**XI. Date of Completion of this Version:** June 25, 2014.

**XII. Expected Schedule for Verification:** Verification of activities between March 19, 2011 and December 31, 2013 is expected to be achieved by December 2014.

# INTRODUCTION

The Valparaiso Project ("Project") is a payment for ecosystem services forest conservation project, otherwise known as a Reduced Emissions from Deforestation and Degradation (REDD+) project, on 28,096 hectares or approximately 69,397.1 acres (total property is 29,033.1 hectares but Project will focus on the 28,096 hectares of forest) of privately-owned land in Acre, Brazil.[1]

The three main Project Proponents are CarbonCo, LLC ("CarbonCo"), Freitas International Group, LLC ("Freitas International Group or Carbon Securities"), and Manoel Batista Lopes, ME. 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 Manoel Batista Lopes, ME, along with acting as a translator and assisting with logistics for site visits. Manoel Batista Lopes, ME is an Acre, Brazil-based organization created by the Landowner Mr. Manoel Batista Lopes ("Landowner") 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 partnering with Ilderlei Souza Rodrigues Cordeiro from the adjacent Russas Project, engaging S.O.S. Amazônia and the Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul for agricultural extension training, to beginning patrols of potential deforestation sites in the early stages of the Project, to eventually establishing an association to assist with the local production of açaí and manioc flour.

The Project is being developed and registered under the Climate, Community and Biodiversity Standard (CCBS, Second Edition) and the Verified Carbon Standard (VCS, Version 3.3). Furthermore, the Project is aligned with the REDD+ Social and Environmental Standards and the State of Acre's Payment for Ecosystem Services Law # 2.308/2010.

Please contact Brian McFarland of CarbonCo, LLC with any questions, comments or concerns regarding the Valparaiso 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 Valparaiso Project includes elements of forest conservation, sustainable forest management and reforestation.

# GENERAL SECTION

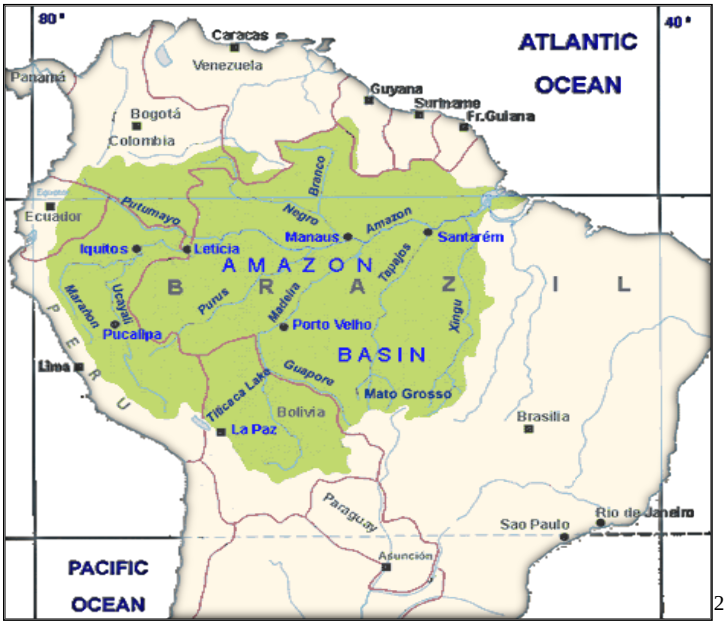
## G1. Original Conditions in the Project Area

The following section will provide general background information, as well as briefly describe the Project's climate, community and biodiversity characteristics.

### GL1.1-3. General Information

*The Location of the Project and Basic Physical Parameters*

The Amazonian Basin is approximately 1.4 to 2.3 million square miles and its extensive watersheds – consisting of nearly 363 - 596 million hectares - cover the eight countries of Brazil, Bolivia, Peru, Ecuador, Columbia, Venezuela, Guyana, and Suriname; 60% of which is considered Brazilian territory. The Legal Amazon of Brazil covers the states of Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Rondônia, Roraima and Tocantins.



[2]

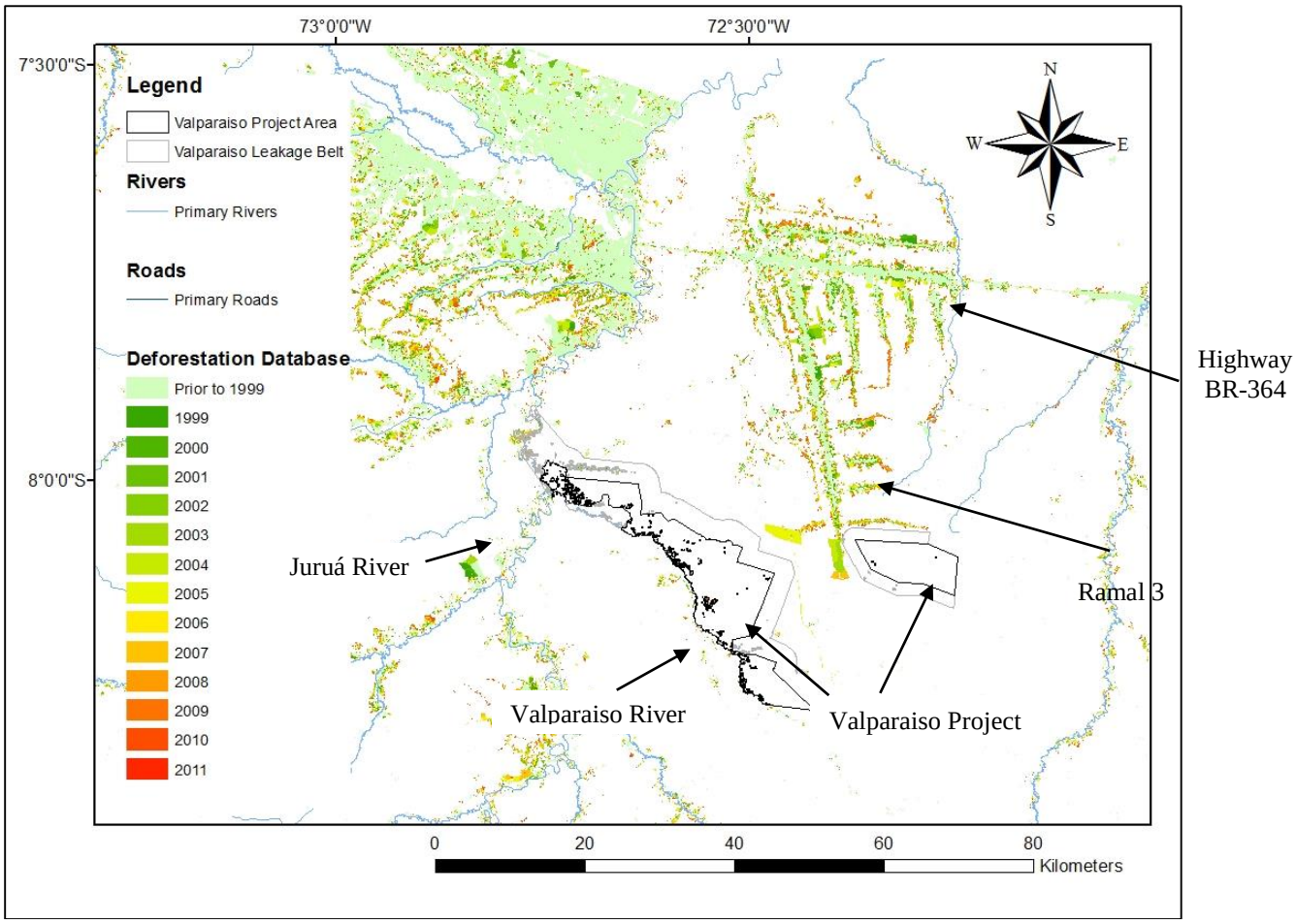
More specifically, the Valparaiso Project is located in the State of Acre, Brazil alongside the Valparaiso River and the Juruá River. The Valparaiso Project is approximately 40 kilometers (i.e., approximately 25 miles) south from the city of Cruzeiro do Sul and north from the city of Porto Walter.

The following political map is the State of Acre which borders the Brazilian state of Amazonas along with the countries of Peru and Bolivia.[3]

[2] Federation of American Scientists, "Amazon Basin," Available: http://www.fas.org/irp/imint/docs/rst/Sect6/amazon_map01.jpg

[3] V-Brazil.com, "Map of Acre, Brazil," Available: http://www.v-brazil.com/tourism/acre/map-acre.html

The following map depicts the Valparaiso Project vis-à-vis the Jurua and Valparaiso Rivers.

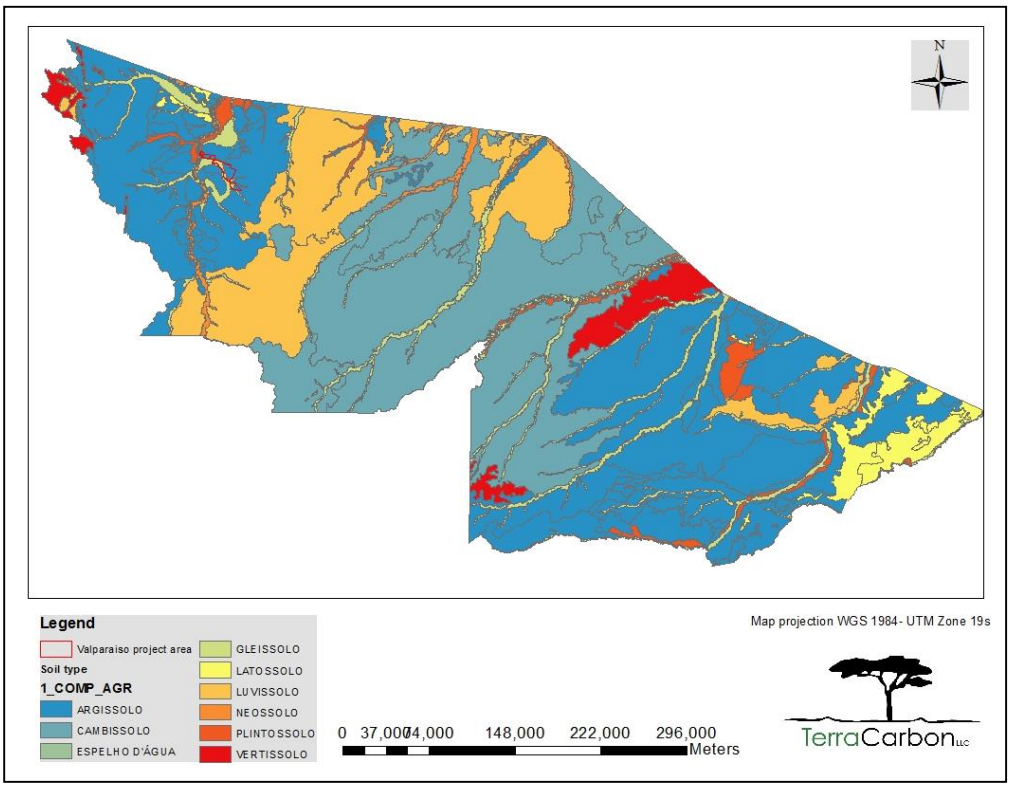



*Map 1: Location of Valparaiso Project (Credit: TerraCarbon)*

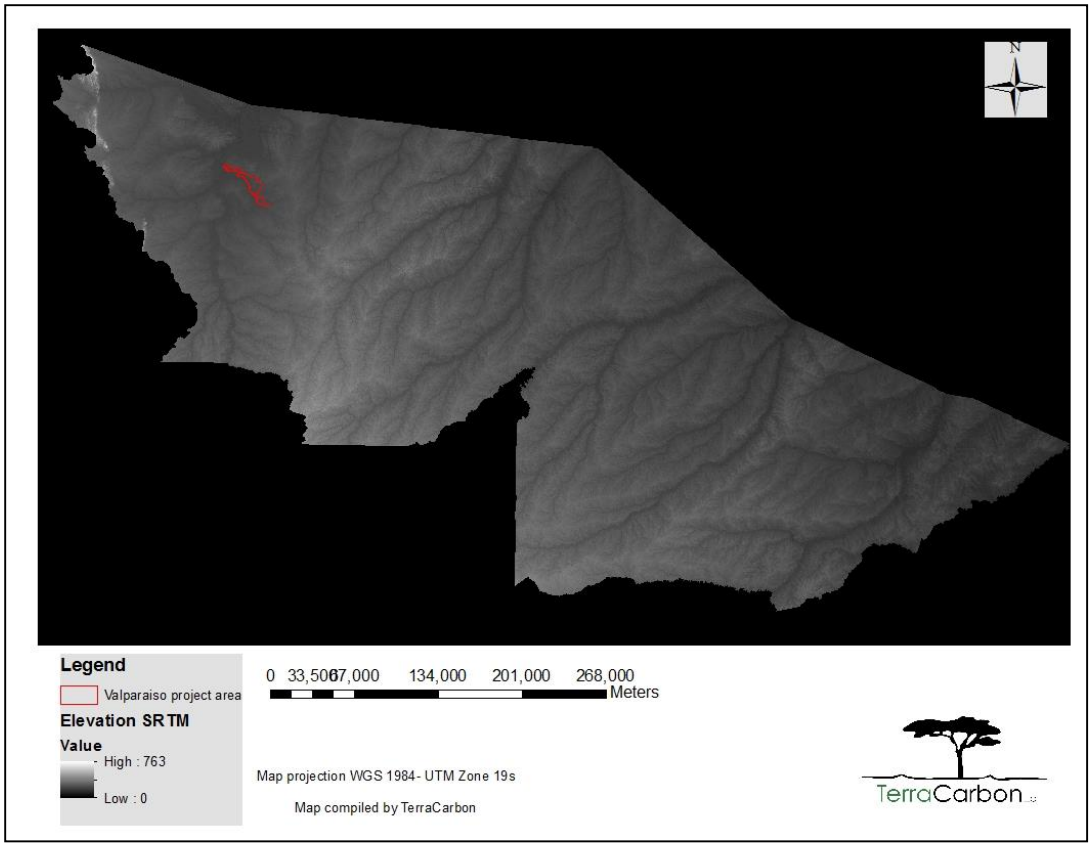
*Soil and Geology*

The Valparaiso Project area is dominated by Acrisols and Gleysols. Also present to a much lesser extent are Plinthosols and Fluvisols, soils typically found near rivers. Acrisols (or Argissolos in Portuguese) are clay rich soils associated with humid tropical climates. These soils have low fertility and high levels of aluminum. Gleysols (or Gleissolos in Portuguese) are hydric soils that are saturated with groundwater for long periods of time. This soil saturation leads to the development of a characteristic gleyic color pattern with reddish, brownish or yellowish colors in surface horizons and grayish or blueish colors for deeper horizons. Fluvisol (or Neossolos in Portuguese) are young soils formed on alluvial plains in the region where periodic flooding is common. While this deposition leads clear stratification, soil horizons are generally weakly developed, although a distinct topsoil horizon may be present. Plinthosols (or Plintossolos in Portuguese) form near rivers in this area. These soils are weathered iron/aluminum rich clay soils which are considered acidic and nutrient-poor. Iron often accumulates in the form of plinthite below a strongly leached eluvial horizon. Description of the soil orders were based on the Brazilian System of Soil Classification.

There are no organic soils (i.e., histosols) in or around the project area or leakage belt.
The following two maps display the soil and elevation throughout the State of Acre with an overlay of the Valparaiso Project's project boundaries.




*Map 2: Soil Map of Acre State*
*(Credit: TerraCarbon and Data from State of Acre's Climate Change Institute)*

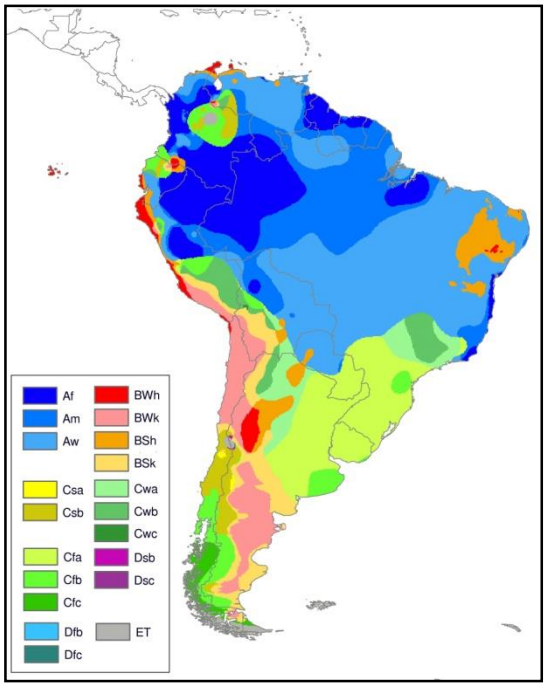



*Map 3: Elevation Map of Acre State*
*(Credit: TerraCarbon and Data from State of Acre's Climate Change Institute)*

*Climate*

According to the State Government of Acre, the average annual temperatures in Acre range between 24.5°C and 32ºC (i.e., approximately 76º - 90ºF), with a pronounced dry and rainy season. The dry season lasts from May through October, while the rainy season lasts from November until April. In addition, the relative "humidity reaches 90%, a rate very high, compared to other Brazilian regions," and the annual rainfall ranges from 1,600 – 2,750 millimeters (i.e., approximately 63 – 108 inches).[4] Furthermore, the Köppen classification for Acre and particularly the Valparaiso Project is tropical:

[4] State Government of Acre Portal, "Geographic Data,"



[5]

*The Types and Condition of Vegetation within the Project Area*

As one of the world's most biologically diverse places on earth, the Amazonian Basin has ecosystems ranging from dense, tropical lowland rainforests and the slopes of the Andes Mountains, to open savannahs and mangrove swamps.

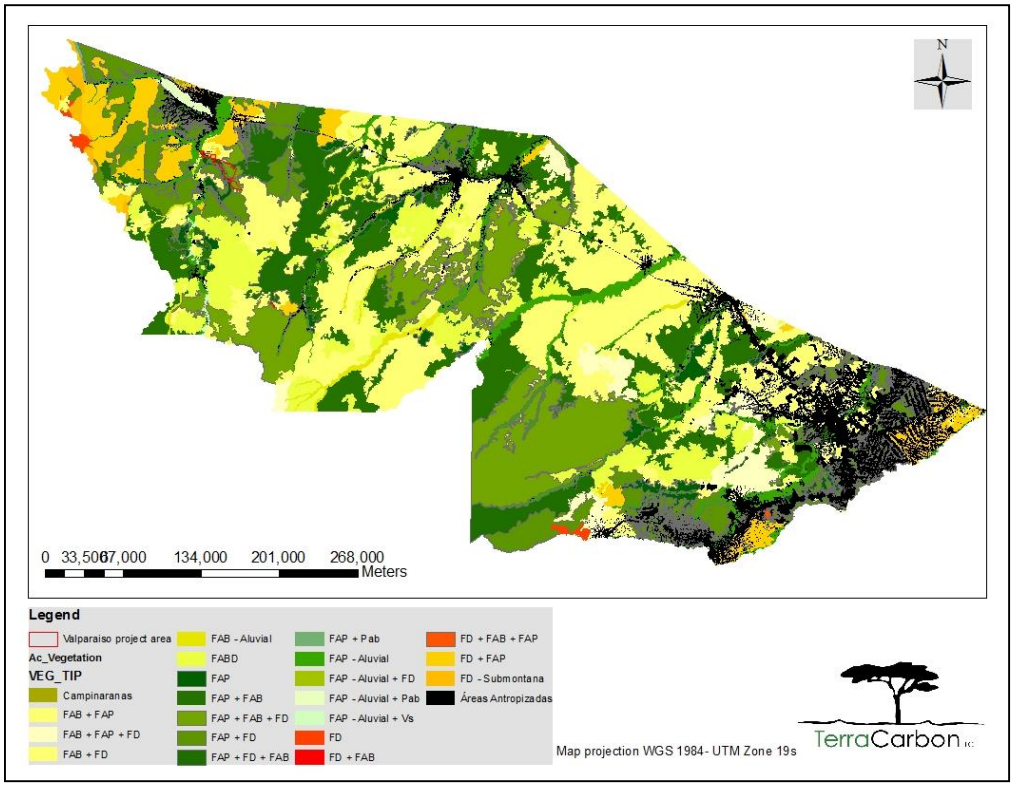
The five main forest classifications in Acre – which cover nearly 72% of the State – are:

- Open forest with bamboo + open forest with palms (40,546 $km^2$ or 24.69% of State)
- Open forest with palms + open forest with bamboo (22,416 $km^2$ or 13.65%)
- Open forest with palms + open forests with bamboo + dense forest (21,579 $km^2$ or 13.14%)
- Open forest with palms + dense forest (16,964 $km^2$ or 10.33%)
- Open forest with bamboo (16,455 $km^2$ or 10.02%)

With respect to these five forest classifications, it is important to note that "the order of typology determines that the first typology is more predominant than the following ones."[6]

[5] Peel MC, Finlayson BL & McMahon TA (2007), Updated world map of the Köppen-Geiger climate classification, Hydrol. Earth Syst. Sci., 11, 1633-1644.

[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 1




*Map 4: Vegetation Map of Acre State*
*(Credit: TerraCarbon and Data from State of Acre's Climate Change Institute)*

The vegetation in the region of the Valparaiso Project area is predominantly classified as Floresta Ombrófila Aberta (as open rainforest, RADAMBRASIL).[7] While open rainforest occurs throughout most of Acre State, vegetation differences are driven by geomorphological features and soil type. These differences are manifested in part in the relative proportion of certain species of palms, bamboo, and vines.

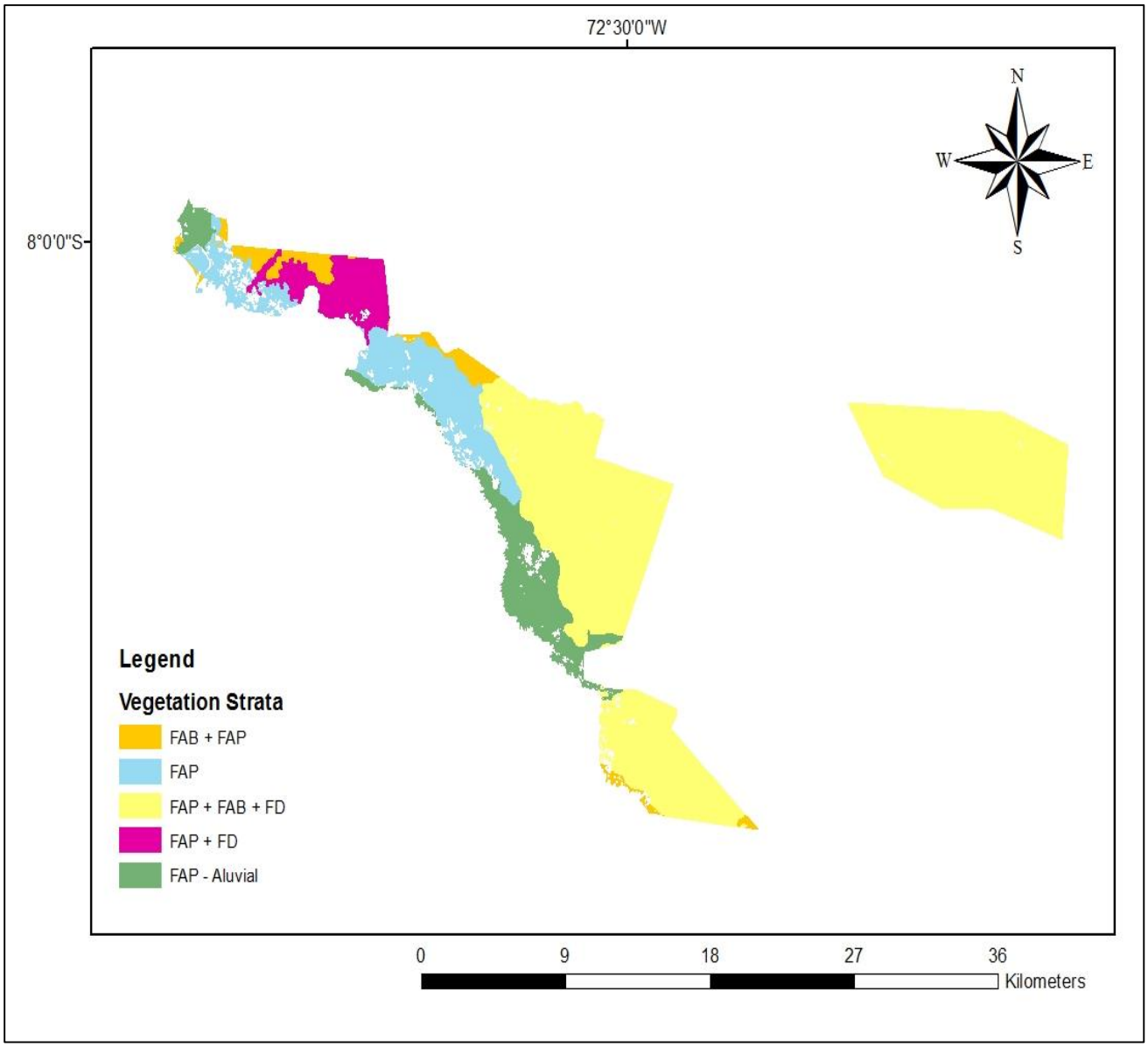
A vegetation map produced by the State of Acre[8] was used to stratify the Project Area. The five strata present in the Valparaiso Project area include: open forest with bamboo and palm (FAB + FAP), open palm forest (FAP), open alluvial forest with palm (FAP - Alluvial), open forest with bamboo and palm and dense forest (FAP + FAB + FD and FAP + FD + FAB), and dense forest and open palm forest (FAP + FD and FD + FAP).

One additional stratum is present in the leakage belt, namely bamboo dominated open forest (FABD).

[7] BEZZERA, P.E.L. Compartimentação morfotectônica do interflúvio Solomões-Negro. 2003. 335 f. Tese (Doutorado em Geologia) Universidade Federal do Pará, Belém, 2003.
Brasil. Departamento Nacional da Produção Mineral - Projeto RADAMBRASIL. Geologia, Geomorfologia, Pedologia, Vegetação e Uso Potencial da Terra. Folha V.12 FlS SC 19. Rio Branco; Rio de Janeiro, 1976.
[8] ACRE. Governo do Estado do Acre. Secretaria de Estado de Planejamento e Desenvolvimento Econômico-Sustentável, Secretaria de Estado de Meio Ambiente e Recursos Naturais. Programa Estadual de Zoneamento Ecológico-Econômico do Acre. Zoneamento Ecológico-Econômico do Acre Fase II. Documento Síntese, 2006.

The Valparaiso Project area's forests are primary, tropical forests while the locations where local communities live are either non-forest or secondary forest.

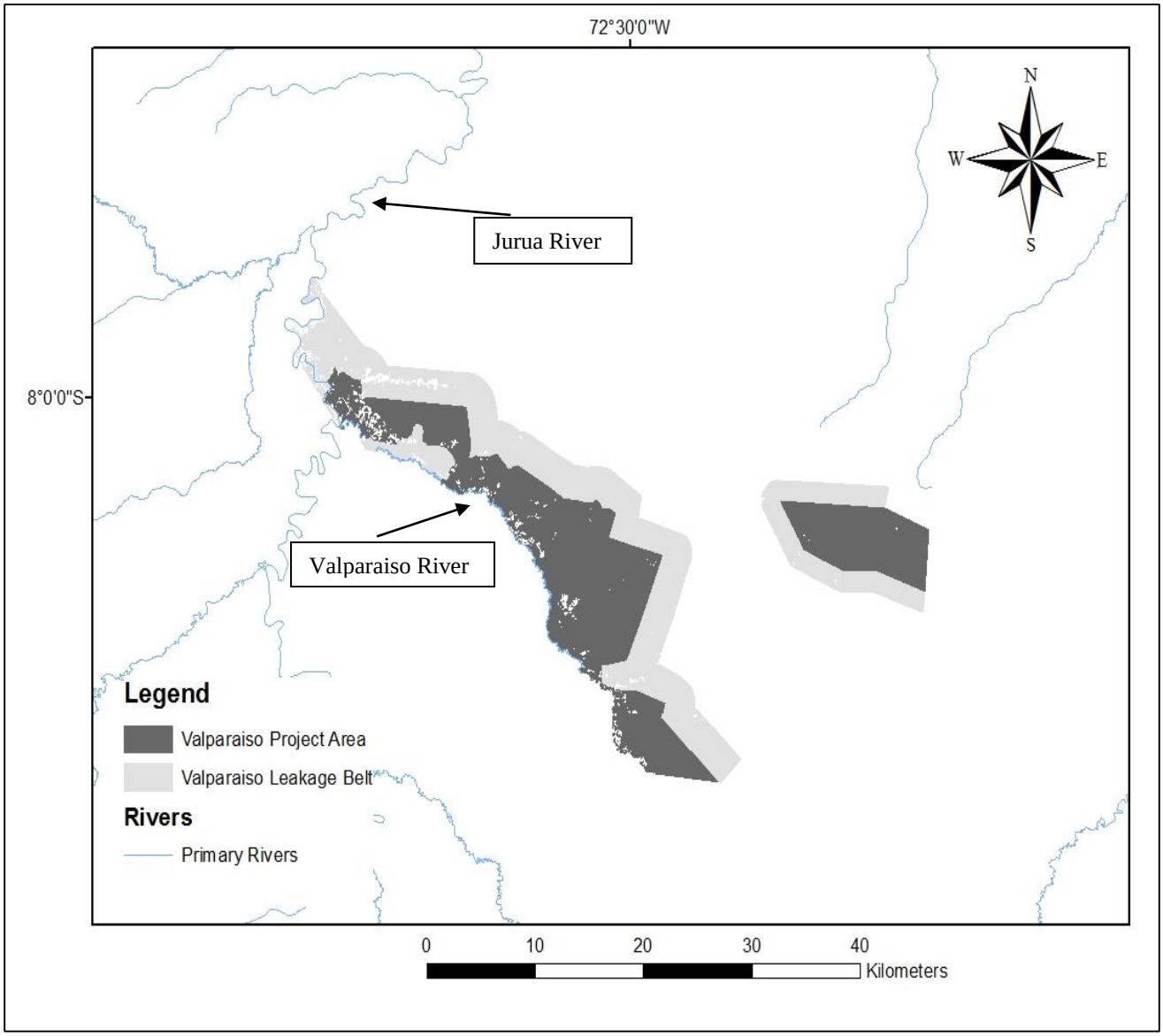
The main types of vegetative strata within the Valparaiso Project are as follows:




*Map 5: Stratification of Project Area*
*(Credit: TerraCarbon and Data from State of Acre's Climate Change Institute)*

*The Boundaries of the Project Area and the Project Zone*
The Valparaiso Project's Project Area is on forested, privately-owned land by Manoel Batista Lopes. The Project Zone consists of the Valparaiso Project property (i.e., the Project Area) along with the Project's leakage belt.

It is important to note that the property located on the opposite banks of the Valparaiso River and adjacent to the Valparaiso Project is also being developed by the Project Proponents as a REDD+, forest conservation project. This project is known as the Russas Project.




*Map 6: Valparaiso Project's Project Area and Project Zone (Credit: TerraCarbon)*

**G1.4. Climate Information**

*Current Carbon Stocks within the Project Area*

The Valparaiso Project's carbon stocks were determined via an onsite forest carbon inventory that was conducted by TECMAN, LTDA and 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.

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 Project Area reduces overall variability and improves sampling efficiency. The Project Area was stratified using a vegetation map from the Acre State[9] publication "Ecological and Economical Zoning" where land cover is classified using the Brazilian Forest Classification System[10].

Overall, the inventory produced an estimate of biomass carbon stocks at the project level of 120.0 t C/ha with a precision level of +/- 7.9% of the mean at the 95% confidence level and +/- 6.5% of the mean at the 90% confidence level. The forest inventory thus meets the precision requirements of the VCS methodology (+/- 15% of the mean at a 95% confidence level).

| Descriptive Statistic | Total Biomass |
|---|---|
| Mean (t C/ha) | 120.0 |
| Standard Error (t C/ha) | 4.5 |
| 90% Confidence Interval | 7.8 |
| 90% Confidence Interval as % of mean | 6.5% |
| 95% Confidence Interval | 9.5 |
| 95% Confidence Interval as % of mean | 7.9% |
| Estimation of Carbon Stocks for Strata FAB + FAP | 452.6 $tCO_2e\ ha^{-1}$ |
| Estimation of Carbon Stocks for Strata FAP | 460.8 $tCO_2e\ ha^{-1}$ |
| Estimation of Carbon Stocks for Strata FAP + FAB + FD and Strata FAP + FD + FAB | 487.0 $tCO_2e\ ha^{-1}$ |
| Estimation of Carbon Stocks for Strata FAP + FD | 393.3 $tCO_2e\ ha^{-1}$ |
| Estimation of Carbon Stocks for Strata FAP - Alluvial | 372.9 $tCO_2e\ ha^{-1}$ |
| Estimation of Carbon Stocks for Strata FABD | 424.4 $tCO_2e\ ha^{-1}$ |

*Figure 1: Project Level Statistics for Total Biomass Carbon Stocks in the 2013 Forest Inventory Employing Stratified Random Sampling (Credit: TerraCarbon)*

For more information, please refer to the VCS Project Description.

[9] State of Acre, 2006. Zoneamento Ecológico-Econômico do Estado do Acre–Fase II Documentos Síntese. Rio Branco, Acre.
[10] 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.

**G1.5-6. Community Information**

*Description of Communities Located in the Project Zone*

The State of Acre consists of 22 municipalities and the capital city is Rio Branco.[11] The largest cities in Acre include Rio Branco along with Cruzeiro do Sul, Feijó, Sena Madureira, and Tarauacá. In 2010, there were an estimated 733,559 residents in Acre, with approximately 78,507 residents in the municipality of Cruzeiro do Sul where the Valparaiso Project is located along with approximately 9,176 residents in the municipality of Porto Walter which is the municipality neighboring the Valparaiso Project.

Regarding wealth, gender, age, ethnicity and literacy rates of residents in the municipality of Cruzeiro do Sul, the following statistics were compiled from Brazil's 2010 Census:[12]

| Cruzeiro do Sul's 2010 Census | | |
|---|---|---|
| | | |
| **Description** | **Value** | **Unit** |
| Resident population - total | 78,507 | people |
| Resident population - housing unit situation - urban | 70.5 | % |
| Resident population - housing unit situation - rural | 29.5 | % |
| Resident population - sex - male | 50 | % |
| Resident population - sex - female | 50 | % |
| Resident population - total - age groups - from 0 to 5 | 13.4 | % |
| Resident population - total - age groups - from 6 to 14 | 22.5 | % |
| Resident population - total - age groups - from 15 to 24 | 20.9 | % |
| Resident population - total - age groups - from 25 to 39 | 23.1 | % |
| Resident population - total - age groups - from 40 to 59 | 13.8 | % |
| Resident population - total - age groups - aged 60 or over | 6.4 | % |
| Resident population - total - urban | 55,326 | people |
| Resident population - total - rural | 23,181 | people |
| People aged 15 or over who do not know to read or write - total | 9,327 | people |
| People aged 15 or over who do not know to read or write - rate | 18.5 | % |
| Resident population - literate | 56,657 | persons |
| Resident population - literate - men | 27,558 | persons |
| Resident population - literate - women | 29,099 | persons |
| Resident population - literate - urban | 42,528 | persons |
| Resident population - Literate - men - urban | 20,372 | persons |
| Resident population - literate - women - Urban | 22,156 | persons |
| Resident population - literate - rural | 14,129 | persons |
| Resident population - literate - men - rural | 7,186 | persons |
| Resident population - literate - women - rural | 6,943 | persons |
| Permanent private housing units - total | 18,581 | housing units |
| Permanent private housing units - type of sanitation - total - adequate | 9.3 | % |
| Permanent private housing units - type of sanitation - total - semi-adequate | 67.2 | % |
| Permanent private housing units - type of sanitation - total - inadequate | 23.5 | % |
| Permanent private housing units - urban - type of sanitation - total | 13,524 | housing units |
| Permanent private housing units - urban - type of sanitation - adequate | 12.6 | % |
| Permanent private housing units - urban - type of sanitation - semi-adequate | 80.8 | % |
| Permanent private housing units - urban - type of sanitation - inadequate | 6.6 | % |
| Permanent private housing units - rural - type of sanitation - total | 5,057 | housing units |
| Permanent private housing units - rural - type of sanitation - adequate | 0.5 | % |
| Permanent private housing units - rural - type of sanitation - semi-adequate | 30.6 | % |
| Permanent private housing units - rural - type of sanitation - inadequate | 68.9 | % |
| Permanent private housing units - with energy supply | 17,728 | housing units |
| Permanent private housing units - without energy supply | 853 | housing units |
| Nominal monthly per capita household income -average value - total | 390 | R$ |
| Nominal monthly per capita household income -average value - total - urban | 465 | R$ |
| Nominal monthly per capita household income -average value - total - rural | 185 | R$ |

[11] IBGE, "Acre – Summary," Available: http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#

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

Regarding wealth, gender, age, ethnicity and literacy rates of residents in the municipality of Porto Walter, the following statistics were compiled from Brazil's 2010 Census:[13]

| Porto Walter's 2010 Census | | |
|---|---|---|
| | | |
| **Description** | **Value** | **Unit** |
| Resident population - total | 9,176 | people |
| Resident population - housing unit situation - urban | 36.2 | % |
| Resident population - housing unit situation - rural | 63.8 | % |
| Resident population - sex - male | 52.2 | % |
| Resident population - sex - female | 47.8 | % |
| Resident population - total - age groups - from 0 to 5 | 19.8 | % |
| Resident population - total - age groups - from 6 to 14 | 29.4 | % |
| Resident population - total - age groups - from 15 to 24 | 18.7 | % |
| Resident population - total - age groups - from 25 to 39 | 18.7 | % |
| Resident population - total - age groups - from 40 to 59 | 10.1 | % |
| Resident population - total - age groups - aged 60 or over | 3.5 | % |
| Resident population - total - urban | 3,323 | people |
| Resident population - total - rural | 5,853 | people |
| People aged 15 or over who do not know to read or write - total | 1,598 | people |
| People aged 15 or over who do not know to read or write - rate | 34.2 | % |
| Resident population - literate | 4,537 | persons |
| Resident population - literate - men | 2,228 | persons |
| Resident population - literate - women | 2,309 | persons |
| Resident population - literate - urban | 2,202 | persons |
| Resident population - Literate - men - urban | 1,065 | persons |
| Resident population - literate - women - Urban | 1,137 | persons |
| Resident population - literate - rural | 2,335 | persons |
| Resident population - literate - men - rural | 1,163 | persons |
| Resident population - literate - women - rural | 1,172 | persons |
| Permanent private housing units - total | 1,702 | housing units |
| Permanent private housing units - type of sanitation - total - adequate | 0.4 | % |
| Permanent private housing units - type of sanitation - total - semi-adequate | 39.1 | % |
| Permanent private housing units - type of sanitation - total - inadequate | 60.5 | % |
| Permanent private housing units - urban - type of sanitation - total | 642 | housing units |
| Permanent private housing units - urban - type of sanitation - adequate | 1.1 | % |
| Permanent private housing units - urban - type of sanitation - semi-adequate | 92.1 | % |
| Permanent private housing units - urban - type of sanitation - inadequate | 6.9 | % |
| Permanent private housing units - rural - type of sanitation - total | 1,060 | housing units |
| Permanent private housing units - rural - type of sanitation - adequate | - | % |
| Permanent private housing units - rural - type of sanitation - semi-adequate | 7.1 | % |
| Permanent private housing units - rural - type of sanitation - inadequate | 92.9 | % |
| Permanent private housing units - with energy supply | 1,197 | housing units |
| Permanent private housing units - without energy supply | 505 | housing units |
| Nominal monthly per capita household income -average value - total | 198 | R$ |
| Nominal monthly per capita household income -average value - total - urban | 267 | R$ |
| Nominal monthly per capita household income -average value - total - rural | 154 | R$ |

One can observe from this 2010 Census that rural communities in Cruzeiro do Sul have low household incomes and a higher percentage of inadequate sanitation. Furthermore, rural

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

communities in Porto Walter have lower household incomes, more inadequate sanitation, and higher rates of illiteracy. While this 2010 Census is an accurate representation of rural communities living within the Project Zone, firsthand observations and a Participatory Rural Assessment (PRA) 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 (especially manioc otherwise known as yuca or cassava) and have housing located close to the Juruá or Valparaiso River. Some communities in the Project Area raise cattle. While no communities reported selling timber, many communities utilize fuelwood or propane for cooking. Many of the communities fish in the Juruá River, Valparaiso River or one of the oxbow lakes and many 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 Area, many of the communities are former extractivists (i.e., rubber tappers). In addition to being former rubber tappers, the local communities' ethnicity is further characterized by their Brazilian nationality and heritage traced to the Northeastern region of Brazil, a common language (Portuguese), along with shared religious beliefs (Catholic and Evangelical) and customs such as playing soccer, hunting, and agricultural.[14]

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

| Grand Totals (Inside Valparaiso Project and Valparaiso Project's Leakage Belt) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | How Many Years Lived Here? | Do You Participate in Agriculture (Yes = 1, No = 0) | Do You Participate in Cattle Ranching (Yes = 1, No = 0) | Do You Participate in Timber Extraction / Logging (Yes = 1, No = 0) | Do You Participate in Fuel Wood Collection (Yes = 1, No = 0) | Do You Participate in Charcoal Production (Yes = 1, No = 0) | Do You Sell Crops or Cattle Outside Property (Yes = 1, No = 0) | How Much Fuel Wood, on Average, Collected per Week? |
| Average | 27.6 | N/A | N/A | N/A | N/A | N/A | N/A | 0.5 |
| Total of Yes Responses | N/A | 36 | 10 | 31 | 32 | 0 | 35 | N/A |
| Total of No Responses | N/A | 0 | 26 | 5 | 4 | 36 | 1 | N/A |
| Percentage of Yes Responses | N/A | 100.00% | 27.78% | 86.11% | 88.89% | 0.00% | 97.22% | N/A |
| Percentage of No Responses | N/A | 0.00% | 72.22% | 13.89% | 11.11% | 100.00% | 2.78% | N/A |
| Number Over 5 Years | 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Percentage Over 5 Years | 94.44% | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | | | | | | | | |
| | Do You Use Fuel Wood for Cooking (Yes = 1, No = 0) | Do You Have a Sustainable Fuel Wood Lot (Yes = 1, No = 0) | Do You Make Charcoal (Yes = 1, No = 0) | Do You Sell Charcoal (Yes = 1, No = 0) | Do You Sell Timber (Yes = 1, No = 0) | How Far into Forest Do You Go to Collect Construction Timber? (In Meters) | How Many Meters Away From House do You Collect Fuel Wood? | How Much Fuel Wood, on Average, Collected per Year? |
| Average | 31 | 0 | 0 | 0 | 1 | 84,350 | 14,250 | 313.5 |
| Total of Yes Responses | N/A | N/A | N/A | N/A | N/A | 2,343.1 | 459.7 | 22.4 |
| Total of No Responses | 31 | 0 | 0 | 0 | 1 | N/A | N/A | N/A |
| Percentage of Yes Responses | 5 | 36 | 36 | 36 | 35 | N/A | N/A | N/A |
| Percentage of No Responses | 86.11% | 0.00% | 0.00% | 0.00% | 2.78% | N/A | N/A | N/A |
| Number Over 5 Years | 13.89% | 100.00% | 100.00% | 100.00% | 97.22% | N/A | N/A | N/A |
| Percentage Over 5 Years | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Figure 2: Aggregated Results of Participatory Rural Assessment (Credit: Brian McFarland)*

[14] This information on ethnicity was provided by Ilderlei Souza Rodrigues Cordeiro (owner of Russas Project and manager of Valparaiso Project) and Marmude Dene de Carvalho (local Project manager for Russas Project) based off their historical knowledge and conversations with the local communities.

More specific to the Valparaiso Project, there are approximately 35 families living within the Project Area and many of these community members have been at their location for close to thirty years. In addition to mitigating deforestation pressures, Manoel Batista Lopes, ME will seek to increase local household incomes and improve sanitation conditions (e.g., health and dental clinic).

*Description of Current Land Use and Customary and Legal Property Rights*
The State of Acre has a variety of land-use and property rights including: Indigenous and Extractive Reserves; State and Federal Protected Areas; and Private Lands. According to the State Government of Acre, the status of Acre's forests is as follows:

- Original forest area (pre-human disturbance): 164,221 km² (100%)
- Fully protected forests (strict use): 16,159km² (9.8%). This is further subdivided as:
  - Federal: 9,205 $km^2$ (5.6%)
  - State: 6,954km² (4.2%)
- Conserved forests (managed by traditional or indigenous peoples): 50,245 km² (30.6%)
  - These federally-owned conserved forests are subdivided as:
    - Extractive Reserve: 27,043 km² (16.5%)
    - Indigenous Territories: 23,202m² (14.1%)
- Sustainably managed forests: 15,708 km² (9.6%). This is further subdivided as:
  - Federal
    - National Forests: 9,923 km² (6%)
  - State
    - State Forests: 5,524 km² (3.4%)
    - Private areas licensed for timber management: 260 km²
- Forests without protection: 89,241.88 km² (54.3%)[15]

The Valparaiso Project is on forested, privately-owned land.

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. According to Brazilian law, there are three applicable laws which relate to this customary and legal property rights situation:

- Brazilian Federal Constitution,[16] passed on October 5th, 1988
- Brazilian Civil Code,[17] which is the Federal Law 10406, passed on January 10th, 2002
- Brazilian Civil Procedure Code,[18] which is the Federal Law 5869, passed on January 11th, 1973

[15] 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 1
[16] Presidency of the Republic, "CONSTITUIÇÃO DA REPÚBLICA FEDERATIVA DO BRASIL DE 1988," Available: http://www.planalto.gov.br/ccivil_03/Constituicao/Constituicao.htm
[17] Presidency of the Republic, "LEI Nº 10.406, DE 10 DE JANEIRO DE 2002.," Available: http://www.planalto.gov.br/ccivil_03/Leis/2002/L10406.htm
[18] Presidency of the Republic, "LEI Nº 5.869, DE 11 DE JANEIRO DE 1973.," Available: http://www.planalto.gov.br/ccivil_03/Leis/L5869.htm

In Brazil, the law requires that the acquisition of land is made by a title (i.e., a contract) and by registration. Thus if you want to buy an area of land, you need to have a title (i.e., a contract with the landowner) and then you need to register your title at the public service of land registration (i.e., called the "Cartório de Imóveis"). As stated in Article 1245 of the Civil Code, if you only have the title (i.e., the contract) and do not register it, then by the law you are not the owner of the land. However, if you have the unregistered contract and you are in possession of the land, the law refers to you as "good-faith possessor."

It is important to note that Brazilian regulation treats small lands differently than larger ones as there is the "special usucaption" and the "regular usucaption." The law requires a smaller period of time for usucaption of rural lands on fifty hectares or less, than it requires for usucaption of rural lands above fifty hectares. The Federal Constitution establishes the "special usucaption" stating in Article 191 that, "the one that, not being owner of agricultural or urban property, possesses as itself, per five years uninterrupted, without opposition, land area in rural area, not more than fifty hectares, making it productive by his work or by his family's work, and living in there, will acquire its ownership." The Civil Code, in Article 1239, repeats what the Constitution states about usucaption of rural lands not above fifty hectares.

For the usucaption of lands above fifty hectares, or even for those who possess less than fifty hectares but do not fulfill the other requirements of the "special usucaption," the applicable usucaption is the "regular usucaption," which is applicable to every kind of land (i.e., rural or urban lands and no matter their size).

The "regular usucaption" is established by the Civil Code, Article 1238. Essentially, it requires different periods of time, depending on what the possessor does on the land. The beginning of Article 1238 states: "The one that, per fifteen years without interruption or opposition, possesses as itself a land will acquire its ownership, independently of title and good-faith; and may require to a judge to declare it by sentence, which will serve as title to register the ownership at the public service of land registration." However, Article 1238 also states that "the period of time required in this Article will be reduced to ten years if the possessor has established his habitual house or have made the land productive." Furthermore, Article 1242 states that "acquires the landownership the one that, without contestation, with title and good-faith, possesses the land per ten years."

With respect to the communities living on the Valparaiso Project, nobody in the community has title or good-faith possession, because none of them bought the land from the Landowner Manoel Batista Lopes. Thus, Article 1242 is not applicable.

The one who possesses land of not more than fifty hectares, lives there for five years, makes the land productive (e.g., by growing agriculture or raising animals) and who do not own any other land (rural or urban) has the right to be titled. The one who possesses a land, not more than fifty hectares but does not fill the requirements for the "special usucaption," along with the one who possesses land above fifty hectares, they also have the right to be titled if the possession is at least fifteen years. In this same case, if the possessor is living on the land or makes the land productive (e.g., by growing agriculture or raising animals), the required period of possession is reduced to ten years. The right to be titled is stated in the law, but it is only possible after a judge

declares this right in a sentence after a procedure. As previously mentioned, to acquire a property in Brazil you have to have both title and registration. Thus even if you have possession for twenty years, you do not have ownership of the land yet. In this case, you will still have to ask a judge to declare your right in court, so you will have the title (i.e., sentence = title, in this case). After that, you will have to take the sentence of the judge and register in the public service of land registration. Then you are the official owner of the land by usucaption.

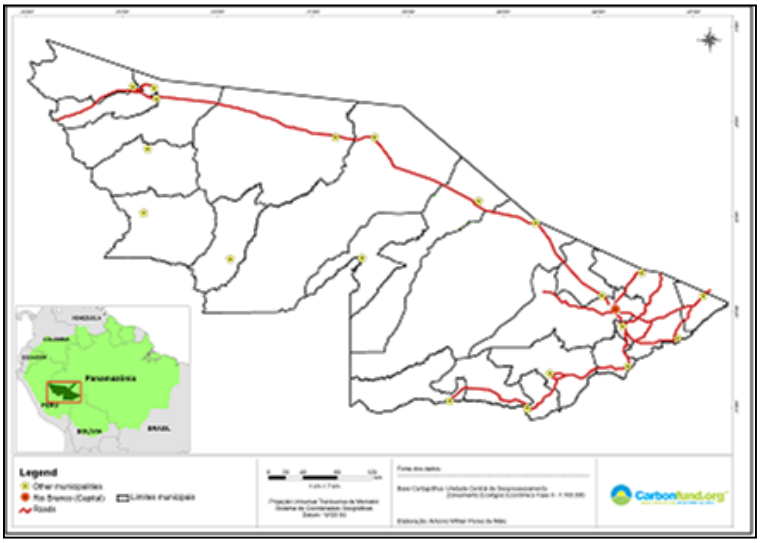
Community members that have been living on the land and who made the land productive (e.g., by growing agriculture or raising animals) for ten years, have the right to be titled. To resolve this ongoing conflict or dispute, Manoel Batista Lopes, ME will voluntarily recognize whatever area is currently deforested and under productive use by each family living. All communities - whether they voluntarily join the Valparaiso Project or not - will be titled the land they have put under productive use. If necessary, this process will be facilitated by an independent group.

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

*Pictures of Land Use in Valparaiso Project Zone (Photo Credit: Brian McFarland)*

The main subsistence crop is manioc (i.e., otherwise known as yuca or cassava). Additional subsistence crops and fruit trees which are planted throughout the Project Zone include, but are not limited to: bananas, beans, corn, papaya, rice, sugarcane, and watermelons.

Throughout the State of Acre, private land use practices - particularly properties located along the highways BR-364 and BR-317and the road Ramal 3 - are predominantly medium-to-large cattle ranches. Highway BR-364 runs Northwest through Rio Branco along Acre's Northern border with the State of Amazonas, while Highway BR-317 runs through Rio Branco and heads Southwest. Ramal 3 runs South from BR-364 towards the Project Zone.




*Map 7: Major Highways in Acre State*
*(Credit: Professor Antonio Flores and Data from State of Acre's Climate Change Institute)*

*Land Use along Highways BR-364 and BR-317 (Photo Credit: Brian McFarland)*

Additional private land use practices in Acre include commercial agriculture, such as sugarcane:

*Sugar Cane along Highway BR-317 (Photo Credit: Brian McFarland)*

*Expansion of Ramal 3 and Adjacent Cattle Ranches (Photo Credit: Brian McFarland)*

## G1.7-8. 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 1/3rd 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.

While still providing refuge to 30,000 endemic plants and hundreds of indigenous communities and forest-dependent communities, the Amazon is facing threats from infrastructure development projects (e.g., road construction and paving, power plants, etc.), cattle ranches, slash-and-burn agriculture, and commercial agriculture (i.e., particularly sugarcane, soybeans, coffee, and oranges).[19]

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 Landowner/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.[20]

The Valparaiso Project 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 the road called "Ramal 3" near the Project Zone. There is increasing migration into the Project Zone and there are also large, industrial cattle ranches approaching the Project Zone.

Regional studies in the Southwestern Amazon and particularly within the Juruá River Basin 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

[19] Conservation International, "Brazil," Available: http://www.conservation.org/where/south_america/brazil/pages/brazil.aspx

[20] 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

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).[21] 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 is the Amazon Basin's center of diversity for palms (Henderson 1995).[22] 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).[23] 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).[24] 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.

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[21] Daly, D. C. & J. D. Mitchell 2000, "Lowland vegetation of tropical South America – an overview," Available: http://ibcperu.org/doc/isis/8004.pdf

[22] Henderson, A. 1995. *The palms of the Amazon*. Oxford University Press, New York.

[23] Peres, C. A. 1999. The structure of nonvolant mammal communities in different Amazonian forest types. Pages 564-581 in J. F. Eisenberg and K. H. Redford, editors, Mammals of the Neotropics: the Central Neotropics. Chicago: University of Chicago Press.

[24] Ergueta S.P., and J. Sarmiento. 1992. Fauna silvestre de Bolivia: diversidad y conservación. Pages 113-163 in M. Marconi, editor, Conservación de la Diversidad Biológica en Bolivia. La Paz, Bolivia: CDC-Boliva and USAID.

> In the region of Manu, 68 species of reptiles and 68 species of amphibians have been reported for the lowland areas while 113 species of amphibians and 118 species of reptiles are reported from Madre de Dios, including the rare and interesting pit-vipers (*Bothriopsis bilineata*, *Bothrops brazili*), and frogs such as *Dendrophidion* sp., *Rhadinaea occipitalis*, and *Xenopholis scalaris* (Pacheco and Vivar 1996). [25,26]

The location closest to the Project Zone with extensive biodiversity studies is the Serra do Divisor National Park, which is located along the Brazil-Peru border in the Jurua River Basin and approximately 60 kilometers from the Project Zone. One such study collected 366 wasps "representing 40 genera and 85 species {of which} some collected species were considered rare and about 65% of species were exclusive to only one site."[27] In addition, numerous primates have been identified in the National Park, including IUCN Red Listed species, such as:

- *Alouatta seniculus*
- *Aotus nigriceps*
- *Ateles chamek (Endangered)*
- *Cacajao calvus*
- *Callicebus caligatus*
- *Callicebus cupreus*
- *Callimico goeldii (Threatened)*
- *Cebus albifrons*
- *Cebus apella*
- *Lagothrix lagotricha (Vulnerable)*
- *Pithecia irrorata*
- *Pithecia monachus*
- *Saguinus fuscicollis*
- Saguinus imperator
- *Saguinus mystax*
- *Saimiri sciureus*[28]

Please see here for a rapid biological inventory of vascular plants, fishes, amphibians and reptiles, birds, medium to large mammals, and bats which was conducted in 2005 in the Peruvian portion of the Serra do Divisor National Park by a multidisciplinary team including representatives of The Field Museum, The Nature Conservancy Peru, ProNaturaleza, and Insituto del Bien Común.

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[25] Pacheco, V., and E. Vivar. 1996. Annotated checklist of the non-flying mammals at Pakitza, Manu Reserve Zone, Manu National Park, Perú. Pages 577-592 in D. E. Wilson and A. Sandoval, editors, Manu: The Biodiversity of Southeastern Peru. Washington, DC: Smithsonian Institution.

[26] World Wildlife Fund, "Upper Amazon basin of Peru, Brazil and Bolivia - Neotropic (NT0166)," Available: http://worldwildlife.org/ecoregions/nt0166

[27] MORATO, Elder F.; AMARANTE, Sérvio Túlio and SILVEIRA, Orlando Tobias. Rapid ecological assessment of wasp fauna (Hymenoptera: Aculeata) of the Serra do Divisor National Park, Acre, Brazil. Available: http://www.scielo.br/scielo.php?pid=S0044-59672008000400025&script=sci_abstract

[28] Maria Aparecida de Oliveira Azevedo Lopes and Jennifer Alexis Rehg. "OBSERVATIONS OF CALLIMICO GOELDII WITH SAGUINUS IMPERATOR IN THE SERRA DO DIVISOR, NATIONAL PARK, ACRE, BRAZIL." Available: http://www.primate-sg.org/storage/PDF/NP11.3.callimico.imperator.pdf

Another study, which focused on mammals throughout the Juruá River, included research sites approximately 20 kilometers from the Project Zone. The researchers:

> {…} Obtained a total of 81 species of non-volant mammals for all sample sites along the Rio Juruá combined. This list includes mainly those taxa for which specimens were secured, except for primates for which Carlos Peres censused largely by observations made along standardized trail transects. Thirteen species of marsupials were taken throughout the basin, with species of at least three or four other genera probably there but missing from our samples (*Caluromysiops*, *Chironectes*, *Gracilinanus*, and *Glironia*). We caught eighteen species of sigmodontine rodents. It is possible that one of more other species might be present, such as the newly discovered *Amphinectomys* from nearby northeastern Peru {…} The Headwaters Region {near the Project Zone} contains six species not found elsewhere (*Neacomys musseri*, *Oryzomys nitidus*, *Rhipidomys gardneri*, *Dactylomys boliviensis*, *Proechimys brevicauda*, and *Proechimys pattoni*).[29]

Based off firsthand observations and conversations with local biodiversity experts – such as S.O.S Amazônia and the Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul – these regional studies accurately reflect the biodiversity within the Valparaiso Project.

*High Conservation Values*

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

*Threatened Species*

The International Union for Conservation of Nature (IUCN) has identified the following 26 species in Acre as Near Threatened, Vulnerable, Endangered, Critically Endangered and Extinct:[30]

[29] Patton et al., "Rio Juruá Mammals," pages 260-261.

[30] IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2. <www.iucnredlist.org>. Downloaded on 01 February 2012.

| | Kingdom | Species | Common Names (English) | Common Names (Spanish) | Red List Status | Year Assessed | Population Trend |
|---|---|---|---|---|---|---|---|
| 1 | ANIMALIA | subfolionidificans | | | VU | 2008 | stable |
| 2 | PLANTAE | acreana | | | VU | 1998 | |
| 3 | ANIMALIA | chamek | Black-faced Black Spider Monkey, Chamek Spider Monkey, Peruvian Black Spider Monkey | Macaco Aranha, Maquisapa, Marimono, Mono Araña | EN | 2008 | decreasing |
| 4 | PLANTAE | tessmannii | | | LR/nt | 1998 | |
| 5 | PLANTAE | excelsa | Brazil-nut Tree, Para Nut | Turury | VU | 1998 | |
| 6 | ANIMALIA | goeldii | Goeldis Monkey, Callimico, Goeldi's Marmoset, Goeldi's Monkey, Goeldi's Tamarin | Chichilo, Marimonito, Mico-de-goeldii, Mono Goeldi, Mono Negro, Pichico Negro, Tití De Goeldi | VU | 2008 | decreasing |
| 7 | PLANTAE | acreanum | | | VU | 1998 | |
| 8 | PLANTAE | ovale | | | LR/nt | 1998 | |
| 9 | PLANTAE | guianensis | Fine-leaf Wadara | Cachimbo, Cachimbo Caspi, Capa De Tabaco, Coco Cabuyo | VU | 1998 | |
| 10 | PLANTAE | prancei | | | CR | 1998 | |
| 11 | PLANTAE | punctata | | | LR/nt | 1998 | |
| 12 | PLANTAE | ramiflora | | Renaquinho | EN | 1998 | |
| 13 | PLANTAE | ursina | | Coajinguba | EN | 1998 | |
| 14 | PLANTAE | juglandiformis | | | VU | 1998 | |
| 15 | ANIMALIA | cana | Geoffroy's/Peruvian Woolly Monkey, Geoffroy's Woolly Monkey | | EN | 2008 | decreasing |
| 16 | ANIMALIA | poeppigii | Poeppig's Woolly Monkey, Red Woolly Monkey, Silvery Woolly Monkey | Macaco Barrigudo, Mono Barrigudo | VU | 2008 | decreasing |
| 17 | PLANTAE | krukovii | | | VU | 1998 | |
| 18 | PLANTAE | atroviolacea | | | LR/nt | 1998 | |
| 19 | PLANTAE | longistipulata | | | VU | 1998 | |
| 20 | PLANTAE | calcarata | | | EN | 1998 | |
| 21 | PLANTAE | vestitus | | | VU | 1998 | |
| 22 | PLANTAE | macrophylla | Big-leaf Mahogany, Bigleaf Mahogany, Big Leaf Mahogany, Brazilian Mahogany, Honduras Mahogany, Large-leaved Mahogany | Caoba, Mara, Mogno | VU | 1998 | |
| 23 | PLANTAE | elsae | | | EN | 1998 | |
| 24 | PLANTAE | emarginata | | | VU | 1998 | |
| 25 | PLANTAE | fasciculata | | | VU | 1998 | |
| 26 | PLANTAE | poeppigiana | | | NT | 2010 | decreasing |

*Endemic Species*

Although endemic species have not yet been identified in the Valparaiso Project as a qualifying High Conservation Value, it is important to note that the Southwestern Amazon (i.e., which includes Acre, Brazil and the Valparaiso Project) is home to many endemic species. According to the World Wildlife Fund, there are approximately 42 endemic species in the Southwestern Amazon[31]:

[31] World Wildlife Fund, "Southwest Amazon moist forests: Export Species," Available: http://www.worldwildlife.org/science/wildfinder/

| | Common Name | Scientific Name | Class | Endemic |
|---|---|---|---|---|
| 1 | Eleutherodactylus skydmainos | Eleutherodactylus skydmainos | Amphibia | Yes |
| 2 | Eleutherodactylus buccinator | Eleutherodactylus buccinator | Amphibia | Yes |
| 3 | Manu Poison Frog | Epipedobates macero | Amphibia | Yes |
| 4 | Altigius alios | Altigius alios | Amphibia | Yes |
| 5 | Ruthven's Burrowing Snake | Apostolepis tenuis | Reptilia | Yes |
| 6 | Gray Wren | Thryothorus griseus | Aves | Yes |
| 7 | Peru Keelback | Helicops yacu | Reptilia | Yes |
| 8 | Peru Burrowing Snake | Apostolepis nigroterminata | Reptilia | Yes |
| 9 | Peruvian Fish-eating Rat | Neusticomys peruviensis | Mammalia | Yes |
| 10 | Stenocercus scapularis | Stenocercus scapularis | Reptilia | Yes |
| 11 | Scinax parkeri | Scinax parkeri | Amphibia | Yes |
| 12 | Neusticurus ocellatus | Neusticurus ocellatus | Reptilia | Yes |
| 13 | Neusticurus juruazensis | Neusticurus juruazensis | Reptilia | Yes |
| 14 | Scinax icterica | Scinax icterica | Amphibia | Yes |
| 15 | Black-headed Ground Snake | Atractus nigricaudus | Reptilia | Yes |
| 16 | Scarlet-hooded Barbet | Eubucco tucinkae | Aves | Yes |
| 17 | Selva Cacique | Cacicus koepckeae | Aves | Yes |
| 18 | Black-faced Cotinga | Conioptilon mcilhennyi | Aves | Yes |
| 19 | Rufous-fronted Antthrush | Formicarius rufifrons | Aves | Yes |
| 20 | Bolivian Recurvebill | Simoxenops striatus | Aves | Yes |
| 21 | Bolivian Lancehead | Bothrops sanctaecrucis | Reptilia | Yes |
| 22 | Black-backed Tody-Flycatcher | Todirostrum pulchellum | Aves | Yes |
| 23 | Leptodactylus didymus | Leptodactylus didymus | Amphibia | Yes |
| 24 | Hyla walfordi | Hyla walfordi | Amphibia | Yes |
| 25 | Micronycteris matses | Micronycteris matses | Mammalia | Yes |
| 26 | Pearson's Slender-legged Treefrog | Osteocephalus pearsoni | Amphibia | Yes |
| 27 | Para Toad | Bufo castaneoticus | Amphibia | Yes |
| 28 | Amazonian Parrotlet | Nannopsittaca dachilleae | Aves | Yes |
| 29 | Elusive Antpitta | Grallaria eludens | Aves | Yes |
| 30 | Fine-barred Piculet | Picumnus subtilis | Aves | Yes |
| 31 | Odd Anole | Anolis dissimilis | Reptilia | Yes |
| 32 | Cuzco Reserve Treefrog | Hyla allenorum | Amphibia | Yes |
| 33 | Epipedobates simulans | Epipedobates simulans | Amphibia | Yes |
| 34 | Anolis scapularis | Anolis scapularis | Reptilia | Yes |
| 35 | Long-crested Pygmy-Tyrant | Lophotriccus eulophotes | Aves | Yes |
| 36 | White-lined Antbird | Percnostola lophotes | Aves | Yes |
| 37 | Black Mabuya | Mabuya nigropalmata | Reptilia | Yes |
| 38 | Villa Tunari Caecilian | Caecilia marcusi | Amphibia | Yes |
| 39 | Henle's Snouted Treefrog | Scinax pedromedinai | Amphibia | Yes |
| 40 | Biolat Poison Frog | Dendrobates biolat | Amphibia | Yes |
| 41 | Ucayali Spiny Mouse | Scolomys ucayalensis | Mammalia | Yes |
| 42 | Goeldi's Antbird | Myrmeciza goeldii | Aves | Yes |

*Threatened and Rare Ecosystems*

Tropical rainforests are globally considered rare and threatened ecosystems. Likewise according to The Nature Conservancy, only 2% of the world's total surface area is home to rainforests. Rainforests are home to 50% of the world's plant and animals, yet "every second, a slice of rainforest the size of a football field is mowed down. That's 86,400 football fields of rainforest

per day, or over 31 million football fields of rainforest each year."[32] Furthermore, the Project Zone is within the World Wildlife Fund's (WWF) ecoregions. As described by WWF, "ecoregions that represented the most distinctive examples of biodiversity for a given major habitat type were identified within each biogeographic realm. They were chosen based on the following parameters:

- Species richness
- Endemism
- Higher taxonomic uniqueness (e.g., unique genera or families, relict species or communities, primitive lineages)
- Extraordinary ecological or evolutionary phenomena (e.g., extraordinary adaptive radiations, intact large vertebrate assemblages, presence of migrations of large vertebrates)
- Global rarity of the major habitat type"[33]

One of these rare and threatened global ecoregions is the Southwestern Amazon moist forest and more specifically, "this Global ecoregion is made up of 4 terrestrial ecoregions: Juruá-Purus moist forests; Southwest Amazon moist forests; Purus-Madeira moist forests; and Madeira-Tapajós moist forests"[34] which encompasses the Project Zone.

The primary forests of the Valparaiso Project are considered tropical rainforests due to the Köppen classification of Acre as tropical[35] and the Food and Agricultural Organization of the United Nations' (FAO) designation of Acre as being within the tropical rainforest ecological zone.[36] Thus as a payment for ecosystem services forest conservation project, the Valparaiso 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 Valparaiso 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
- 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

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[32] The Nature Conservancy, "Rainforests: Facts About Rainforests," Available: http://www.nature.org/ourinitiatives/urgentissues/rainforests/rainforests-facts.xml

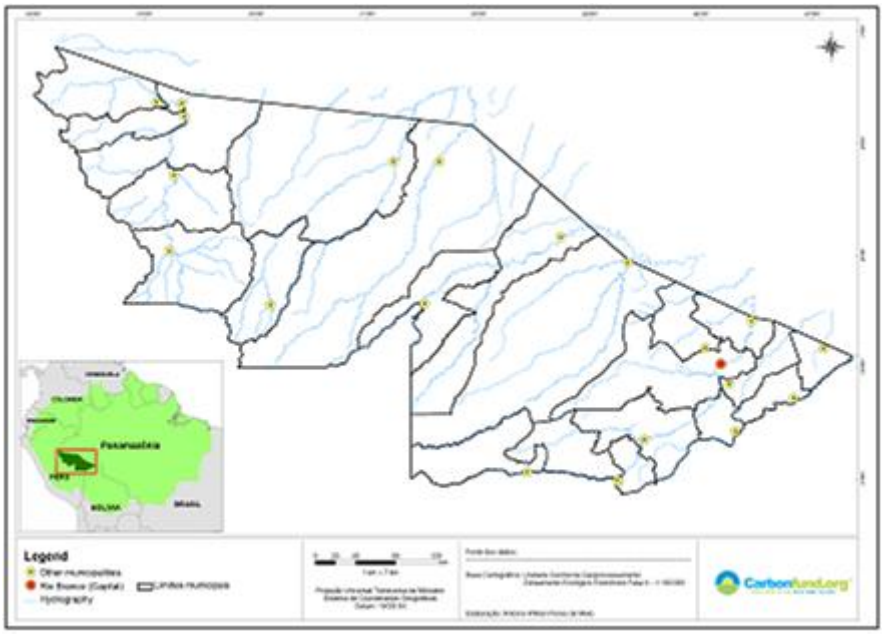
[33] WWF, "Role of the Global Ecoregions and how they are selected," Available: http://wwf.panda.org/about_our_earth/ecoregions/about/role/

[34] WWF, "Southwestern Amazon Moist Forests," Available: http://wwf.panda.org/about_our_earth/ecoregions/swamazon_moist_forests.cfm

[35] Peel MC, Finlayson BL & McMahon TA (2007), Updated world map of the Köppen-Geiger climate classification, Hydrol. Earth Syst. Sci., 11, 1633-1644.

[36] FAO, "Ecological Zones: Brazil," Available: http://www.fao.org/forestry/country/19971/en/bra/

*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."[37]




*Map 8: Major Rivers in Acre State*
*(Credit: Professor Antonio Flores and Data from State of Acre's Climate Change Institute)*

As previously mentioned, the Valparaiso Project is adjacent to the Juruá River.

*Fundamental for Meeting Basic Needs of Local Communities*
The local communities are also dependent on the Valparaiso Project to meet basic needs as well as for traditional cultural identity. This said, the Valparaiso Project's private Landowner has allowed the community members to remain on his property in exchange for participating in the Valparaiso Project and agreeing to eliminate deforestation.

*Food*
Communities within the Valparaiso Project are also dependent on both the Valparaiso River and the Juruá River for fishing, as well as lakes that are created during floods when the rivers' course changes (i.e., known as oxbow lakes). There are three oxbow lakes on the Valparaiso Project, called the "white lake," "the behind the barn lake," and the "cinnamon lake".

Many of the communities own fishing poles or fishing nets. Common fish species (names are mainly in Portuguese) caught by the communities include:

[37] State Government of Acre Portal, "Geographic Data,"

River fish such as:

- “American sardines”
- Casudo
- Curimata (biggest and most expensive)
- Mandim (one of the tastiest)
- Mocinha
- Pacu
- Peixe prato
- Piau
- Surubim
- Tambaqui (one of tastiest and best to sell)

Lake fish such as:

- Cara
- Pirarucu
- Traira

Depending on where the communities live, some communities are also dependent on the Juruá River and/or Valparaiso Rivers for drinking water, cooking water, bathing, and as the primary mode of transportation. Some communities have wells, while other communities harvest water from local streams if they live further away from the main river.

The communities rely on the forests of the Valparaiso Project for fruits, nuts and oils in addition to growing their own subsistence crops and planting fruit trees (orange, tangerine, lemon, pineapple and bananas). Such fruits, nuts, and oils include açaí (communities use whole tree including the berries), bacaca (communities make oil from seeds and juice from berries), buriti (communities use leaves and there is an edible nut) and unha de gato (plant is used for cooking).

The communities depend on the forests for protein to supplement fishing and hunt the following animals, whose names are mainly in Portuguese:

*Birds*

- Inambú
- Jacamim
- Jacu
- Papagaio

*Mammals*

- Anta (related to capybara)
- Armadillo
- Cutia
- Macaco (monkey)
- Paca
- Porcão (wild boar)
- Viado (deer)

- Warthog

*Reptiles*

- Jacaré (alligator)
- Tracajá (turtle)

*Fuel and Fodder*

The community depends on the forests for both fuel and fodder. The communities mainly use propane gas and fuelwood for cooking purposes. 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 Project Area for fodder.

*Medicines*

The local communities use a variety of medicinal plants found within the Valparaiso Project property including:

- Alvarisco: This plant is for coughing, flu-like symptoms.
- Andiroba: This plant is an anti-inflammatory.
- Canjiru: This plant helps with digestion.
- Capim santo: This plant is for overall good health
- Copaíba: This plant is an anti-inflammatory.
- Darco roxo: A tea is made from the bark to ease pain.
- Espra ai: This bush helps with prostate and intestinal infections.
- Hortela: This plant helps with flu-like symptoms.
- Jatobá: This plant helps anemia by increasing red blood cells.
- Mastruz: This plant is used as an antibiotic.

*Building Materials*

The building materials used for the communities' houses are mainly made of wood from the surrounding forests.

*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 Valparaiso Project have lived at the current location for almost thirty 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 Valparaiso Project was not implemented as an ecosystem services forest conservation project (i.e., REDD+ project).

**G2.1-2. 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 Valparaiso Project utilized the Avoided Deforestation Partners' VCS REDD Methodology, entitled, "VM0007: REDD Methodology Modules (REDD-MF), v1.3." Ultimately, the most likely 'without project' scenario for the Valparaiso Project is the continuation of unplanned, frontier deforestation as opposed to planned deforestation by the Landowner or the Landowner providing project activities in the absence of a validated and verified REDD+ project.

According to the Food and Agriculture Organization of the United Nations, Brazil had the largest area of forest loss over the years 2000 to 2010:

**Top 5 Forest Cover Annual Change Rates: 2000-2010 (Hectares and Acres)**[38]

| | Country | Annual Change Rate 2000-2010 (Hectares) | Annual Change Rate 2000-2010 (Acres) |
|---|---|---|---|
| **1** | Brazil | -2,642,000 | -6,525,740 |
| **2** | Australia | -562,000 | -1,388,140 |
| **3** | Indonesia | -498,000 | -1,230,060 |
| **4** | Nigeria | -410,000 | -1,012,700 |
| **5** | Tanzania | -403,000 | -995,410 |

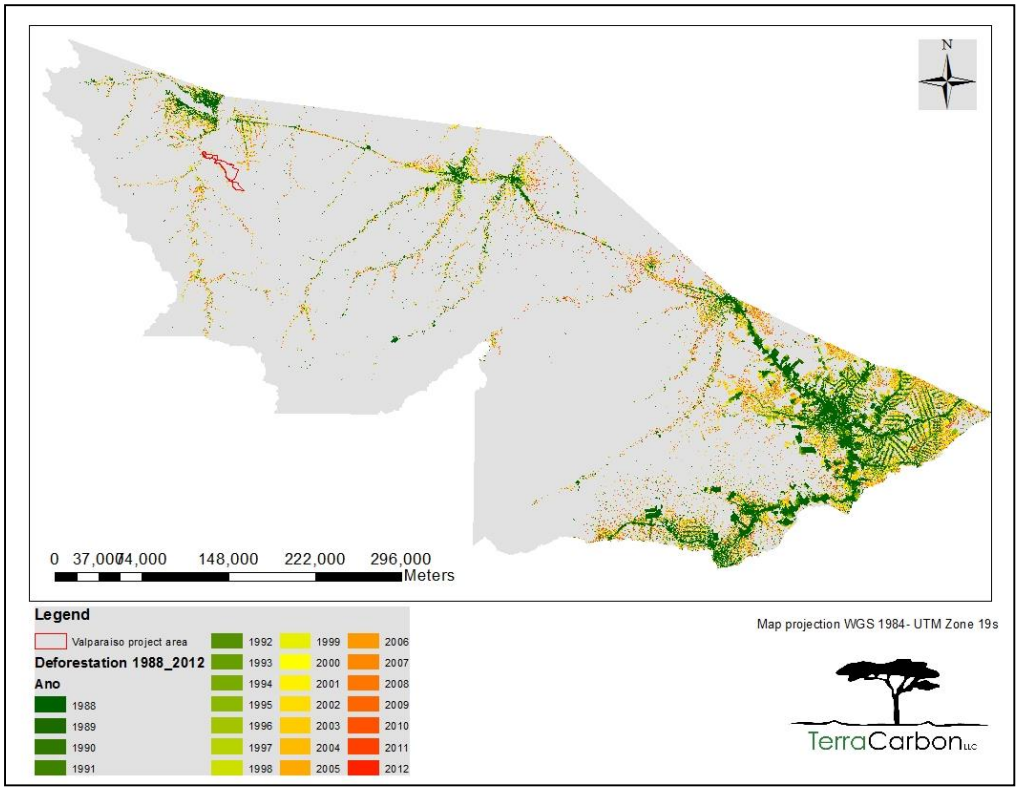
More specifically, the following are the annual deforestation rates for the state of Acre, along with the nearby Brazilian states of Amazonas and Rondônia:

**Annual Rates of Deforestation (Square Kilometers per Year)**[39]

| States | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| Acre | 521 | 545 | 256 | 495 | 203 |
| Amazonas | 1,673 | 1,306 | 1,115 | 1,535 | 917 |
| Rondônia | 2,820 | 2,316 | 1,835 | 1,025 | 346 |

[38] Food and Agriculture Organization of the United Nations, "State of the World's Forests 2011, Annex, Table 2: Forest area and area change," Available: http://www.fao.org/docrep/013/i2000e/i2000e05.pdf.

[39] Imazon.org, "Deforestation and forest degradation in the Amazon Biome," Available: http://www.imazon.org.br/publications/other-publications/deforestation-and-forest-degradation-in-the-amazon-biome-1




*Map 9: Deforestation in Acre State*
*(Credit: TerraCarbon and Data from State of Acre's Climate Change Institute)*

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

*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 and the Ramal 3 road is the conversion of primary forests to cattle pastures. The pressure on the Valparaiso Project is increasing with each passing year as BR-364 and Ramal 3 are nearing the completion of their paving schedules. Upon being fully paved, BR-364 and Ramal 3 will allow for year-round transportation and most likely increase property values and market access for landowners' cattle. Although this is a possible land-use scenario in the 'without project' scenario, this is not the most likely scenario for the Valparaiso Project.

Manoel Batista Lopes ("Manoel") bought the larger parcel of the Valparaiso Project (the parcel which is adjacent to the Valparaiso River and on the opposite bank of the Russas Project) in 1985. Manoel then bought the other, smaller parcel of the Valparaiso Project in 1986. Manoel always worked in rubber tapping, but historically leased the land until he purchased the two parcels of the Valparaiso Project as the sole owner for the purpose of rubber tapping.

From 1985 to 2005, Manoel lived on the property where he raised lamb, had approximately 30 head of cattle, and grew crops such as rice, manioc and corn. Manoel also had a little market, which still exists today, that sold goods to local families.

In 1988, Manoel received a large loan from the Bank of Amazonia to finance rubber plantations on the property. With such financing, Manoel planted approximately 18,000 rubber trees in 1988. These rubber trees were an experiment by EMBRAPA and INCRA (Instituto Nacional de Colonização e Reforma Agrária or National Institute of Colonization and Agrarian Reform), but the trees never produced rubber. The Bank of Amazonia forgave the loan and shortly thereafter, the price of rubber crashed.

There was a wood management study conducted from 2002-2003 and this study was taken to the Brazilian Institute of Environment and Renewable Natural Resources (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis or IBAMA in Portuguese) for approval.

Manoel then moved to Cruzeiro do Sul in 2005, where he currently resides now that he is retired.

Without a payment for ecosystem services forest conservation project, Manoel would continue to pay taxes on his property without generating any economic returns unless planned forest conversion took place or if he sold the property. If forest conversion took place, the Valparaiso Project's biodiversity would surely be reduced and the communities' might be forced to relocate.

Even if planned forest conversion by the Landowner did not take place, there would still be increasing pressure on the Valparaiso 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 unsustainable subsistence agriculture, while surrounding communities encroached on the Project Area and in-migration continued.

Another possible, but unlikely, 'without project' land-use scenario would be for the Landowner to provide project activities to the communities without developing and registering the Project as a validated and verified REDD+ Project. The lack of economic returns in the 'without project' scenario would result in the Landowner's inability to provide a range of social projects (e.g., establish health clinic) for the communities along with an inability to research the Valparaiso Project's biodiversity (see Section, *G3. Project Design and Goals*, Subsection *2. Major Activities*). This is because 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 Valparaiso Project's additionality, please also see the VCS Project Description.

### G2.3. Carbon Stock Exchanges without Project

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

For the estimated 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. In addition, the VCS Project Description will also include an analysis of the relevant drivers and rates of deforestation and justification of the approaches, assumptions, and data used to perform this carbon stock analysis.

### G2.4. 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 Valparaiso 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 to Cruzeiro do Sul.

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 Valparaiso Project and the communities would either need to relocate to a new patch of forest (i.e., most likely alongside the Juruá River or Valparaiso River) or move to a city such as Cruzeiro do Sul or possibly Porto Walter.

*Water and Soil*

If the Landowner, 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
- Without water absorption by trees, pools of water left behind in open pastures could increase mosquito population and insect-borne diseases such as yellow fever and malaria
- Increased water runoff, due to less roots, could increase topsoil runoff and contribute to the further erosion of river banks
- Increased runoff could damage local fishing grounds (i.e., soil settles on eggs, disrupts photosynthesis process of water plants and algae which are sources of fish food)
- Additional debris from clear-cut could be swept into the river causing increased challenges of boat transportation
- Less agriculturally productive soils due to the loss of nutrients embedded in the tropical rainforest ecosystem along with the loss of soil microbes

*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 Valparaiso 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.

### G2.5. 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 Valparaiso 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 Landowner allowed for the continuation of unplanned, frontier deforestation, the resulting open cattle pastures and cropland 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 of the Valparaiso Project.

*Threatened Species*
There potentially are several threatened flora and fauna species in the Project Area. If the Valparaiso Project were converted to cattle pasture and cropland via unplanned frontier deforestation, these particular threatened species would likely disappear from the Valparaiso 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 (IUCN). 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 Valparaiso Project will be 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 Valparaiso Project. The Valparaiso Project has been designed to minimize risks, engage local participation, and promote the highest level of transparency.

### G3.1. Scope and Project Goals

*Provide a Summary of the Project's Major Climate, Community and Biodiversity Objectives*
The overarching objective of the Valparaiso 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.

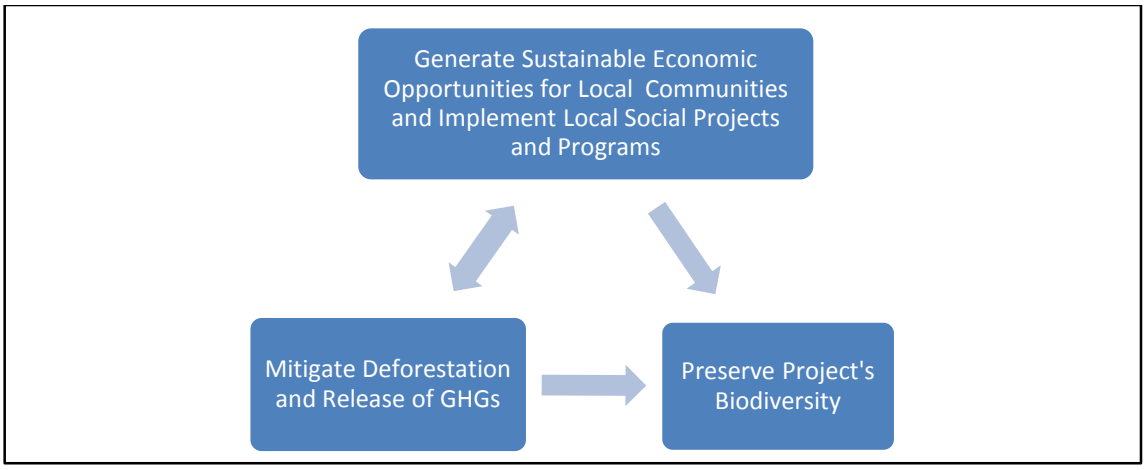



*Figure 3: Model of Relationships between Major Climate, Community and Biodiversity Objectives*

By mitigating deforestation, payments for ecosystem services will be generated which will enable the 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 have been identified by the Project Proponents.

*Major Climate Objective*
To mitigate deforestation and reduce the amount of greenhouse gas (GHG) emissions, the Project Proponents have undertaken, or will undertake in the future, 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 Valparaiso 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 Valparaiso 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

**G3.2. 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 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 addressing the underlying deforestation drivers to mitigate the release of GHGs with a plan for ongoing monitoring.

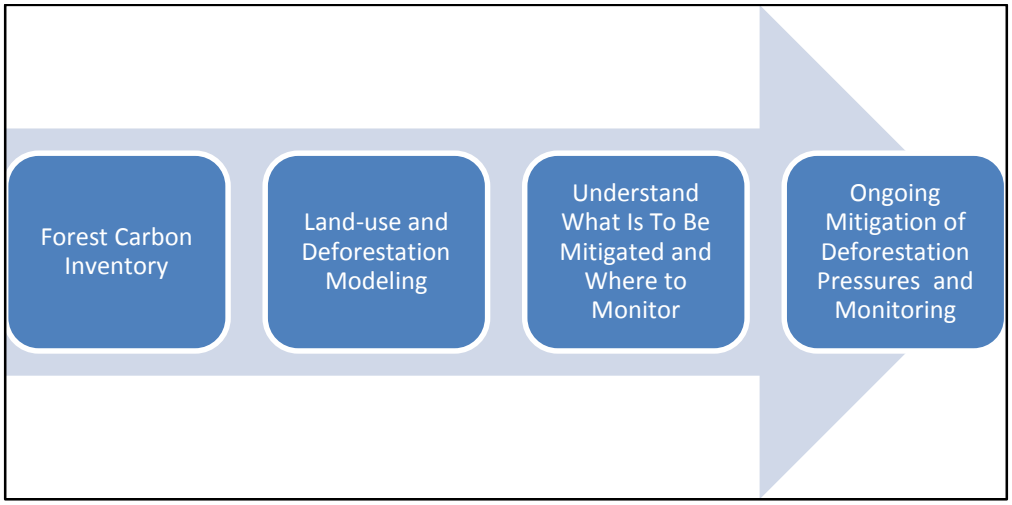


*Figure 4: Major Project Activities to Achieve Major Climate Objective*

*Forest Carbon Inventory*
A 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 carbon stocks on the Valparaiso Project. Furthermore, 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. For a more detailed discussion, please see the VCS Project Description.

*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. This regional land-use and deforestation modeling was conducted by TerraCarbon and reviewed by Professor Antonio Flores from the Federal University of Acre. Again for a more detailed discussion, please see the VCS Project Description.

*Address Underlying Deforestation Drivers to Mitigate Release of GHGs*
While understanding the Valparaiso Project's carbon stocks and deforestation scenario, the Project Proponents are now beginning 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 boat as well as from the State of Acre's satellite imagery (See *Social Projects and Programs* within this section).

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 Valparaiso 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.

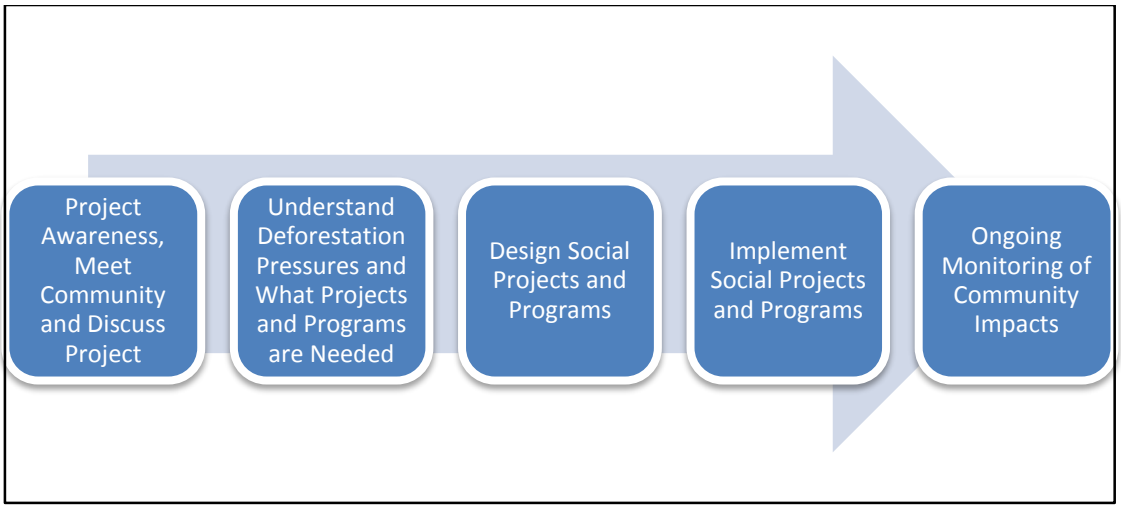



*Figure 5: Major Project Activities to Achieve Major Community Objective*

*Project Awareness, Meet Community and Discuss Project*

The communities are an essential component of the Valparaiso Project and likewise, it has been absolutely necessary to openly and frequently discuss the Project with the communities. This includes discussions around:

- The Project Proponents roles (i.e., especially Manoel Batista Lopes, ME and Ilderlei Souza Rodrigues Cordeiro) and responsibilities
- What exactly is the Valparaiso Project and how long the Project will last
- Why deforestation is a problem and alternatives to slash-and-burn agriculture
- Financial benefits to practicing more sustainable and permanent forms for agriculture
- What type of social projects and programs (e.g., preventative medicine and health care services) are most relevant and useful
- What are the desired agricultural trainings that could be offered
- Grievance procedure for addressing any and all unresolved issues
- Land tenure

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.

Throughout 2011, 2012 and 2013, the Valparaiso Project was discussed in greater detail with the communities to ensure the communities were fully aware of the Valparaiso 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.

*Community Meetings at the Valparaiso Project (Photo Credit: Ilderlei Cordeiro)*

The initial community members who wanted to join the Valparaiso Project signed an "ata" on March 19, 2011 and most community members signed a follow-up "ata" from May 11-15, 2013. As of June 2013, the majority of community members residing within the Valparaiso Project have either signed the "ata" or verbally agreed to join the project, with the first community members signing an initial "ata" on March 19, 2011, the Project State Date.

*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, Manoel Batista Lopes, ME would like to further design and implement the following project activities:

- Hire Project Manager
- Initiate Patrols of Deforestation by Boat
- Initiate Training and Agricultural Extension Courses for Communities
- Create Association to Process Açaí and Manioc Flour
- Help Communities Obtain Land Tenure
- Profit-Sharing of Carbon Credits
- Establish a Headquarters
- Improve Health Center and Dental Clinic

*Hire Project Manager*
In the earlier stages of the Project, Jose Getulio Silva ("Getulio") was the initial, informal project manager whereas Getulio was responsible for talking to the local communities and informally patrolling for deforestation.

Manoel Batista Lopes, ME then partnered with Ilderlei Souza Rodrigues Cordeiro (i.e., landowner of the Russas Project located directly across from the Valparaiso Project) in April 2013 to work on the social projects and programs of the Valparaiso Project in conjunction with Ilderlei's Russas Project which is located adjacent to the Valparaiso Project.

Ilderlei will receive a share of Manoel Batista Lopes, ME's VERs in exchange for assuming the responsibility for all the social projects and programs at the Valparaiso Project. For example, this includes facilitating the agricultural extension courses, overseeing the monitoring of deforestation and local project manager, and improving the health center and dental clinic.

Ilderlei Souza Rodrigues Cordeiro will work as a partner in the Project, facilitating communication and transparency in community decisions. Ilderlei Souza Rodrigues Cordeiro lives in nearby Cruzeiro do Sul and is able to visit the Valparaiso Project communities with relative ease. Furthermore, Ilderlei Souza Rodrigues Cordeiro will be responsible for ensuring social projects are implemented, assist with the community and biodiversity monitoring plans, collaborate on the deforestation monitoring, and will communicate directly with Manoel Batista Lopes, ME.

*Initiate Patrols of Deforestation*
The initial patrols of deforestation at the Valparaiso Project started on January 8, 2012 when Manoel Batista Lopes partnered with Jose Getulio Silva ("Getulio") to act as the initial project manager and to initiate patrols of deforestation.

Although Getulio is still the informal project manager and informal patroller of deforestation, Manoel Batista Lopes, ME partnered with Ilderlei Souza Rodrigues Cordeiro in April 2013 to take over the main responsibility of patrolling for deforestation.

In the future, Manoel Batista Lopes, ME would like to hire the local community member Francisco dos Santos Silva from the Valparaiso Project to also monitor for deforestation.

If and when deforestation is identified, Ilderlei Souza Rodrigues Cordeiro and Manoel Batista Lopes, ME will immediately document and transfer this information to Carbon Securities and CarbonCo. Collectively, CarbonCo, Ilderlei Souza Rodrigues Cordeiro and Manoel Batista Lopes, ME will discuss the appropriate actions to undertake to counteract any reported deforestation.

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

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 Manoel Batista Lopes, ME and I.S.R.C to implement a variety of social projects and programs.

*Initiate Training and Agricultural Extension Courses for Communities*

The communities in and around the Valparaiso Project were surveyed from March to May, 2013 to better understand which agricultural extension training courses would be of the most interest. A total of 33 courses, ranging from rotational pasture management to organic coconuts, were offered. The following are the results, which the top ten courses highlighted in yellow:

| Overall Rank Order of Agricultural Training Courses for Russas-Valparaiso Projects (March and May 2013) | | | |
|---|---|---|---|
| | **Total of 54 Communities Surveyed (46 Inside Projects and 8 Inside Projects' Leakage Belt)* | | |
| | **Courses Highlighted in Yellow are the Courses with Overall Top-10 Interest* | | |
| | **NOME DO CURSO (Name of Course)** | **Quero este (I Want This)** | **Total Percentage (Overall)** |
| 1 | Brigada de Incêndio Florestal - Formação e Treinamento de… (Forest Fire Brigade - Education and Training…) | 54 | 100.00% |
| 2 | Educação Ambiental Infantil (Children's Environmental Education) | 54 | 100.00% |
| 3 | Mandioca - Cultivo de Mandioca (Cassava - Cultivation of Cassava) | 52 | 96.30% |
| 4 | Floresta - Reposição Florestal (Forestry - Forestry Replacement) | 52 | 96.30% |
| 5 | Peixes - Processamento Artesanal de Peixes (Fish - Artisanal Processing of Fish) | 52 | 96.30% |
| 6 | Graviola - Produção de Graviola (Soursop - Production of Soursop) | 51 | 94.44% |
| 7 | Milho - Produção em Pequenas Propriedades (Corn - Production on Small Areas) | 51 | 94.44% |
| 8 | Sítio - Como Tornar sua Colônia Lucrativa (Site - How to Make Your Community Profitable) | 51 | 94.44% |
| 9 | Banana - Produção de Bananas - Do Plantio a Pós-Venda (Banana - Production of Bananas - From Planting to After Sales) | 49 | 90.74% |
| 10 | Frutas - Produção Comercial em Pequenas Áreas (Fruits - Commercial Production in Small Areas) | 49 | 90.74% |
| 11 | Horta Caseira - Implantação e Cultivo (Household Garden - Deployment and Cultivation) | 48 | 88.89% |
| 12 | Farmácia Viva - Utilização de Plantas Medicinais (Living Pharmacy - Use of Medicinal Plants) | 47 | 87.04% |
| 13 | Nascentes - Recuperação e Conservação de Nascentes (Headwaters - Headwaters Conservation and Recovery) | 47 | 87.04% |
| 14 | Galinha Caipira - Como Produzir Galinha e Frango Caipira (Redneck Chicken - How to Produce Chicken and Chicken Caipira | 46 | 85.19% |
| 15 | Plantas Medicinais - Cultivo Orgânico de Plantas Medicinais (Medicinal Plants - Cultivating Organic Medicinal Plants) | 45 | 83.33% |
| 16 | Banana - Receitas com Bananas (Bananas - Recipes with Bananas) | 45 | 83.33% |
| 17 | Limão - Produção de Limão Taiti (Production of Limes) | 42 | 77.78% |
| 18 | Apiário - Planejamento e Implantação de Apiário (criação de abelhas) (Apiary - Apiary Planning and Implementation (Beekeeping)) | 41 | 75.93% |
| 19 | Coco - Produção Orgânica de Coco (Coconut - Organic Production of Coconut) | 39 | 72.22% |
| 20 | Rapadura, Melado e Açucar Mascavo - Como Produzir… (Brown Sugar and Molasses - How to Produce…) | 39 | 72.22% |
| 21 | Manga - Produção de Manga (Mango - Production of Mangoes) | 35 | 64.81% |
| 22 | Pimenta do Reino - Produção e Processamento (Pepper - Production and Processing) | 35 | 64.81% |
| 23 | Suinos - Criação Orgânica de Suínos (Swine - Creation of Organic Pigs) | 30 | 55.56% |
| 24 | Pimenta - Produção e Processamento de Pimenta (malagueta, etc.) (Pepper - Pepper Production and Processing (chili, etc.)) | 21 | 38.89% |
| 25 | Peixes - Técnicas de Processamento de Peixes (Fish - Fish Processing Techniques) | 9 | 16.67% |
| 26 | Mandioca - Como Produzir Polvilho Azedo, Fécula, Farinha e Raspa (Cassava - How to Produce Sour, Starch, Flour and Zest) | 8 | 14.81% |
| 27 | Floresta - Restauração Florestal (Forestry - Forestry Restoration) | 7 | 12.96% |
| 28 | Pinhão Manso - Como Cultivar Pinhão Manso (biodiesel) (Jatropha - How To Grow Jatropha (biodiesel)) | 4 | 7.41% |
| 29 | Curso Produção de Palmito de Açaí (Production of Palmito of Açaí) | 4 | 7.41% |
| 30 | Produção de Embutidos (Production of Embedded) | 4 | 7.41% |
| 31 | Pastejo Rotacionado (Rotational Cattle Pastures) | 3 | 5.56% |
| 32 | Produção de Defumados (Smoked / Cured Production) | 3 | 5.56% |
| 33 | Serpentes - Criação de Serpentes (Snakes - Creation of Snakes (for venom)) | 0 | 0.00% |

Ilderlei Souza Rodrigues Cordeiro will facilitate the teaching of these top-ten courses starting in June 2013. I.S.R.C engaged the State of Acre's CEFLORA (Centro de Formação e Tecnologia da Floresta or Center for Training and Forest Technology), the Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul and S.O.S. Amazônia to assist with onsite trainings to the communities in and near the Valparaiso Project.

Manoel Batista Lopes, ME also plan on buying three boats. One boat will be a fast boat to provide better access to the Valparaiso Project, one boat will be to provide transportation for the communities around the Project, and the third boat will be to increase market access of the communities' crops by providing transportation for the crops to Cruzeiro do Sul.

Agricultural extension trainings and increased market access will assist the Project Proponents achieve both the climate and community objectives of the Valparaiso 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.

*Create Association to Process Açaí and Manioc Flour*

Ilderlei Souza Rodrigues Cordeiro will create an association to give support to the communities' manioc houses based off local research of the individual manioc houses' needs. For example, the association could provide financial support if a manic house's motor breaks down, the association could assist improving production by mechanization of the land, and by increasing market access. The association will also do a one-time update to modernize the communities' manioc houses.

With respect to açaí, a local processing plant will be built to industrialize the açaí berries grown inside the Valparaiso Project. This industrialization process will involve purchasing the açaí berries from local communities, transporting the raw berries to the local processing plant, process the açaí berries into açaí juice, and then transport the açaí juice to Cruzeiro do Sul for final sale to end consumers.

*Açaí Processing Equipment (Photo Credit: Brian McFarland)*

*Help Communities Obtain Land Tenure*
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. Manoel Batista Lopes, ME will voluntarily recognize whatever area is currently deforested and under productive use by each family and up to the recommended size that a family in the State of Acre needs for a sustainable livelihood according to State and Federal laws. All communities, whether they join the Valparaiso Project or not, will be titled the land they have put under productive use.

Helping communities obtain land tenure 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.

*Profit-Sharing of Carbon Credits*
Carbon revenue will be primarily used by Manoel Batista Lopes, ME to partner with Ilderlei Souza Rodrigues Cordeiro to develop social projects and programs. Within the first five years, the community will start to receive from Manoel Batista Lopes, ME a small share of the payments for ecosystem services (i.e., carbon revenue) as a result of their assistance in achieving the social and environmental goals of the Valparaiso. This revenue will be shared with the communities each time Manoel Batista Lopes, ME receives payment for their share of the verified emission reductions.

The total proportion of carbon revenues to be given to the communities will be tied to the preservation of forests within the communities' area. Take for example, if a particular community successfully preserves 5 hectares of land in a given year (i.e., and this 5 hectares was projected to be deforested in that given year). If a total of 100 hectares were predicted to be deforested throughout the Valparaiso Project (i.e., and the deforestation of this 100 hectares was successfully avoided), then the particular community would be granted 5% (i.e., 5 hectares / 100 hectares = 5%) of Manoel Batista Lopes, ME's gross carbon revenue.

The total number of hectares predicted to be deforested each year for the baseline period of 2011 to 2021 will be determined via spatial modeling. To learn more about this spatial modeling, please see the VCS Project Description, which includes detailed analysis of historical deforestation, preparation of risk maps for deforestation, and mapping the locations of future deforestation. In addition, the successful avoidance of deforestation will be demonstrated during verification and a review of satellite imagery.

With respect to exactly which communities will be eligible for a share of carbon revenue, only communities living within the Valparaiso Project are eligible (i.e., communities outside the Project Area and in the leakage belt will not be eligible to receive a share of Manoel Batista Lopes, ME's carbon revenue).

Regarding the criteria for allocating carbon revenue among communities, only communities that voluntarily join the Valparaiso Project and successfully avoid deforestation will be eligible for carbon revenue.

Carbon revenue will primarily enable Manoel Batista Lopes, ME and Ilderlei Souza Rodrigues Cordeiro 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.

*Establish a Headquarters*
Manoel Lopes Batista Lopes, ME has a dedicated headquarters near the local church on the Valparaiso Project. This dedicated headquarters will provide: a place for visitors to sleep and eat; a repository for Project documents; and provide a base for local employees of the Project.

Building a local headquarters contributes to the community objective because the office will serve as a centralized headquarters and provides an administrative base for the Project.

*Improve Health Center and Dental Clinic*
Ilderlei Souza Rodrigues Cordeiro plans to improve the Health Center in order to provide residents and their families on both the Russas and Valparaiso Projects with preventive and curative medicine, including dental.

For example, the local community member Sebastião Melo de Corvalhoa is studying to become a nurse and will be hired by Ilderlei Souza Rodrigues Cordeiro to practice as an onsite nurse.

Ilderlei Souza Rodrigues Cordeiro will also facilitate the increased frequency of visits the doctor from Cruzeiro do Sul makes to the clinic. Usually the doctor only stays one or two days, but Ilderlei Souza Rodrigues Cordeiro will pay the doctor to stay longer and visit more families throughout the Russas and Valparaiso Projects.

The health center and dental clinic is also relevant to the community objective because this is another main social project that Manoel Batista Lopes, ME and Ilderlei Souza Rodrigues Cordeiro would like to facilitate. The clinics will ultimately improve health, life quality, and increase life expectancies which will result in more productive community members.

*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. To learn more about the Valparaiso Project's community monitoring plan, please see section, *CM3. Community Impact Monitoring*.

*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.

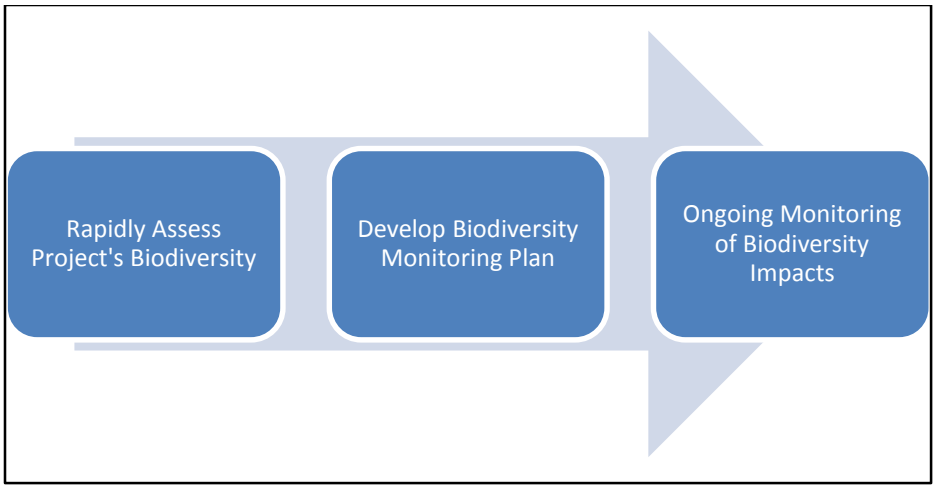
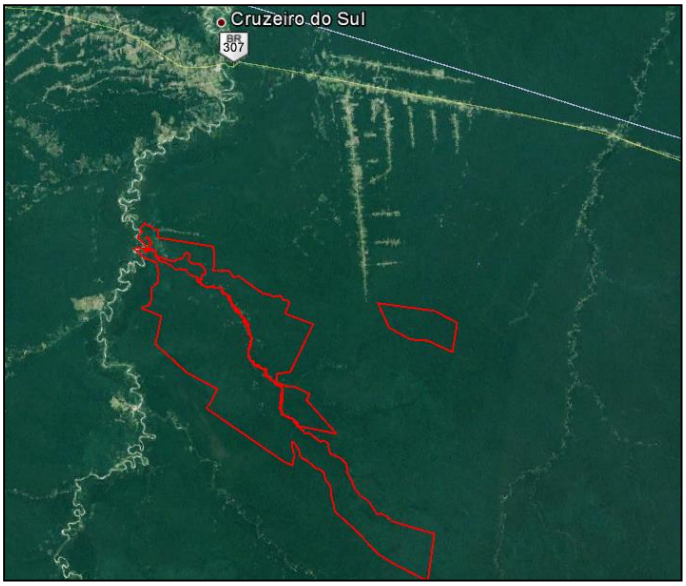



*Figure 6: Major Project Activities to Achieve Major Biodiversity Objective*

*Rapidly Assess Biodiversity on Project*
A rapid assessment of the Project Zone's biodiversity was conducted in March and April 2013. This included background research along with meeting local organizations such as S.O.S. Amazônia and the Secretariat of Environmental Affairs for the Municipality of Cruzeiro do Sul about biodiversity in the Jurua and Valparaiso River Basins. This rapid assessment of biodiversity will contribute to the objective of preserving the Project's rich biodiversity by providing an understanding of what flora and fauna potentially exist within the Project Zone.

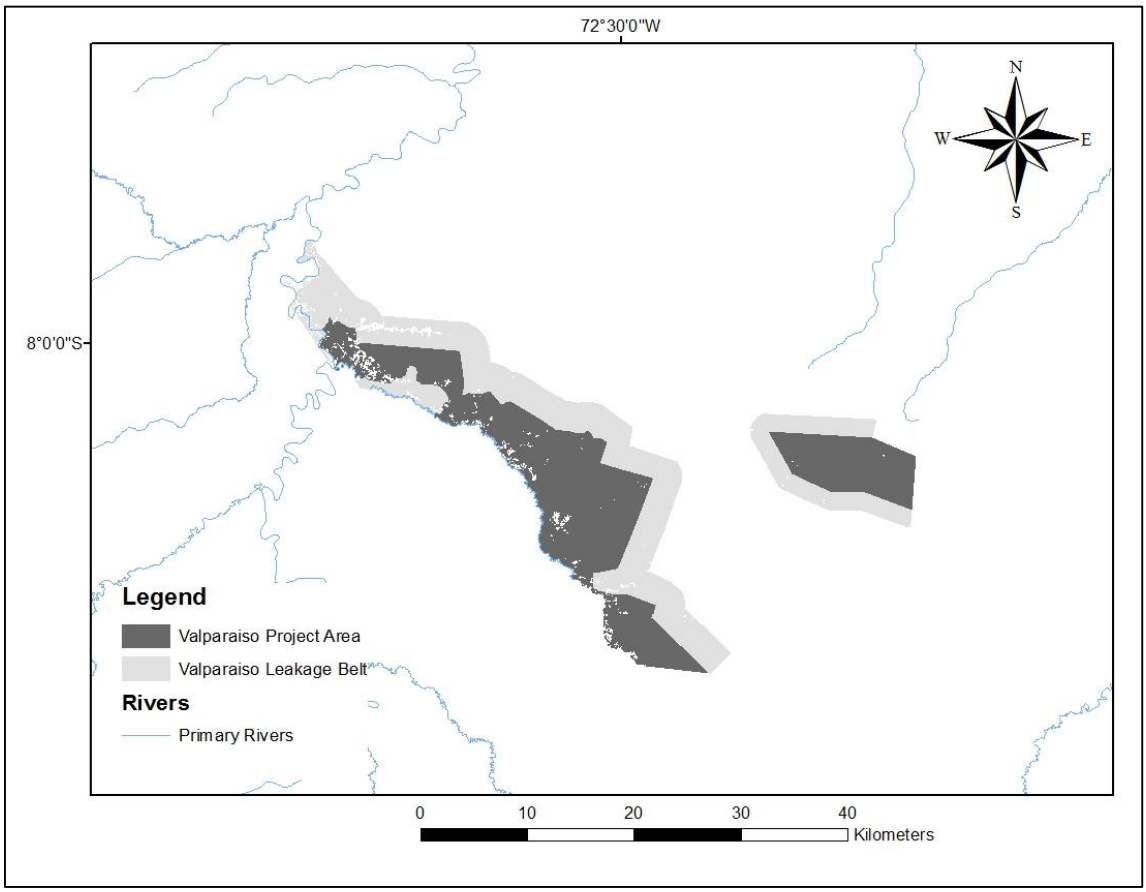
*Develop Biodiversity Monitoring Plan and Monitor Biodiversity Impacts*
The biodiversity monitoring plan will essentially help the Project Proponents better understand if the climate and community objectives are aligned with preserving the Project's rich biodiversity. To learn more about the Valparaiso Project's biodiversity monitoring plan, please see section, *B3., Biodiversity Impact Monitoring*.

**G3.3. Project Location**
As previously mentioned, the Valparaiso Project is located in Acre, Brazil and particularly along the banks of the Valparaiso River and the Juruá River. The Valparaiso Project is 28,096 hectares (i.e., approximately 69,397.1 acres).




*Map 10: Valparaiso Project and Adjacent Russas Project (Credit: TerraCarbon and Google Earth)*

The geographic coordinates of these contiguous properties are located below. As previously provided in Section *G1.1. General Information*, the following map identifies the Project Area and the Project Zone (i.e., the Project Area and the Leakage Area):




*Map 11: Valparaiso Project Area and Project Zone (Credit: TerraCarbon)*

It is important to note that the property located on the opposite banks of the Valparaiso River and adjacent to the Valparaiso Project is also being developed by the Project Proponents as a REDD+, forest conservation project. This project is known as the Russas Project and this is the reason the Valparaiso Project's leakage belt does not extend along the southwestern border of the property.

Project activities – for example, monitoring of deforestation and agricultural extension training - will take place throughout the Project Area and Project Zone, with a particular emphasis on locations experiencing the greatest deforestation pressures (i.e., along the Valparaiso and Juruá Rivers inside the Project Area). Furthermore, the Leakage Area is the land surrounding the Project Area that is predicted to be most impacted by the Valparaiso Project activities.

**G3.4. Project Timeframe**

The following will elaborate on the Project's overall timeframe, including the project lifetime, the GHG accounting period, and the implementation schedule.

*Project Lifetime and GHG Accounting Period*

The Project State Date, which can be demonstrated via a signed "ata," is March 19, 2011. An "ata" is a signed record for public meetings. On March 19, 2011 Ilderlei (landowner of the Russas Project) spoke with the Valparaiso Project community at length about REDD+, forest conservation, community benefits, etc. and the community signed an "ata."

The GHG Accounting Period – otherwise known as the Project Crediting Period – also began on March 19, 2011. The Tri-Party Agreement between CarbonCo, Carbon Securities and Manoel Batista Lopes 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 March 19, 2011 and ends on March 18, 2041. This Project Crediting Period is also in conformance with the Verified Carbon Standard.

The reason for a difference between the Project Crediting Period and the Project Lifetime is because the Project Proponents are committed to maintaining forest cover within the Valparaiso Project beyond the Project Crediting Period.

*Implementation Schedule*

The approximate implementation schedule for the Valparaiso Project is as follows:

**Pre- and Post-Validation: Years 1 and 2**

- Signing of Tri-Party Agreement between Project Proponents
- Stakeholder Consultations and Community Visits
- Forest Carbon Inventory
- Land-use and Deforestation Modeling
- Project Design Documents Written
- Hire Project Manager

- Initiate Patrols of Deforestation
- Initiate Training and Agricultural Extension Courses for Communities
- Biodiversity and Community Impact Monitoring Plans Developed
- Project Validated to CCBS and VCS Standards
- Renovate Headquarters

**Post-Validation: Years 3 to 5**

- Help Communities Obtain Land Tenure
- Create Association to Process Açaí and Manioc Flour
- Improve Health Center and Dental Clinic

**Post-Validation: Years 6 to 10**

- Profit Sharing of Carbon Credits
- Reassessment of Land-use and Deforestation Modeling Baseline

**Ongoing Activities**

- Monitoring of Climate, Community and Biodiversity Impacts
    - Basic Necessities Survey to take place every 2 years
    - Participatory Rural Appraisal to take place every 2 years
    - Illegal Logging Assessment to take place every 2 years
    - Deforestation Monitoring, Periodic Review of Satellite Imagery
    - Biodiversity Monitoring every 4 years
- Engaging Stakeholders and Community Consultations

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

**G3.5. Risks to Climate, Community and Biodiversity Benefits**

There are potential natural, anthropogenic and project risks to the climate, community and biodiversity benefits of the Valparaiso Project. The overall risks associated with the Valparaiso Project are considered low and justify a low Verified Carbon Standard buffer reserve established for any verified emission reductions (i.e., carbon offsets or carbon credits).

*Natural Risks*

The following are some potential natural risks that could impact forest conservation projects and particularly the Valparaiso 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 Valparaiso 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 Juruá River basin is a wetland ecosystem where the native habitat thrives under periodically flooded conditions. Drought does not have a direct effect on existing forest carbon stocks, but instead can increase the severity of forest fires and hence is covered below in the section on fire risk. Being a tropical climate, the Valparaiso 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.[40]

Another risk to the Valparaiso 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. 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 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 2006, as compared with more developed and impacted areas of the Eastern and Central Amazon (e.g. Para, Mato Grosso, Rondonia and Maranhao).[41] Consequently, the rates of fire incidence referenced in the 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 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.

Furthermore in a study[42] 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

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**40** 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
[41] 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
[42]Cochrane M.A.& Laurance W.F., 2002. Fire as a large-scale edge effect in Amazonian forests, Journal Of Tropical Ecology, 18:311-325.

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[43]. 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. The Cochrane and Laurance study[44] 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.

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).[45]

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.[46] The Project Proponents are aware that the Global Invasive Species Database, which is managed by the Invasive Species Specialist Group of the International Union for Conservation of Nature's Species Survival Commission, has identified 62 natural forest species which are either native to Brazil and act as an invasive species elsewhere or are native species elsewhere and are considered invasive species within Brazil.[47] Furthermore, three species native to Brazil (i.e., and which are considered invasive species elsewhere) are on the Global Invasive Species Database's 100 of the World's Worst Invasive Alien Species List.[48] 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 Non-Permanence Risk Assessment.

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[43]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.

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

[45] State Government of Acre Portal, "Geographic Data,"

[46] National Biodiversity Commission, "Technical Committee," Available: http://www.mma.gov.br/sitio/index.php?ido=conteudo.monta&idEstrutura=15&idConteudo=7474&idMenu=368

[47] Global Invasive Species Database, "Alien Species," Available: http://www.issg.org/database/species/search.asp?sts=sss&st=sss&fr=1&sn=&rn=brazil&hci=1&ei=-1&lang=EN&Image1.x=30&Image1.y=10

[48] Global Invasive Species Database, "100 of the World's Worst Invasive Alien Species List," Available: http://www.issg.org/database/species/search.asp?st=100ss&fr=1&str=&lang=EN

*Anthropogenic Risks*
The following are some potential anthropogenic risks that could impact forest conservation projects and particularly the Valparaiso 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.

*Project Risks*
A few of the potential project risks identified by the Project Proponents include:

- 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'."[49]
- "Increased land speculation or in-migration, thus creating conditions for increased competition and social conflict within and between communities."[50]
- State of Acre's CEFLORA (Centro de Formação e Tecnologia da Floresta or Center for Training and Forest Technology), the Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul and/or S.O.S. Amazônia 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
- Ilderlei Souza Rodrigues Cordeiro unable to deliver local social projects and programs
- The institutions IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis), IMAC (Instituto de Meio Ambiente do Acre) and/or the police department are unable to stop deforestation if their services are requested

To address these aforementioned risks, the Project Proponents met in June 2013 to develop mitigation plans.

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

[49] 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.
[50] 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.

to be titled. Manoel Batista Lopes, ME will voluntarily recognize whatever area is currently deforested and under productive use by each family.

In addition, the parcel granted to the community will be combined with improved agricultural techniques. Furthermore, job creation should allow for less dependency on the land.

The communities are religious and regularly attend church. The church educates 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 the chances of corruption and 'elite capture,' Manoel Batista Lopes, ME and Ilderlei Souza Rodrigues Cordeiro have a few policies in place. First, the Project Proponents will encourage community-wide participation and will try to always include all the communities. For example, everyone will be given an equal opportunity to attend agricultural classes and all benefits (e.g., access to health clinic and access to manioc flour house) will be offered to everyone. Second, the Project will specifically target poorer communities to further reduce the chances of elite capture. Third, the Basic Necessities Survey will be regularly administered to enable the rapid detection of elite capture by monitoring the distribution of assets, inequality and poverty. Lastly, if increased inequality is identified and attributed to the Project, the Project Proponents will conduct a root cause analysis to determine the underlying cause and using adaptive management, the Project Proponents will modify the Project accordingly. Thus as an overall principle, the Valparaiso Project will not allow corruption or elite capture.

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 Valparaiso Project is privately-owned land and in-migration will not be allowed. The deforestation monitoring plan will ensure the rapid identification and resolution of in-migration. The census conducted by Ilderlei Souza Rodrigues Cordeiro has documented everyone currently living in the Valparaiso Project and the titling of land to the communities will incentivize the communities to not allow in-migration.

State of Acre's CEFLORA (Centro de Formação e Tecnologia da Floresta or Center for Training and Forest Technology), the Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul and S.O.S. Amazônia are leading institutions and are experts at providing agricultural extension trainings and 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.

If Ilderlei Souza Rodrigues Cordeiro is unable to deliver local social projects and programs, then Manoel Batista Lopes, ME will reassume the responsibilities of implementing the social projects and programs and would hire a local company, such as S.O.S. Amazônia, if necessary.

With respect to the institutions IBAMA, IMAC, and police department being unable to stop deforestation if their services are requested, Ilderlei Souza Rodrigues Cordeiro and Manoel Batista Lopes, ME have already spoken with these institutions, the municipality of Cruzeiro do Sul and the State of Acre support REDD+ projects, and the institutions' missions are in part to stop deforestation.

For a more extensive identification of risks and mitigation strategies (i.e., measures to address these climate, community and biodiversity risks), please see the VCS Non-Permanence Risk Assessment.

**G3.6-7. 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."[51]

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

The Valparaiso Project, with a primary objective of mitigating deforestation, will at the very least maintain – if not enhance – these high conservation value attributes. Although "only" a rapid biodiversity assessment was conducted at the Valparaiso 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 attributes.

Specific measures to ensure the maintenance or enhancement of HCV attributes include the integration of HCVs into the Valparaiso Project, along with training programs and monitoring plans which incorporate HCVs.[52] For example, the Valparaiso Project proponents shall:

- Integrate HCVs into the Valparaiso 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.

[51] Convention on Biological Diversity, "Preamble," Available: http://www.cbd.int/convention/articles/?a=cbd-00
[52] 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

- Eventually train the communities to assist with monitoring biodiversity with wildlife camera traps. In addition, the Project Proponents will focus additional conservation measures in areas where threatened and/or endemic species are identified.
- Monitoring deforestation and community impacts and undertake 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 Valparaiso 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 Manoel Batista Lopes, ME
- Social Projects
- Education and Outreach
- Legalization of Community Land Tenure

*Tri-Party Agreement's Longevity*
As described in section *G3. Project Design and Goals*, subsection *4. Project Timeframe*, the Tri-Party Agreement between CarbonCo, Carbon Securities and Manoel Batista Lopes 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 March 19, 2011 and ends on March 18, 2041. While the Valparaiso Project's Project Lifetime is 60-years, the Project Proponents are committed to maintaining forest cover within the Valparaiso Project beyond both the Project Crediting Period and the initial Project Lifetime. Both the Tri-Party Agreement and the Project Design Documents (PDDs) will be filed at the Brazilian Registry Office to ensure the Valparaiso Project remains with the property even if the property is sold. Furthermore, the Project and its PDDs (both VCS and CCBS) will be registered with the State of Acre's Climate Change Institute (IMC).

*Creation of Manoel Batista Lopes, ME*
Manoel Batista Lopes created the legal entity Manoel Batista Lopes, ME to specifically ensure the Valparaiso Project is managed beyond his lifetime.

*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). Such education and outreach activities include:

- Potential Visitation by School Groups
- Local Contractors (further knowledge on how to develop elements of REDD+ projects)
- Landowner spreading the word beyond the Project to other landowners
- Informing the State of Acre how REDD+ projects on privately-owned lands can work alongside the State of Acre's work

*Legalization of Community Land Tenure*
The legalization of the community land tenure will continue in perpetuity.

### G3.8-10. 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*
The Project Proponents have conducted an extensive stakeholder identification and stakeholder engagement or involvement process. For a comprehensive list of the Valparaiso Project's stakeholders, please refer *to Appendix A, Stakeholder Identification.*

Stakeholders were primarily analyzed based off their influence and importance.

| **Influence of Stakeholder** | **Importance of Stakeholder to Project Achievement** | | | | |
|---|---|---|---|---|---|
| | **Unknown** | **Low** | **Moderate** | **Significant** | **Critical** |
| **Low** | Other | Other | Other | Secondary | Secondary |
| **Moderate** | Other | Other | Other | Secondary | Secondary |
| **Significant** | Secondary | Secondary | Secondary | Secondary | Secondary |
| **Highly Influential** | Secondary | Secondary | Secondary | Secondary | Primary |

*Figure 7, Stakeholder Analysis (Credit: CARE 2002)*[53]

Stakeholders were then categorized according to: Project Proponents, Community and Primary Stakeholders; Secondary Stakeholders; and Other Stakeholders.

[53] CARE (2002), Annex XIV contains guidance on stakeholder analysis in project design: http://www.proventionconsortium.org/themes/default/pdfs/CRA/HLSA2002_meth.pdf

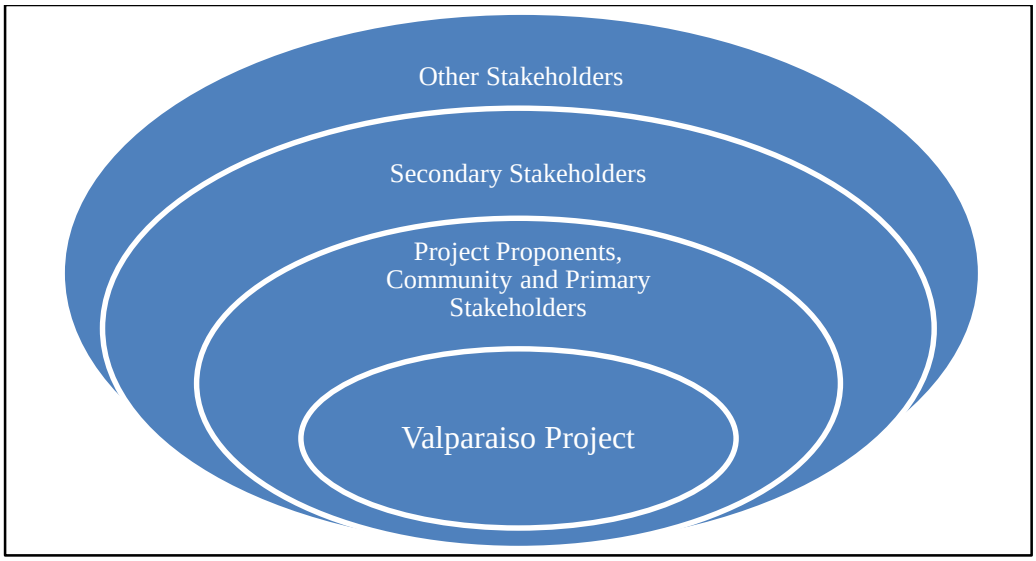


*Figure 8: Stakeholder Map*

These following stakeholders, considered primary and secondary stakeholders, were involved in project design to optimize climate, community and biodiversity benefits while ensuring the Valparaiso Project was properly aligned with the State of Acre. Consultations with all stakeholders, but especially these following stakeholders, shall continue throughout the Project Lifetime:

- Manoel Batista Lopes ME, specifically Manoel Batista Lopes
- Communities living within the Valparaiso Project
- Carbonfund.org Foundation, Inc. and CarbonCo, LLC
- Freitas Group International LLC and Carbon Securities
- I.S.R.C. Investimentos e Acessória MEA, specifically Ilderlei Souza Rodrigues Cordeiro
- TerraCarbon
- TECMAN LTDA
- Professor Antonio Willian Flores de Melo of UFAC
- Landowner and Communities living around Valparaiso Project
- State of Acre, particularly the:
    - Climate Change Institute of Acre (IMC)
    - State of Acre's CEFLORA (Centro de Formação e Tecnologia da Floresta or Center for Training and Forest Technology)
    - The Secretary of Small Business
    - The Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul
- S.O.S. Amazônia
- State of California
    - California Air Resources Board (ARB)
    - REDD Offset Working Group (ROW)
    - Governors' Climate and Forest Task Force
- Environmental Services, Inc. (ESI), the Project Auditor
- 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, at the communities instead of in Rio Branco) for stakeholders.

A brief summary of project meetings and stakeholder comments have been provided below. Additional information on these meetings can be found in the document "Valparaiso Project Meeting Notes" as found in the project database.

**March 9-18, 2011 -** CarbonCo, Carbon Securities and TerraCarbon traveled to Acre, Brazil to better understand how to implement REDD+ projects in Acre, Brazil. 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;
- 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 Purus Project's design, which would later influence how the Valparaiso Project was designed, 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); and began a close relationship with the State of Acre.

**March 19, 2011 –** Ilderlei Souza Rodrigues Cordeiro met with the Valparaiso Project's local communities to discuss the Project and an "ata" was signed, which supports the Project State Date.

**August 9-18, 2011 -** CarbonCo, Carbon Securities, and TerraCarbon visited Rio Branco. A few key milestones included:

- TerraCarbon led a classroom forest carbon inventory training for TECMAN field crew for the Purus Project. TECMAN would later be hired for the Valparaiso Project.
- CarbonCo, Carbon Securities, 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, and TerraCarbon visited the Purus Project from Thursday, August 4th through Monday, August 8th. TerraCarbon trained TECMAN field crew members in forest inventory practices and standard

operating procedures, which would later be used during the Valparaiso Project's forest carbon inventory.

- CarbonCo, Carbon Securities, and TerraCarbon met with Willian Flores to discuss the VCS methodology, VM0007 the REDD Methodology Modules, applicable to modeling regional deforestation. Willian Flores would later be used for the Valparaiso Project.
- CarbonCo, Carbon Securities, 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.

**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.

**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. As a result of this conversation, the Valparaiso Project PDDs will be shared with the Brazilian Observatory of REDD Portal

**May 23, 2012 -** Tri-Party Agreement was executed by CarbonCo, Carbon Securities, and Manoel Batista Lopes. The Tri-Party Agreement, which is a cornerstone document of the Valparaiso Project, was revised and mutually accepted based off discussions among Manoel Batista Lopes, Carbon Securities and CarbonCo.

**June 2012** – CarbonCo met with André Luis Botelho de Moura, a former graduate student of Dr. Armando Muniz Calouro, to begin refining a full biodiversity plan for the Purus Project. Such discussions included: the proper locations of cameras; a short, Standard Operating Procedures (SOPs) guidance document that will be used as a training manual for the communities; 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. This full biodiversity monitoring plan will be adapted for the Valparaiso Project.

**June 20-22, 2012 –** CarbonCo, Carbon Securities and TerraCarbon traveled to the Russas and Valparaiso Projects to conduct a preliminary assessment of the Projects, to observe the local drivers and agents of deforestation, and to informally meet with several local communities. CarbonCo, Carbon Securities, TerraCarbon and Ilderlei Souza Rodrigues Cordeiro (landowner of Russas Project) also spoke with Professor Paulo Bernarde about potentially cataloging species at the Russas and Valparaiso Projects and reviewed Professor Bernarde's book on the snakes of Acre.

**November 29, 2012 –** CarbonCo informed Mónica Julissa De Los Rios de Leal of the Climate Change Institute about the development of the Russas and Valparaiso Projects.

**January 11, 2013** – TECMAN was contracted to undertake the forest carbon inventory at the Valparaiso Project.

**March 27, 2013 –** Carbon Securities, with CarbonCo, Manoel Batista Lopes, Roberto Catão, Ilderlei Souza Rodrigues Cordeiro (landowner of the Russas Project), and Normando Sales (landowner of the Purus Project) in attendance, presented the Russas and Valparaiso Projects to the President of the Cruzeiro do Sul Municipal Legislature, the Secretary of Environmental Affairs for the Cruzeiro do Sul municipality, along with staff members of the Secretary of Agriculture for the Cruzeiro do Sul. The presentation gave an overview of the Project Proponents, the objectives of the Projects, the reason for Carbon Securities and CarbonCo's visit to Cruzeiro do Sul, the basic timeline of the Project, how the Projects are implemented and the main activities to be implemented, the legal basis for the Projects, and concluded with a question and answer session. The Project Proponents learned that the municipality has a fund for agricultural courses devoted to local families.

*Meeting at Legislature for Municipality of Cruzeiro do Sul*

**March 28, 2013 -** CarbonCo and Carbon Securities met with Manoel Batista Lopes, ME in Cruzeiro do Sul, Acre, Brazil to discuss elements of the VCS Project Description and the CCBS Project Design Document.

**March 30 - April 1, 2013 –** CarbonCo, Carbon Securities, Ilderlei Souza Rodrigues Cordeiro, and Sebastião Tome de Melo Junior (son-in-law of Manoel Batista Lopes) visited the Russas-Valparaiso communities, further discussed the Projects and administered the Household Survey and Participatory Rural Assessment (PRA), Basic Necessity Survey (BNS), and the Agricultural Surveys.

**April 2013 –** Manoel Batista Lopes, ME partners with Ilderlei Souza Rodrigues Cordeiro to assist the Valparaiso Project with its local social projects and programs including monitoring for deforestation, facilitating agricultural training courses and improving the local health and dental clinic.

**April 2, 2013 -** CarbonCo, Carbon Securities, and Ilderlei Souza Rodrigues Cordeiro met again with Maria Francisca R. Nascimento, the Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul to further discuss the region's biodiversity as part of the Projects' rapid assessment of biodiversity

**April 4, 2013 -** CarbonCo, Carbon Securities, and Ilderlei Souza Rodrigues Cordeiro met Edgar de Deus, the State Secretary of Environmental Affairs to introduce the Project Proponents and explained the Purus, Valparaiso and Russas Projects.

**April 5, 2013 -** CarbonCo, Carbon Securities, and Ilderlei Souza Rodrigues Cordeiro met Miguel Scarcello, the Secretary General from S.O.S. Amazônia to: introduce the Project Proponents, explain the Projects and particularly the biodiversity aspects, explained the role of the Verified Carbon Standard and the Climate, Community and Biodiversity Standards.

**April 5, 2013 -** CarbonCo, Carbon Securities, and Ilderlei Souza Rodrigues Cordeiro met again with Eufran Amaral from the Climate Change Institute to give an update on all the Projects and an update on the work of the Climate Change Institute.

**April 5, 2013 -** Professor Antonio Willian Flores de Melo was contracted to assist with deforestation baseline and land-use modeling.

**April 30, 2013 –** CarbonCo held another call with Natalie Unterstell of Brazil's Ministry of Environment to update her that the Purus Project became the first dual VCS-CCB validated REDD+ Project in Acre and that Russas and Valparaiso Projects were undergoing VCS-CCB validation later in 2013.

**May 11-15, 2013 -** Ilderlei Souza Rodrigues Cordeiro visited the Russas-Valparaiso Projects to administer additional Household Survey and Participatory Rural Assessment (PRA), Basic Necessity Survey (BNS), and the Agricultural Surveys.

**May 21, 2013** - Ilderlei Souza Rodrigues Cordeiro met the Vice President of Brazil, Michel Temer, to discuss the Russas-Valparaiso Project and asking for the support of the Federal Government.

CarbonCo, Carbon Securities, and Manoel Batista Lopes, ME held biweekly meetings during the development phase of the project. Upon validation, CarbonCo, Carbon Securities and Manoel Batista Lopes, ME shall hold monthly check-in calls and will hold calls more regularly if necessary.

Manoel Batista Lopes' family visits the Valparaiso Project approximately once per year. Although Manoel has not been back since 2005, Manoel's niece Raline Lopes owns a transportation company with her husband and every week they visit Porto Walter and they periodically visit the Valparaiso Project. In addition, Manoel Batista Lopes, ME partnered with Ilderlei Souza Rodrigues Cordeiro who visits both the Russas-Valparaiso Projects more regularly.

CarbonCo, Carbon Securities, and Manoel Batista Lopes, ME are committed to meet in person at least once per year in Cruzeiro do Sul and at the Valparaiso Project 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); IMAC (Institute of Environmental Affairs for Acre); and the Mayor of Cruzeiro do Sul.

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 Valparaiso 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 Valparaiso Project shall attempt to further 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 public comment period to stakeholders of the Valparaiso Project, including the local communities. In addition, the Project Proponents will play an active role in distributing the Valparaiso Project's CCBS Project Design Documents. Such specific steps include:

- First and foremost, the CCBS Project Design Documents will be available in both English and Portuguese. This will allow for a wider-range of stakeholder participation including local communities and government officials in Acre, Brazil.
- Secondly, the Project Documents will be communicated to community members in an appropriate manner to overcome the fact that some community members might be illiterate. For example, the Project Proponents are committed to visiting 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 the Russas Project.
- The CCBS Project Design Document will be publicly posted for a minimum of 30 days on the CCBA website and comments will be solicited from the CCBS.

- In addition, CarbonCo's parent company Carbonfund.org Foundation, Inc. shall publicize the Project Documents on its website and solicit comments on the Project via a newsletter announcement to Carbonfund.org's 20,000+ members.
- Furthermore, the Project Documents will be 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.

During the CCBS public comment period, the Project Proponents will visit as many communities as possible living within the Project Zone. To facilitate comments from the communities, the Project Proponents will individually meet with each community and transcribe their comments. After ensuring the accuracy of the comment, the Project Proponents will submit the comments on behalf of the communities directly to the CCBS.

With respect to other stakeholders, Manoel Batista Lopes, ME will announce the public comment period on the Rádio Juruá FM and Rádio Verdes Florestas. These radio stations are widely listened to throughout the State of Acre, including the municipalities of Cruzeiro do Sul and Porto Walter. Such an announcement will inform listeners about the Valparaiso Project and about the CCBS, encourage listeners to review the CCBS PDD, and ask for comments to be submitted. In addition, Ilderlei Souza Rodrigues Cordeiro will attend the Sunday community-wide meeting to inform the communities first-hand about the CCBS public comment period and will also go house-to-house in case someone was unable to attend the Sunday community-wide meeting.

*Formalize Clear Process for Handling Unresolved Conflicts and Grievances*
The Project Proponents have frequently engaged stakeholders and the Project Proponents have formalized a clear process for handling unresolved conflicts and grievances throughout Project planning and implementation.

Essentially, if conflicts or grievances are unable to be resolved by the Project Proponents (particularly Manoel Batista Lopes, ME and Ilderlei Souza Rodrigues Cordeiro), 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 Valparaiso 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 Valparaiso 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
(Climate Change Institute)
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 that may arise at the Valparaiso Project.

Upon learning of any deforestation within the Project Area, the Project Manager shall:

- 1. Contact the agent of deforestation to explain that deforestation is not part of the Project

- 2. If the deforestation continues, the Project Manager will immediately notify the fact to Ilderlei Souza Rodrigues Cordeiro

- 3. Ilderlei Souza Rodrigues Cordeiro will then contact Manoel Batista Lopes, ME and will contact the police department, IMAC, IBAMA, and other institutions to assist

Upon learning of any fire within the Project Area, the Project Manager would take the following steps:

- 1. The Project Manager will ask for support from the Fire Department of the State of Acre in Cruzeiro do Sul

- 2. The Project Manager will immediately notify the fact to Ilderlei Souza Rodrigues Cordeiro and Ilderlei will contact Manoel Batista Lopes, ME

- 3. If the fire results in a large-scale fire started by a community member, Ilderlei and Manoel Batista Lopes, ME will contact the State of Acre government and the fire department in Cruzeiro do Sul to assist with putting out the fire and to take actions against the community member

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

- 1. Contact the in-migrant to explain the property is a forest conservation project and in-migration is not allowed

- 2. If the in-migrant is established, the Project Manager will immediately notify the fact to Ilderlei Souza Rodrigues Cordeiro and Ilderlei will contact the police department and Manoel Batista Lopes, ME

- 3. The police department would remove the in-migrant

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

- 1. The Project Manager will immediately notify the fact to Ilderlei Souza Rodrigues Cordeiro and Ilderlei will contact Manoel Batista Lopes, ME, the police department and IMAC

- 2. The police department and IMAC would investigate

*Project Transparency*

The Valparaiso Project will seek to promote the highest level of transparency, while protecting proprietary information and respecting intellectual property rights. To achieve this goal, these actions are being taken to promote the Project's transparency:

- The Valparaiso Project will be independently audited by Environmental Services, Inc. to the CCBS and VCS, two leading certification standards.
- The CCBS PDD must be publicly posted for 30 days.
- Carbonfund.org and CarbonCo LLC's financial statements are annually audited by an independent, certified public accountant.

- The Project Proponents have presented the Project to a wide-range of officials, including but not limited to: the President of the Cruzeiro do Sul Municipal Legislature, the Secretary of Environmental Affairs for the Cruzeiro do Sul municipality, staff members of the Secretary of Agriculture for the Cruzeiro do Sul, and the Climate Change Institute of the State of Acre.
- The Project will be publicly displayed on Ecosystem Marketplace's Forest Carbon Portal and the Brazilian Observatory of REDD Portal

The Project has undertaken extensive stakeholder consultations (i.e., including local communities, communities in the leakage belt, and the State of Acre), the project documents were both translated into Portuguese and widely publicized, and the Markit Environmental Registry (a VCS-approved registry) will be used to further ensure the Project's transparency.

*Stakeholder Meetings (Photo Credit: Normando Sales and Ilderlei Cordeiro)*

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.

### G3.11. 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 and it is important to note that CarbonCo financed the Purus Project, which is the first-ever REDD+ project in Acre, Brazil to achieve dual VCS-CCB validation. A detailed pro forma for the Project's initial 30-year crediting period has also been 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 Valparaiso 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 Valparaiso Project includes a highly-skilled core management team and there will be 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.

### G4.1. Roles and Responsibilities of Project Proponents

The three primary Project Proponents responsible for the Valparaiso Project's design and implementation are Manoel Batista Lopes, ME, CarbonCo and Freitas International Group. The following shall provide the overall governance structure, along with specific roles and responsibilities.

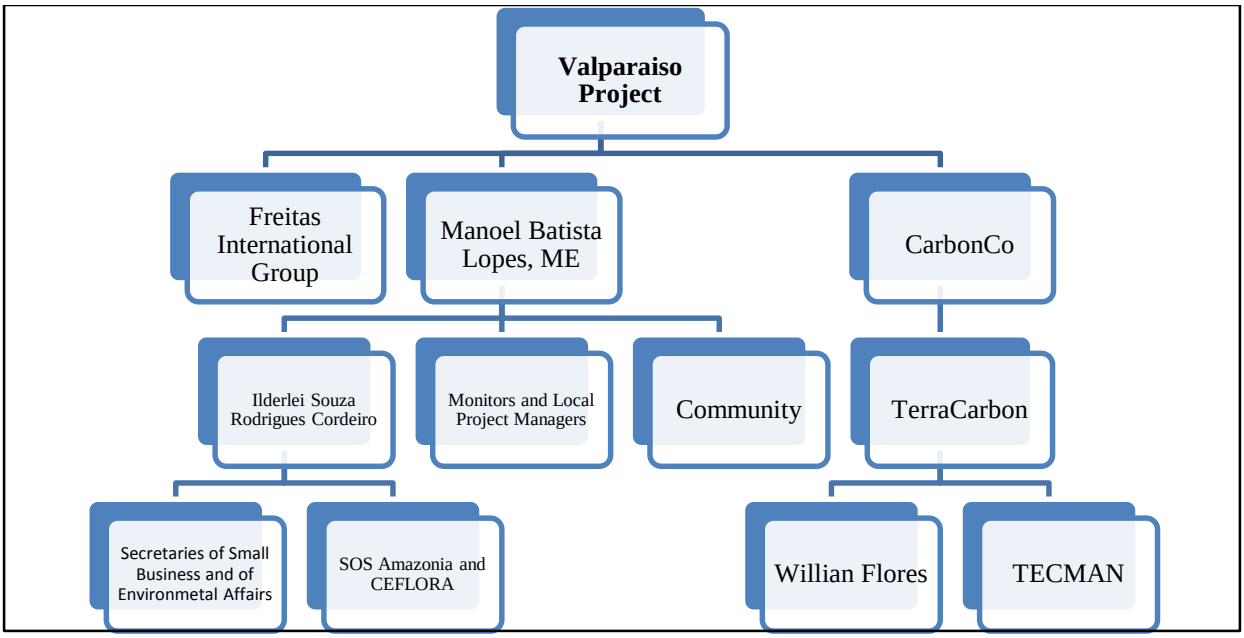

*Figure 9: Governance Structure / Organizational Chart of the Valparaiso Project*

**Carbonfund.org Foundation, Inc.**
Founded in 2003, Carbonfund.org Foundation, Inc. ("Carbonfund.org") is the leading US-based 501(c)(3) nonprofit carbon reduction and climate solutions organization, making it easy and affordable for individuals, businesses and organizations to reduce their climate impact by supporting third-party certified renewable energy, energy efficiency and forestry projects.

With ten years of experience, Carbonfund.org has over 750,000 individual supporters and over 2,000 business and nonprofit partners including Discovery, Motorola, Amtrak, Dell, jetBlue, Virgin America and Staples. In addition, Carbonfund.org has funded about 70 carbon reduction and tree-planting projects across 30+ states and 15+ countries.

Carbonfund.org also has many innovative and industry-leading accomplishments such as facilitating the first ever US Environmental Protection Agency Climate Leaders approved project, offering the first and leading carbon neutral product certification label in the US (i.e., Carbon*Free*® Certified, now used on products in fifteen countries on five continents), and helping firms manage their carbon inventory via the online greenhouse gas management tool called Carbon ExpressTrack. To learn more, visit: www.Carbonfund.org.

Contact: Brian McFarland - Brian.McFarland@Carbonfund.org or (240) 595-6883
Contact: Eric Carlson - Eric.Carlson@Carbonfund.org or (240) 247-0630

Because Carbonfund.org does not have the experience nor risk appetite for engaging in large-scale conservation projects, Carbonfund.org has transferred project development responsibilities to its wholly-owned subsidiary CarbonCo, LLC. Carbonfund.org has agreed to provide funding to CarbonCo, LLC for project development efforts in exchange for a share of the verified carbon units (VCUs – also known as verified emission reductions or carbon offsets).

**CarbonCo, LLC**
CarbonCo, LLC ("CarbonCo") is a limited liability company based in Bethesda, Maryland.

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. This experience includes financing and developing the Purus Project, which was the first-ever REDD+ project in the State of Acre to achieve dual VCS-CCB validation.
To learn more, 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

Furthermore, CarbonCo's entire financial portfolio is audited by an independent, certified public accountant and CarbonCo shall also keep all documents and records (i.e., including contracts) in a secure manner for at least two years (i.e., seven years for the CCBS PDD) after the end of the Project Crediting Period. This includes publicly displaying the completed VCS Project Description, as well as keeping hard copies of documents in easily accessible file cabinets and electronic copies on a backed-up share drive.

**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. This experience includes the Purus Project, which was the first-ever REDD+ project in the State of Acre to achieve dual VCS-CCB validation.

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

- Promoting, encouraging and facilitating the participation and cooperation of Landowner
- Facilitating due diligence on the Project
- Serving as a liaison and translator for the Landowner and CarbonCo
- Assisting CarbonCo which includes establishing meetings with Landowner 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 (312) 680-1008 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

**Manoel Batista Lopes, ME**
Manoel Batista Lopes, ME was originally created in 1988 by the Valparaiso Project Landowner Manoel Batista Lopes.

The company is headquartered here:

Manoel Batista Lopes, ME
Endereço: 176 R. Newton Prado, Suite 1
Barrio: Joao Alves, Cidade: Cruzeiro do Sul, Acre, Pais: Brasil
CEP: 69.980-000
CNPJ: 04.004.313/0001-75, CPF: 00580139204

Contractual obligations and specific responsibilities of the Manoel Batista Lopes, ME 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:** Manoel Batista Lopes - +55 (68) 8120 8107
**Contact:** Gleidson Holanda Lopes – LopesCZS@hotmail.com - +55 (68) 9986-6496
**Contact:** Manoel Batista Lopes Filho – Manoel.Lopes1961@hotmail.com - +55 (68) 9945-7854

**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.

TerraCarbon was formed in 2006 by Scott Settelmyer, former CFO of the Chicago Climate Exchange, and Bernhard Schlamadinger, world-renown expert in forest carbon and bioenergy, to provide specialized expertise to participants in the forest and land-use sector of the carbon market. Since its founding, TerraCarbon has advised clients from around the world on projects ranging from reforestation to avoided deforestation to peatland restoration. TerraCarbon, with clients including forestry companies, forest project developers, carbon funds, international multi-lateral agencies, and non-profit organizations, has a mission to provide practical advice rooted in experience to help clients implement forest and land-based carbon activities that mitigate climate change. To learn more, visit: http://terracarbon.com/

Specific to the Valparaiso Project, TerraCarbon has extensive experience including:

- Part of the core technical team convened by Avoided Deforestation Partners to develop VCS methodologies for REDD projects, including drafting text and revisions to incorporate peer review and validation comments.

- Technical development of a REDD project in Peru for a local and an international NGO, including deforestation modeling and preparation of technical elements for VCS and CCB project design documents.
- Ongoing feasibility analysis for a potential IFM and REDD project in Chile that will be developed under the VCS. Scope of work includes eligibility analysis, methodological analysis, development of emission reduction estimates, and preparation of a plan and budget for technical development.
- Providing technical inputs on the development of a REDD pilot project in Guyana with Conservation International for the IADB and Government of Guyana. The project involved estimating forest carbon stocks across the entire country, based on literature and existing inventory data, covering all forest types and ecosystems.
- Designed and implemented forest carbon inventories for a range of domestic and international forest carbon projects to determine baseline and with project carbon stocks. This has consisted of developing sampling strategies, training personnel, and collecting and analyzing statistical data from the inventories.
- Extensive staff experience in modeling carbon stock dynamics in forests.
- Provided technical project development services, particularly with respect to the forest carbon inventory and deforestation baseline modeling, for the Purus Project in Acre, Brazil

**TECMAN LTDA**
CarbonCo, with the guidance of TerraCarbon, hired TECMAN LTDA ("TECMAN") to perform the Project's forest carbon inventory. TECMAN is a Rio Branco-based environmental consulting and forest management firm founded in 2000 to meet a growing demand for forestry and environmental projects in the state of Acre, Brazil. Acquired by Fabio Thaines and Igor Agapejev de Andrade in 2007, TECMAN's recent accomplishments include over 50,000 hectares of sustainable forestry management work including within the Antimary State Forest of Acre, Brazil. TECMAN also successfully completed the forest carbon inventory for the Purus Project. To learn more, visit: http://tecman.eng.br/.

**Contact:** Fabio Thaines - FabioThaines@tecman.eng.br or +55 (68) 3227-5273
**Contact**: Igor Agapejev de Andrade - IgorAgapejev@tecman.eng.br or +55 (68) 3227-5273

**Antonio Willian Flores de Melo**
CarbonCo, with the guidance of TerraCarbon, hired Professor Antonio Willian Flores de Melo ("Professor Willian Flores") to review 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. Professor Willian Flores 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. Professor Willian Flores is currently working towards a PhD and assisted CarbonCo and TerraCarbon with the deforestation baseline modelling of the Purus Project.

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

**Local Communities**
The local communities on the banks of the Valparaiso River and Juruá River and within the Valparaiso Project Property consist of approximately 35 families with fifty houses (i.e., adult children often live adjacent to parents' house) and approximately 260 individuals.

As of June 2013, the local families of the Valparaiso Project who participated in the Basic Necessity Survey (BNS), the Participatory Rural Assessment (PRA), and the Agricultural Survey included:

- 1. Jose Getulio Silva
- 2. Antonio Gomes Maciel
- 3. Francisco Gomes Lima
- 4. Francisco Souza Silva (Chico Branco)
- 5. Desdete da Silva Maciel
- 6. Francisco Edualdo Souza da Silva
- 7. Francisco Assis Lima
- 8. Antonio Cruz da Silva
- 9. Joze Wilmar Xavier dos Santos and Maria Irani Silva dos Santos
- 10. Maria Cleidianis de Souza Silva Costa
- 11. Jose Wilson Souza da Silva
- 12. Raimundo Nonato Souza Lima (Marcondes)
- 13. Jose Helio da Silva Pinho
- 14. Maria das Dores Carneiro da Silva, Raimundo Souza Bezerra
- 15. Jose Nilson Souza Bezerra
- 16. Jose Maria Araujo da Silva
- 17. Edilson Bezerra da Silva
- 18. Josie Goncolves da Silva
- 19. Augusto Bezerra da Silva
- 20. Edilson Alves do Rocha
- 21. Alaiton Silva da Rocha
- 22. Marmude da Silva do Nascimento
- 23. Jose Eduardo da Conclicao
- 24. Maria Eglonti do Santo Silva
- 25. Antonio Homerito Bezerra da Silva
- 26. Genival Silva da Oliveira
- 27. Francisco dos Santos Lima
- 28. Geneane Silva de Oliveira
- 29. Alderlei Souza da Silva
- 30. Francisco dos Santos Silva

**I.S.R.C. Investimentos e Acessória LTDA**
Ilderlei Souza Rodrigues Cordeiro operates the company I.S.R.C. Investimentos e Acessória LTDA ("I.S.R.C.") which has partnered with Manoel Batista Lopes, ME to assume the responsibility of implementing the local social projects and programs at the Valparaiso Project.

The company is headquartered here:

I.S.R.C. INVESTIMENTOS E ACESSÓRIA LTDA
CNPJ: 06.200.153/0001-69, INSCRIÇÃO ESTADUAL: 01.015.482/001-35
Endereço: ESTRADA DO AEROPORTO Km 04
Bairro: Zona Rural, Cidade: Cruzeiro do Sul - Acre - Brasil, Cep: 69.980-000

**G4.2. Key Technical Skills and Staff**
The key technical skills required to successfully implement the Valparaiso 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.

**Brian McFarland, Director of Carbon Projects and Origination**
Brian McFarland, who earned a dual graduate degree in Business Administration and Global Environmental Policy from American University, is the Director of Carbon Projects and Origination for Carbonfund.org and CarbonCo.

Brian's graduate thesis was entitled, *Origins, Development and Potential of the International REDD Market*. Brian has also published 17 articles and a book entitled, *REDD+ and Business Sustainability: A Guide to Reversing Deforestation for Forward Thinking Companies* by Dō Sustainability.

Brian is currently responsible for project origination at CarbonCo and project portfolio management at Carbonfund.org. More specific to the Valparaiso Project, this includes writing project design documents, structuring project implementation activities (i.e., advising on social projects, designing both community and biodiversity monitoring plans), coordinating site visit logistics, contracting validation and verification services, and managing both local and technical contractors. Brian's previous experience with REDD+ projects in the State of Acre includes spearheading the Purus Project, which became the first-ever REDD+ project in the State of Acre to achieve dual VCS-CCB validation.

While finishing his Psychology and International Development undergraduate degree from Clark University, Brian conducted authentic environmental fieldwork in Mexico, Costa Rica, Kenya and Brazil. Such fieldwork included addressing human-wildlife conflicts, working on sustainable community development projects and biodiversity monitoring. During graduate school, Brian also volunteered for the Smithsonian Institution, the United Nations Global Compact, and the U.S. Department of State.

Brian is a certified Project Management Professional (PMP) from the Project Management Institute, member of the Metropolitan Washington Council of Governments' Air and Climate Public Advisory Committee and a member of the Climate, Community and Biodiversity Standard Revisions Committee.

**Eric Carlson, President and Chief Executive Officer**
Eric Carlson, the Founder and President of Carbonfund.org and the Founder and Chief Executive Officer of CarbonCo, has over 15 years of experience promoting cost-effective solutions to climate change, with an extensive background in energy efficiency and renewable energy.

Prior to Carbonfund.org, Eric managed voluntary partnerships at the US Environmental Protection Agency's Energy Star Homes and Buildings programs. There he advised companies such as Gillette, IBM and Johnson & Johnson. Eric also spent six years managing programs for the Alliance to Save Energy in Central and Eastern Europe. He advised ministers of energy and environment on energy policy and climate change, testified before parliaments, advised the World Bank on major energy efficiency investments and trained municipal leaders.

Eric has been a presenter and speaker at numerous conferences and forums including the National Press Club and the National Academy of Sciences, and interviewed in *Newsweek*, *The New York Times*, *USA Today*, *Seed Magazine*, National Public Radio and other leading media on climate change policies and strategies, the carbon market, and Carbonfund.org. He has been presented the Avis Spirit Award and other recognitions for his dedication to solving climate change.

**Pedro Freitas, Founder and President**
Pedro Freitas is the Founder and President of Freitas International Group, LLC and has more than six years of experience in the environmental field. Pedro, while currently studying a graduate program in Sustainability and Environmental Management at Harvard University, has chosen to dedicate his time to the protection of tropical forests.

Pedro, who did his undergraduate degree in international business at the Catholic University of Goiás, is an American citizen born and raised in Brazil with fluency in both Portuguese and English. From 2002 to 2004, Pedro also worked with a variety of private companies on teak and eucalyptus reforestation projects in Goiás, Brazil. Pedro also assisted in a variety of manners with the Purus Project.

**Elizabeth Guimarães, Project Coordinator**
Elizabeth Guimarães is an environmental consultant and project coordinator for Carbon Securities. Elizabeth received a Bachelor of Law from the Universidade Salgado de Oliveira, (i.e., Goiânia, Goiás campus) in 2010. Elizabeth's primary responsibility is to work directly with landowners to explain the Tri-Party Agreement and to facilitate their signing of the Tri-Party Agreement in order to develop REDD+ projects on their property.

**Manoel Batista Lopes, Landowner and Sole Proprietor of Manoel Batista Lopes ME**
Manoel Batista Lopes was born and raised on a rubber tapping farm in Amazonas State and when Manoel was ten years old, Manoel moved to the municipality of Cruzeiro do Sul in Acre.

Before buying the property which is now the Valparaiso Project, Manoel used to lease land for rubber tapping throughout the municipality of Cruzeiro do Sul. Mr. Lopes lived at the Valparaiso Project until 2005 and today, Mr. Lopes is retired and lives in Cruzeiro do Sul.

**Gleidson Holanda Lopes, Manager of Manoel Batista Lopes, ME**
Gleidson Holanda Lopes is the son of Manoel Batista Lopes. Gleidson graduated from the Federal University of Acre in 2004 with an associate's degree and would later graduate from the University of Social and Theological Education of Boas Vista in the State of Roraima in 2011. In addition, Gleidson got licensed in philosophy by Phenise in 2012 in Goiânia and received a graduate certificate in public management by the UNINTER of Parana. Gleidson is currently a sergeant in the military police of the State of Acre, based in Cruzeiro do Sul.

**Manoel Batista Lopes Filho, Executive Director of Manoel Batista Lopes, ME**
Manoel Batista Lopes Filho is the son of Manoel Batista Lopes. Manoel was born and raised in Cruzeiro do Sul and worked on the property (now known as the Valparaiso Project) managing the production of rubber tapping and taking care of the store on the property until he was thirty years old. In 1990, Manoel then moved to Manaus to open up his own mechanic company. On April 15, 2013, Manoel moved back to Cruzeiro do Sul to manage the Valparaiso Project.

**David Shoch, Vice President, Forestry and Technical Services**
David advises TerraCarbon's clients on technical and methodological issues related to forest carbon offset projects. David is a forester and has over ten years experience in forest biomass carbon measurement and monitoring, and forest growth and yield modeling. He has contributed authorship on seminal publications including the Voluntary Carbon Standard and IPCC Supplementary Methods and Good Practice Guidance for Land-use, Land-use Change and Forestry (LULUCF) Activities. David is currently a member of the core team convened by Avoided Deforestation Partners to develop VCS methodologies for REDD projects. Prior to his position at TerraCarbon, David served with The Nature Conservancy's Climate Science Team and with Winrock International. He has been a member of the Society of American Foresters since 1997.

**James Eaton, Senior Manager, Forestry and Technical Services**
Jamie provides technical support to TerraCarbon's clients that are assessing or developing forest or land-based carbon projects. For example, this includes providing technical project development services to CarbonCo for the Purus Project.

Jamie is an expert in forest and soil carbon measurement and monitoring, and has been involved in terrestrial carbon research across the globe, including Poland, Ireland, Mexico, Ecuador, and throughout North America. His publications have appeared in Forest Ecology and Management, Proceedings of the National Academy of Sciences and Climatic Change.

Prior to joining TerraCarbon, Jamie was a science policy analyst for the Terrestrial Carbon Group, where he was involved in researching and advising on the technical aspects of carbon accounting on REDD and other AFOLU project types. From 2006 to 2008, he led a large-scale soil carbon inventory project in the Republic of Ireland, which produced results that were used in

Ireland's reporting to the UNFCCC. Jamie holds a MS in Environmental Science from the University of Virginia and a BA in Biology from Saint Louis University.

**Rebecca Dickson, Senior Manager, Remote Sensing & Spatial Modeling**
Rebecca Dickson is the senior manager of remote sensing and spatial modeling at TerraCarbon. She advises TerraCarbon's clients on technical issues related to the feasibility, design, and monitoring of forest carbon projects. She is an expert in geographic information systems (GIS) and remote sensing analysis with extensive experience in land-cover classification, change analysis, and spatial modeling. Rebecca is currently a member of the CCB Standards Committee.

Prior to joining TerraCarbon, Rebecca was an assistant research professor and a postdoctoral research associate at Wake Forest University, where her research focused on land-use and land-cover change in southeastern Peru and included fusing ground data plots with remote sensed imagery analysis to develop estimates of carbon stocks across the landscape. Rebecca directed research on land-cover classification and analysis of secondary forest cover in the southern Yucatán while at the Graduate School of Geography at Clark University. She has also worked as an independent consultant for Beartooth Capital. Rebecca holds a PhD and Master of Arts in Geography from Clark University and is a former NASA Earth System Science Fellow.

**Ilderlei Souza Rodrigues Cordeiro, Private Landowner and Sole Proprietor of I.S.R.C. Investimentos e Acessória LTDA**
Ilderlei Souza Rodrigues Cordeiro was born and raised in Cruzeiro do Sul. Ilderlei worked on his father's ranch in Cruzeiro do Sul until 1996, when Ilderlei moved to Manaus where he briefly attended the ULBRA (Lutheran University of Brazil) to study civil engineering.

Ilderlei moved back to Cruzeiro do Sul in 1997 and from 2000-2003 started to open up his own business. In 2000, Ilderlei had a farm with chickens, cattle and lettuce. In 2004, Ilderlei became Vice-Mayor of Cruzeiro do Sul until December 2006. From February 2007 to 2010 Ilderlei served as a Federal Congressman in Brasilia for the State of Acre.

### G4.3. Orientation and Training

*Plan to Provide Orientation and Training for Project's Employees and Relevant Community Members*
The Valparaiso Project Proponents will provide orientation and training for the Project's employees and relevant community members. This includes building capacity among the local communities and the plan will also target underrepresented groups in the communities. To date, orientation and trainings have included:

- Meeting with Jose Getulio Silva (i.e., "Getulio," the initial Project Manager), Francisco dos Santos Silva and the minister Valdecir of the local church to discuss the Project
- Ilderlei Souza Rodrigues Cordeiro has also met with the local communities at the Valparaiso Project for over three years to provide orientation to the Valparaiso Project, the adjacent Russas Project and conservation activities
- CarbonCo, Carbon Securities and TerraCarbon had a kick-off meeting and orientation in August 2011 with 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 and provided a online, refresher training for TECMAN in January 2013.

In the near term, the Project Proponents would like to have:

- State of Acre's CEFLORA (Centro de Formação e Tecnologia da Floresta or Center for Training and Forest Technology), the Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul and/or S.O.S. Amazônia assist with agricultural extension trainings based off the top-ten agricultural extension courses
- The courses will assist with training local, on-the-ground monitors of deforestation
- Assistance from an organization or individual such as S.O.S. Amazônia or André Luis Botelho de Moura to train the Project Proponents and local communities on proper techniques for wildlife cameras and biodiversity monitoring.
- Hire agronomists, such as Edigane Maciel, and forest engineers to provide additional courses and training for the local communities

Furthermore, Manoel Batista Lopes, ME and Ilderlei Souza Rodrigues Cordeiro will utilize S.O.S. Amazônia to assist with training new workers when there is staff turnover.

**G4.4. Community Involvement**

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

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

To date, the communities have been involved in the Valparaiso Project by:

- Acting as guides
- Providing lodging, food and transportation services
- Local project manager and initiate monitoring for deforestation
- Choosing the particular crops and techniques they would like to learn more about
- Discussing the Project design, benefits of the project, how they would like to participate

As the Valparaiso Project proceeds, the communities will eventually be considered for a variety of roles and employment opportunities such as:

- Additional local, on-the-ground monitors for deforestation
- Retrieval of biodiversity monitoring data
- Participation in cooperative agricultural projects
- Working internal jobs at the Project site (for example: hiring additional deforestation monitor, working at the açaí processing plant, maintain the Project's headquarters, and to provide transportation services)
- Nurse for health and dental clinic

Economic opportunities and participation in social projects will be offered regardless of race, religion, sexual orientation, or gender.

To help ensure equal opportunities, all employment positions will be announced at the monthly community meetings and such employment opportunities will also be communicated via word-of-mouth to each community from the local, onsite Project Manager.

All community members interested in being considered for the employment opportunity will be asked to either directly contact Ilderlei Souza Rodrigues Cordeiro, Manoel Batista Lopes, ME or to express their interest to the local, onsite Project Manager who will then contact Ilderlei Souza Rodrigues Cordeiro on their behalf.

Manoel Batista Lopes, ME or Ilderlei Souza Rodrigues Cordeiro will interview all applicants, including women and underrepresented groups, and hire the best applicant(s) based on their previous experience vis-à-vis the job requirements. If all eligible applicants have similar experience, then Manoel Batista Lopes, ME and Ilderlei Souza Rodrigues Cordeiro will choose and help train the applicant who is underrepresented including women applicants and applicants with less financial stability.

**G4.5. Relevant Laws and Regulations**

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

The Valparaiso Project shall meet, or exceed, 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:
  - Minimum wage
  - Normal working hours
  - Guidance on vacation and weekly leave
  - Guidance on maternity and paternity leave
  - Recognition of collective bargaining
  - Prohibition of discrimination[54]

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).[55] This decree gives more clarification on:
  - Hourly, daily, weekly and monthly work hours
  - Employment of minors and women
  - Establishes a minimum wage
  - Worker safety and safe working environments

[54] Massachusetts Institute of Technology, "Brazilian Constitution," Available: http://web.mit.edu/12.000/www/m2006/teams/willr3/const.htm

[55] 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

- Defines penalties for non-compliance by employers
- Establishes a judicial work-related process for addressing all worker related issues

- Estatui normas reguladoras do trabalho rural: LEI Nº 5.889, DE 8 DE JUNHO DE 1973 (Establishes Regular Norms for Rural Workers).[56] This is a complimentary law to the aforementioned 1943 decree because prior to 1973, rural workers did not have the same rights as urban workers. In 1973, this law was established to specify the equality between urban and rural workers, along with compensation for overtime.

*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. Ilderlei Souza Rodrigues Cordeiro has an explanatory letter on labor rights that will be presented to all 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, Manoel Batista Lopes, ME have provided "Receita Federal" 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 at 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.

### G4.6. Worker Safety Assurance

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

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
- Tropical Diseases

[56] 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

*Drowning*
It is important to note, that all boats travel relatively slow on the Valparaiso and Juruá River, many participants know how to swim, and life preservers are always onboard in case a boat does happen to 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 Valparaiso Project Landowner's 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[57] and specifically within the State of Acre.[58] The snake species of greatest concern are the fer-de-lance (*Bothrops atrox*) and the South American bushmaster (*Lachesis muta*).[59] To mitigate such risk, all TECMAN's employees were equipped with and required to wear protective snake chaps. There are also many poisonous spiders and scorpions in tropical rainforests.

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

[57] J.-P. Chippaux. "Reviews/Analyses," Available: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2305789/pdf/bullwho00388-0084.pdf
[58] 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,"
[59] Fabiano Waldez and Richard C. Vogt, "Ecological and epidemiological aspects of snakebites in riverside communities of the lower Juruá River, Amazonas, Brazil," Available: http://piagacu.org.br/?attachment_id=416

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).

*Tropical Diseases*
There are many tropical diseases in Acre, Brazil such as malaria, yellow fever and chagas disease. The Project Proponents are encouraged to get yellow fever vaccinations, malaria pills are available, and mosquito nets are frequently used.

### G4.7. 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 has provided financial resources to its wholly-owned subsidiary CarbonCo to implement REDD+ projects and particularly the Valparaiso Project.

Carbonfund.org's independently audited IRS Form 990s are publicly available and document Carbonfund.org's financial health. To learn more, see GuideStar.

CarbonCo successfully financed the Purus Project and is thus, well-aware of the financial resources required for the Valparaiso Project.

Furthermore, contractual agreements outlining the financial arrangement between the Project Proponents, along with detailed pro formas, have been provided to the independent validation firm, Environmental Services, Inc.

## G5. Legal Status and Property Rights

The Valparaiso 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.

### G5.1. 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 which are relevant to the Valparaiso 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
- United Nations Declaration on the Rights of Indigenous Peoples
- 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." Such an MOU specifically includes:

> New areas of cooperation would be added, including, but not limited to, the following areas: reducing emissions from deforestation and forest degradation (REDD+); and low-carbon development (…) To exchange experiences on strategies and domestic policies, including carbon markets, to address climate change.[60]

Furthermore, there was an international MOU between California (United States), Chiapas (Mexico) and Acre (Brazil) signed on November 16, 2010. A few key aspects of this MOU relating to the Valparaiso Project include:

> Recognizing further the importance of focusing on issues of common interest between the Parties, such as reducing greenhouse gas emissions in the forest sector by preserving standing forests and sequestering additional carbon through the restoration and reforestation of degraded lands and forest, and through improved forest management practices;
>
> Recognizing further that the Governors' Climate and Forests (GCF) Task Force is a unique subnational collaboration between 14 states and provinces from the United States, Brazil, Indonesia, Nigeria, and Mexico that seeks to integrate Reducing Emissions from Deforestation and Forest Degradation (REDD) and other forest carbon activities into emerging greenhouse gas (GHG) compliance regimes in the United States and elsewhere. As such, the GCF represents an important foundation for identifying enhanced partnerships.
>
> ARTICLE 2 The Parties will coordinate efforts and promote collaboration for environmental management, scientific and technical investigation, and capacity building, through cooperative efforts focused particularly on:
>
> a. Reducing greenhouse gas emissions from deforestation and land degradation - otherwise known as "REDD" - and sequestration of additional carbon through the restoration and reforestation of degraded lands and forests, and through improved forest management practices.
>
> b. Developing recommendations together to ensure that forest-sector emissions reductions and sequestrations, from activities undertaken at the sub-national level, will be

[60] 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

> real, additional, quantifiable, permanent, verifiable and enforceable, and capable of being recognized in compliance mechanisms of each party's state.[61]

The State of Acre is also an active member in the Governors' Climate and Forest Task Force.[62]

**National Laws and Regulatory Frameworks**

The Valparaiso Project will 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:

> Article 225. All have the right to an ecologically balanced environment which is an asset of common use and essential to a healthy quality of life, and both the Government and the community shall have the duty to defend and preserve it for present and future generations.
>
> Paragraph 1 - In order to ensure the effectiveness of this right, it is incumbent upon the Government to:
>
> 1. Preserve and restore the essential ecological processes and provide for the ecological treatment of species and ecosystems;
>
> 2. Preserve the diversity and integrity of the genetic patrimony of the country and to control entities engaged in research and manipulation of genetic material;
>
> 5. Control the production, sale and use of techniques, methods or substances which represent a risk to life, the quality of life and the environment;
>
> 6. Promote environment education in all school levels and public awareness of the need to preserve the environment;
>
> 7. Protect the fauna and the flora, with prohibition, in the manner prescribed by law, of all practices which represent a risk to their ecological function, cause the extinction of species or subject animals to cruelty.
>
> Paragraph 4 - The Brazilian Amazonian Forest, the Atlantic Forest, the Serra do Mar, the Pantanal Mato-Grossense and the coastal zone are part of the national patrimony, and they shall be used, as provided by law, under conditions which ensure the preservation of the environment, therein included the use of mineral resources.[63]

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[61] 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

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

[63] Georgetown University, "1988 Constitution, with 1996 reforms in English," Available: http://pdba.georgetown.edu/Constitutions/Brazil/english96.html#mozTocId920049

*Compliance with Law*
Although the Valparaiso 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 Valparaiso Project will incorporate environmental education.

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

- The original Brazil Forest Code entitled, Law No. 4771, September 15, 1965.[64]
- Revision of Brazil Forest Code under Law No. 7803, July 18, 1989.[65]
- Provisional Measure entitled 2166-67, August 24, 2001.[66]
- Revision of Brazil Forest Code under Law No. 12.651 of May 25, 2012.[67]

*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.[68] Many of these provisions have been revised since 1965.

*Compliance with Law*
The Valparaiso 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."

*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

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[64] Presidency of the Republic, "Law No. 4771, September 15, 1965," Available: http://www.planalto.gov.br/ccivil_03/Leis/L4771.htm
[65] Presidency of the Republic, "Law No. 7803, July 18, 1989," Available: http://www.planalto.gov.br/ccivil_03/leis/L7803.htm
[66] Presidency of the Republic, "Provisional Measure 2166-67, August 24, 2001," Available: https://www.planalto.gov.br/ccivil_03/MPV/2166-67.htm
[67] Presidency of the Republic, Civil House Cabinet Subcommittee for Legal Affairs, "Law No. 12,651, OF 25 MAY 2012," Available: http://www.planalto.gov.br/ccivil_03/_Ato2011-2014/2012/Lei/L12651.htm
[68] Presidency of the Republic, "Law No. 4771, September 15, 1965," Available: http://www.planalto.gov.br/ccivil_03/Leis/L4771.htm

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.[69]

*Compliance with Law*
The Valparaiso 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 Manoel Batista Lopes, ME.

*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 Valparaiso 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.[70]

*Compliance with Law*
As mentioned previously, the Valparaiso 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.

*Title of Law*
Law Number 12.651 of May 25, 2012, which is the latest Brazilian Forest Code.[71]

*Summary of Law*
The latest Brazilian Forest Code, "Provides for the protection of native vegetation; amends Laws Nos. 6938 of August 31, 1981, 9,393, of December 19, 1996, and 11,428 of December 22, 2006, repealing the Laws No. 4771, 15 September 1965 and 7754, of April 14, 1989, and Provisional Measure No. 2.166-67, of August 24, 2001, and other provisions."

Other key provisions of the Brazilian Forest Code include:

"CHAPTER I: GENERAL PROVISIONS

[The] Article 1-A. This Act lays down general rules on the protection of vegetation, Permanent Preservation Areas and Legal Reserves, forest exploitation, the supply of forest raw materials,

[69] Presidency of the Republic, "Law No. 7803, July 18, 1989," Available: http://www.planalto.gov.br/ccivil_03/leis/L7803.htm
[70] Presidency of the Republic, "Provisional Measure 2166-67, August 24, 2001," Available: https://www.planalto.gov.br/ccivil_03/MPV/2166-67.htm
[71] Presidency of the Republic, Civil House Cabinet Subcommittee for Legal Affairs, "Law No. 12,651, OF 25 MAY 2012," Available: http://www.planalto.gov.br/ccivil_03/_Ato2011-2014/2012/Lei/L12651.htm

control the origin of forest products and the prevention and control of forest fires, and provides economic and financial instruments for the achievement of its objectives

II - reaffirming the importance of the strategic role of farming and the role of forests and other forms of native vegetation in sustainability, economic growth, improving the quality of life of the population and the country's presence in the domestic and international food and bioenergy; (Included by Law No. 12,727, 2012).

VI - the creation and mobilization of economic incentives to encourage the preservation and restoration of native vegetation and to promote the development of sustainable productive activities.

Article 3 For the purposes of this Act, the following definitions apply:

I - Amazon: the states of Acre, Pará, Amazonas, Roraima, Rondônia, Mato Grosso and Amapá and the regions north of latitude 13 ° S, the states of Goiás and Tocantins, and west of 44 ° W , State of Maranhão;

II - Permanent Preservation Area - APP: protected area, or not covered by native vegetation, with the environmental function of preserving water resources, landscape, geological stability, biodiversity, facilitate gene flow of fauna and flora, soil protection and ensure the well-being of human populations;

III - Legal Reserve area located within a rural property or ownership, demarcated according to art. 12, with the function of ensuring a sustainable economic use of natural resources of rural property, assist the conservation and rehabilitation of ecological processes and to promote the conservation of biodiversity, as well as shelter and protection of wildlife and native flora;

VI - alternative land use: replacement of native vegetation and succeeding formations other ground covers such as agricultural activities, industrial, power generation and transmission of energy, mining and transport, urban settlements or other forms of human occupation;

## CHAPTER II: AREAS OF PERMANENT PRESERVATION
### Section I: Delimitation of Areas of Permanent Preservation

III - the licensing is done by the competent environmental authority;
IV - the property is registered in the Rural Environmental Registry - CAR.

## CHAPTER IV: AREA LEGAL RESERVE
### Section I: Delimitation of the Legal Reserve Area

Article 12. All property must maintain rural area with native vegetation cover, as a legal reserve, without prejudice to the application of the rules on the Permanent Preservation Areas, subject to the following minimum percentages in relation to the area of the property, except as specified in art. 68 of this Act: (Amended by Law No. 12,727, 2012).

I - located in the Amazon:
a) 80% (eighty percent), in the property situated in forest area;
b) 35% (thirty five percent), in the property situated in cerrado;
c) 20% (twenty percent), in the property situated in the area of general fields;
II - located in other regions of the country: 20% (twenty percent).

CHAPTER V: THE SUPPRESSION OF VEGETATION FOR ALTERNATIVE USE OF SOIL

Article 26. The removal of native vegetation to alternative land use, both public domain and private domain, depend on the registration of the property in CAR, mentioned in art. 29, and the prior authorization of the competent state agency Sisnama."

*Compliance with Law*
The Valparaiso Project is in compliance with the latest Brazil Forest Code. Acre is still considered an Amazonian State and thus, the Project must maintain 80% of forest cover as a legal reserve. This can be demonstrated via firsthand observations and review of satellite imagery.

In addition to the Forest Code, Brazil's National Environmental Policy is also relevant to the Valparaiso Project.[72]

*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 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.[73]

*Compliance with Law*
The Valparaiso 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 Valparaiso 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 Valparaiso Project is the National Climate Change Policy (NCCP):

[72] Presidency of the Republic, "Law No. 6.938, August 31, 1981," Available: http://www.planalto.gov.br/ccivil_03/leis/L6938.htm
[73] Presidency of the Republic, "Law No. 6.938, August 31, 1981," Available: http://www.planalto.gov.br/ccivil_03/leis/L6938.htm

On December 29, 2009, the Brazilian Parliament adopted Law 12.187. The law establishes the National Climate Change Policy (NCCP) of Brazil and sets a voluntary national greenhouse gas reduction target of between 36.1 and 38.9 percent of projected emissions by 2020. On October 26, 2010, the government published an executive summary of the sectoral mitigation plans to implement its voluntary commitment.

Among other instruments, the NCCP law considers in article 9 the creation of a Brazilian Emission Reductions Market (BERM) to achieve the voluntary emission reduction target. It will be operationalized by Brazilian stock exchanges and the Securities Commission.

As a signatory of the Copenhagen Accord, Brazil detailed this voluntary commitment in an official communication on NAMAs to the UNFCCC Secretariat as follows:

> LULUCF: Reducing deforestation in the Amazon Region and the Cerrado (minus 668 MtCO2e/year in 2020); degraded pastures recovery (minus 83 to 104 MtCO2e/year in 2020); reduction of livestock emissions (minus 22 MtCO2e/year in 2020); zero tillage (minus 20 MtCO2e/year in 2020); biological fixing of N2 (minus 16 to 22 MtCO2e/year in 2020).[74]

*Compliance with Law*

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

**State Laws and Regulatory Frameworks**

The Project Proponents of the Valparaiso 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."[75]

[74] World Bank, "State and Trends of the Carbon Market 2010," Available: http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/StateAndTrend_LowRes.pdf.
[75] 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 with Law*
As a tropical forest ecosystem services project, otherwise known as REDD+, the Valparaiso 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 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."[76] 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 Valparaiso 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."[77]

**G5.2-3. Approval from Appropriate Authorities**
*Document that the Project has Approval from the Appropriate Authorities*
The Valparaiso Project has approval from Manoel Batista Lopes who privately owns the Valparaiso Project property and the Project Proponents have received approval from the local communities. Such approvals are evidenced by the Tri-Party Agreement between the Project Proponents, along with the "ata" signed by the local communities.

The Project Proponents are also in active communication with the State of Acre and the Project Proponents also have letters of support from several institutions including:

- The President of ITERACRE
- The President of the Legislature for the Municipality of Cruzeiro do Sul
- The State Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul

Upon validation of the Valparaiso Project, the Project Proponents will officially register the Valparaiso Project with the State of Acre (i.e., receive an official seal and number) and will also upload the Project to the State of Acre's Climate Change Institute.

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

[76] The Governor of the State of Acre, "Acre Forestry Law, December, 27, 2001," Available: http://webserver.mp.ac.gov.br/?dl_id=800
[77] 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 Valparaiso Project has been delineated and will specifically target the conservation of private property within the Valparaiso Project.

The areas where communities have traditionally lived on the Valparaiso 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 several "atas." In addition, Manoel Batista Lopes, ME will voluntarily recognize whatever area is currently deforested and under productive use by each family. All communities, whether they join the Valparaiso 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 Valparaiso Project Area.

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

**G5.4. Non-Involuntary Relocation**
*Demonstrate Project does not Require Involuntary Relocation of People or of Important Activities*
The Valparaiso Project does not require the involuntary relocation of people nor important activities related to the communities' livelihoods and culture.

**G5.5. 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 Valparaiso Project and the appropriate authorities will be contacted.

**G5.6. Property Rights and Carbon Rights**
The Project Proponents have clear, uncontested title to both property rights and the carbon rights.

Review of the Landowner and properties on which the Valparaiso Project has been implemented were conducted to ensure full title validity and accuracy. A copy of the property rights documentation is provided in the project database including the:

- Certidao de Inteiro Teor (or certification of full rights), and
- Memorial Descritivo

This documentation satisfies the VCS Standard as rights of use "arising by virtue of a statutory, property or contractual right."[78]

Carbon Securities and CarbonCo conducted an initial search for any pending cases, lawsuits, or other problems associated with the Landowner, 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 (Cadastro Nacional da Pessoa Jurídica, which is equivalent to the EIN or Employer Identification Number in the US). Federal tax issues and liens associated with the Landowner and the project property, were assessed using the CPF, CNPJ and Imóvel Rural (NIRF) using the Secretariat of the Federal Reserve of Brazil website.[79]

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 and CarbonCo visited the IBAMA, or Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, website[80] 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[81] 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).[82]

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.[83] 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 Manoel Batista Lopes to CarbonCo and Carbon Securities.

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[78] VCS. 2012 VCS Standard. Version 3.2, 01 February 2012. Verified Carbon Standard, Washington, DC.
[79] http://www.receita.fazenda.gov.br/grupo2/certidoes.htm
[80] IBAMA, "Certidão Negativa de Débito," Available: http://www.ibama.gov.br/sicafiext/sistema.php
[81] Ministry of Justice of Brazil, "Cadastro de Cartório do Brasil," Available: http://portal.mj.gov.br/CartorioInterConsulta/consulta.do?action=prepararConsulta&uf=AC
[82] 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
[83] José D.G. Miguez, "CDM in Brazil," Available: www.oecd.org/dataoecd/9/6/2790262.pdf

# CLIMATE SECTION

## CL1. Net Positive Climate Impacts

The Valparaiso Project will generate net positive climate impacts over the Project Lifetime by mitigating deforestation within the project boundaries which would have resulted in the release of greenhouse gas emissions.

### CL1.1. Estimation of Net Changes in Carbon Stocks

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

To review the robust and detailed methodology used to estimate the net change in carbon stocks due to the project activities, please see the VCS Project Description.

### CL1.2. Other non-$CO_2$ Greenhouse Gases

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

Please see the VCS Project Description for an estimate of the net change in non-$CO_2$ GHG emissions.

### CL1.3. Project Activities' GHG Emissions

*Estimate any Other GHG Emissions Resulting from Project Activities*

Please see the VCS Project Description for an estimate of the Project activities' GHG emissions.

### CL1.4. Net Climate Impact

*Demonstrate that the Net Climate Impact of the Project is Positive*

The Valparaiso Project will have a net positive climate impact 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 Project Description.

### CL1.5. Avoidance of Double Counting

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

The Valparaiso Project is also being developed for validation and verification to the Verified Carbon Standard (VCS). The issuance of Verified Carbon Units (VCUs) onto the VCS-approved Markit Environmental Registry will ensure the avoidance of GHG emissions being double counted.

The Valparaiso Project has not, nor intends, to generate any other form of GHG-related environmental credit for GHG emission reductions or removals. In addition, there will be no other form of environmental credit including biodiversity credits or species banking, nor water or nutrient certificates.[84]

Lastly as of July 2013, Brazil did not have a mandatory GHG emissions cap and specifically not among the forestry sector.

## CL2. Offsite Climate Impacts ("Leakage")

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

[84] Forest Trends, "Our Initiatives," Available: http://www.forest-trends.org/#

### CL2.1. Types of Leakage

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

The only type of leakage expected from the Valparaiso Project is activity-shifting leakage. Market leakage is not expected because there is no commercial extraction of wood for timber, fuelwood or charcoal. Please see the VCS Project Description for a discussion and quantification of the Project's leakage.

### CL2.2. Mitigation of Leakage

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

There are a variety of leakage mitigation activities which shall be undertaken to address the activity-shifting leakage. This includes:

- The Valparaiso Project is working in unison with the Russas Project, which is the largest adjacent landowner to the Valparaiso Project
- The State of Acre's Payment for Ecosystem Services Scheme
- Agricultural extension trainings will be offered to communities in leakage belt
- Manoel Batista Lopes, ME with its partnership with Ilderlei Souza Rodrigues Cordeiro will also monitor the leakage belt and will report illegal deforestation to the authorities

### CL2.3-4. Subtraction of Unmitigated Negative Offsite Climate Impacts

*Subtract Any Likely Project-Related Unmitigated Negative Offsite Climate Impacts*

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

*Non-$CO_2$ Gases*

The Project shall account for any non-$CO_2$ GHG emissions (e.g., methane or nitrous oxides) if they are likely to account for more than a 5% increase or decrease (in terms of $CO_2e$) of the net change calculations.

## CL3. Climate Impact Monitoring

The Valparaiso Project Proponents have a climate impact monitoring plan in place which identifies the types of measurements, sampling method, and frequency of measurements.

### CL3.1. Initial Monitoring Plan

The Valparaiso Project has a complete and detailed climate impact monitoring plan which accounts for leakage and the required carbon pools.

### CL3.2. Full Monitoring Plan

For the Valparaiso Project's full climate impact monitoring plan, which also addressed the initial monitoring plan requirements, please see the VCS Project Description.

# COMMUNITY SECTION

## CM1. Net Positive Community Impacts

The Valparaiso Project will generate net positive community impacts which are equitably shared and the Project will also maintain, or enhance, high conservation values important to the communities.

### CM1.1. 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 monitored to ensure positive net benefits for all communities (see Section, *CM3. Community Impact Monitoring*).

The general process of identifying community impacts was to:

- Manoel Batista Lopes, ME and Ilderlei Souza Rodrigues Cordeiro met with Community to Discuss Project
- Manoel Batista Lopes, ME partnered with Ilderlei Souza Rodrigues Cordeiro
- 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: Part 1, 2 and 3 (see bibliography)
- PRAs and BNS Assessment Conducted by Project Proponents
- Casual Analysis to Develop a Theory of Change

*Participatory Rural Assessment*

A Participatory Rural Assessment (PRA, also known as a Participatory Rural Appraisal) with the Russas Project communities was conducted by CarbonCo, Carbon Securities, and Ilderlei Souza Rodrigues Cordeiro from March 30 – April 1, 2013 and Ilderlei conducted additional surveys at the Valparaiso Project from May 11-15, 2013. The Project Proponents attempted to sample each community living within the Valparaiso Project Area, along with all adjacent communities living within the Project Zone. A total of 36 communities – thirty communities within the Valparaiso Project Area and six communities living adjacent to the Project Area (i.e., within the Project Zone) - were interviewed as part of the PRA.

The aggregated results of the PRA were as follows:

| Grand Totals (Inside Valparaiso Project and Valparaiso Project's Leakage Belt) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | How Many Years Lived Here? | Do You Participate in Agriculture (Yes = 1, No = 0) | Do You Participate in Cattle Ranching (Yes = 1, No = 0) | Do You Participate in Timber Extraction / Logging (Yes = 1, No = 0) | Do You Participate in Fuel Wood Collection (Yes = 1, No = 0) | Do You Participate in Charcoal Production (Yes = 1, No = 0) | Do You Sell Crops or Cattle Outside Property (Yes = 1, No = 0) | How Much Fuel Wood, on Average, Collected per Week? |
| Average | 27.6 | N/A | N/A | N/A | N/A | N/A | N/A | 0.5 |
| Total of Yes Responses | N/A | 36 | 10 | 31 | 32 | 0 | 35 | N/A |
| Total of No Responses | N/A | 0 | 26 | 5 | 4 | 36 | 1 | N/A |
| Percentage of Yes Responses | N/A | 100.00% | 27.78% | 86.11% | 88.89% | 0.00% | 97.22% | N/A |
| Percentage of No Responses | N/A | 0.00% | 72.22% | 13.89% | 11.11% | 100.00% | 2.78% | N/A |
| Number Over 5 Years | 34 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Percentage Over 5 Years | 94.44% | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | | | | | | | | |
| | Do You Use Fuel Wood for Cooking (Yes = 1, No = 0) | Do You Have a Sustainable Fuel Wood Lot (Yes = 1, No = 0) | Do You Make Charcoal (Yes = 1, No = 0) | Do You Sell Charcoal (Yes = 1, No = 0) | Do You Sell Timber (Yes = 1, No = 0) | How Far into Forest Do You Go to Collect Construction Timber? (In Meters) | How Many Meters Away From House do You Collect Fuel Wood? | How Much Fuel Wood, on Average, Collected per Year? |
| Average | 31 | 0 | 0 | 0 | 1 | 84,350 | 14,250 | 313.5 |
| Total of Yes Responses | N/A | N/A | N/A | N/A | N/A | 2,343.1 | 459.7 | 22.4 |
| Total of No Responses | 31 | 0 | 0 | 0 | 1 | N/A | N/A | N/A |
| Percentage of Yes Responses | 5 | 36 | 36 | 36 | 35 | N/A | N/A | N/A |
| Percentage of No Responses | 86.11% | 0.00% | 0.00% | 0.00% | 2.78% | N/A | N/A | N/A |
| Number Over 5 Years | 13.89% | 100.00% | 100.00% | 100.00% | 97.22% | N/A | N/A | N/A |
| Percentage Over 5 Years | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Figure 10: Aggregated Results of Participatory Rural Assessment (Credit: Brian McFarland)*

As one can observe, all community members practice agriculture and slightly more than 25% of the communities participate in cattle-ranching. It is also important to note that although no communities sell timber outside of the community, a significant majority of the communities sell either crops or cattle and a significant majority also collects fuel wood.

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 Ilderlei Souza Rodrigues Cordeiro also conducted a Basic Necessities Survey (BNS) from March 30 – April 1, 2013 and from May 11-15, 2013 among 35 of the 36 aforementioned communities. Essentially, a focus group was created among the Project Proponents and the community to identify the top 27 assets or services which were believed to be basic necessities or things that no one should have to live without.

*Basic Necessity Survey Focus Group (Photo Credit: Ilderlei Cordeiro)*

The Project Proponents then individually surveyed each of the 35 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 the BNS among the 30 communities living inside the Valparaiso Project are as follows:

| | Aggegated Data from Basic Necessities Survey (Communities Inside Valparaiso Project) | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total Surveys: 30 | | | | | | |
| | | | | | | | |
| | 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 | Asset | Telephone | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 2 | Asset | Machete | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 3 | Asset | Ax | 1 | 3.3% | 29 | 96.7% | 0.967 |
| 4 | Asset | Hoe | 1 | 3.3% | 29 | 96.7% | 0.967 |
| 5 | Asset | Planting Tool | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 6 | Asset | Boat Engine / Motor | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 7 | Asset | Boat or Canoe | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 8 | Asset | Boots | 1 | 3.3% | 29 | 96.7% | 0.967 |
| 9 | Asset | Cooking Stove | 2 | 6.7% | 28 | 93.3% | 0.933 |
| 10 | Asset | Dishware Set | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 11 | Asset | Fishing Pole and Line | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 12 | Asset | Diesel Generator | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 13 | Asset | Diesel | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 14 | Asset | TV with Antenna | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 15 | Asset | Kit for Making Manioc Flour | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 16 | Asset | Hammock | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 17 | Asset | Bed and Mattress | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 18 | Service | Food | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 19 | Asset | House | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 20 | Asset | Chicken Coup | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 21 | Asset | Pasture Fence | 1 | 3.3% | 29 | 96.7% | 0.967 |
| 22 | Asset | House for Pigs | 6 | 20.0% | 24 | 80.0% | 0.800 |
| 23 | Service | Sense of Security | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 24 | Service | Access to Doctor and Clinic | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 25 | Service | Access to Good School | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 26 | Asset | Weedwacker | 0 | 0.0% | 30 | 100.0% | 1.000 |
| 27 | Asset | Freezer | 3 | 10.0% | 27 | 90.0% | 0.900 |

*Figure 11: Aggregated Results of Participatory Rural Assessment (Credit: Brian McFarland)*

Rearranging the data from above, the top 20 Basic Necessities among the communities living within the Valparaiso Project were as follows:

| Aggegated Data from Basic Necessities Survey (Communities Inside Valparaiso Project) | | | | | | |
|---|---|---|---|---|---|---|
| Total Surveys: 30 | | | | | | |
| | | | | | | |
| | 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 | Dishware Set | 30 | 100.0% | 1.000 | 30 | 100.00% |
| 2 | Hammock | 30 | 100.0% | 1.000 | 28 | 93.33% |
| 3 | Bed and Mattress | 30 | 100.0% | 1.000 | 28 | 93.33% |
| 4 | House | 30 | 100.0% | 1.000 | 28 | 93.33% |
| 5 | Access to Good School | 30 | 100.0% | 1.000 | 27 | 90.00% |
| 6 | Machete | 30 | 100.0% | 1.000 | 26 | 86.67% |
| 7 | Boat Engine / Motor | 30 | 100.0% | 1.000 | 22 | 73.33% |
| 8 | Food | 30 | 100.0% | 1.000 | 22 | 73.33% |
| 9 | Diesel | 30 | 100.0% | 1.000 | 20 | 66.67% |
| 10 | Boat or Canoe | 30 | 100.0% | 1.000 | 19 | 63.33% |
| 11 | Fishing Pole and Line | 30 | 100.0% | 1.000 | 18 | 60.00% |
| 12 | Access to Doctor and Clinic | 30 | 100.0% | 1.000 | 17 | 56.67% |
| 13 | Diesel Generator | 30 | 100.0% | 1.000 | 15 | 50.00% |
| 14 | TV with Antenna | 30 | 100.0% | 1.000 | 15 | 50.00% |
| 15 | Kit for Making Manioc Flour | 30 | 100.0% | 1.000 | 14 | 46.67% |
| 16 | Sense of Security | 30 | 100.0% | 1.000 | 12 | 40.00% |
| 17 | Chicken Coup | 30 | 100.0% | 1.000 | 10 | 33.33% |
| 18 | Planting Tool | 30 | 100.0% | 1.000 | 9 | 30.00% |
| 19 | Telephone | 30 | 100.0% | 1.000 | 5 | 16.67% |
| 20 | Weedwacker | 30 | 100.0% | 1.000 | 2 | 6.67% |

*Figure 12: Top 20 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 Ilderlei Souza Rodrigues Cordeiro and Manoel Batista Lopes, ME. For example, this includes the access to weedwacker, planting tool, and a kit for making manioc flour.

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

| Summary Statistics for Inside Valparaiso Project | |
|---|---|
| Highest Total Value of Owned Assets | R$ 57,248.00 |
| Lowest Total Value of Owned Assets | R$ 1,664.00 |
| Total Value of Owned Assets Range | R$ 55,584.00 |
| Average Total Value of Owned Assets | R$ 39,085.83 |
| % Above Total Value of Owned Assets Average | 50.00% |
| % Below Total Value of Owned Assets Average | 50.00% |

| Summary Statistics for Inside Valparaiso Project | |
|---|---|
| Highest Total Value of Owned Assets Per Capita | R$ 31,924.00 |
| Lowest Total Value of Owned Assets Per Capita | R$ 1,664.00 |
| Total Value of Owned Assets Per Capita Range | R$ 30,260.00 |
| Average Total Value of Owned Assets Per Capita | R$ 8,718.36 |
| % Above Total Value of Assets Per Capita Average | 26.67% |
| % Below Total Value of Assets Per Capita Average | 73.33% |

| Summary Statistics for Valparaiso Project's Leakage Belt | |
|---|---|
| Highest Total Value of Owned Assets | R$ 64,656.00 |
| Lowest Total Value of Owned Assets | R$ 29,921.00 |
| Total Value of Owned Assets Range | R$ 34,735.00 |
| Average Total Value of Owned Assets | R$ 45,617.80 |
| % Above Total Value of Owned Assets Average | 40.00% |
| % Below Total Value of Owned Assets Average | 60.00% |

| Summary Statistics for Valparaiso Project's Leakage Belt | |
|---|---|
| Highest Total Value of Owned Assets Per Capita | R$ 25,609.50 |
| Lowest Total Value of Owned Assets Per Capita | R$ 5,877.82 |
| Total Value of Owned Assets Per Capita Range | R$ 19,731.68 |
| Average Total Value of Owned Assets Per Capita | R$ 10,237.40 |
| % Above Total Value of Assets Per Capita Average | 20.00% |
| % Below Total Value of Assets Per Capita Average | 80.00% |

*Figure 13: Summary Statistics of the Basic Necessities Survey (Credit: Brian McFarland)*

*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)."[85] Likewise, the Valparaiso Project strategies and activities will lead to outputs, followed by outcomes, and ultimately by net positive climate, community and biodiversity impacts.[86]

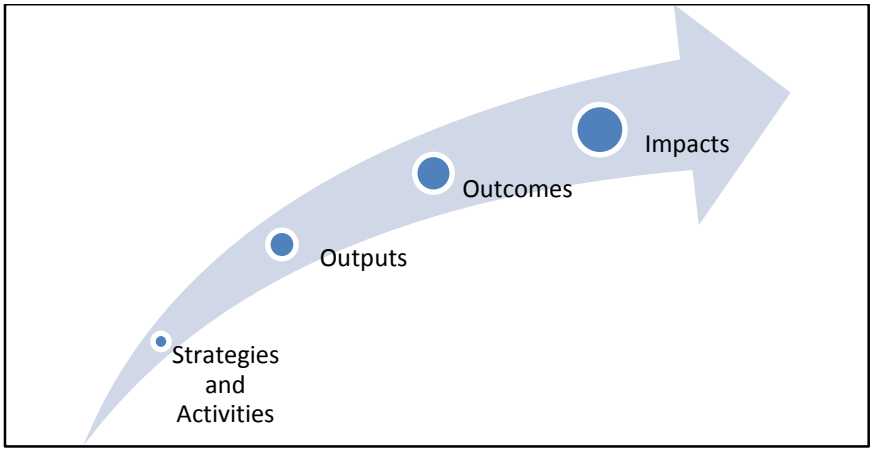


*Figure 14: Progression from Project Strategies and Activities through Community Impacts*

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.[87]

The following causal analysis has been conducted to demonstrate net positive community impacts from the Valparaiso Project.[88]

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[85] 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.

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

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

[88] 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.

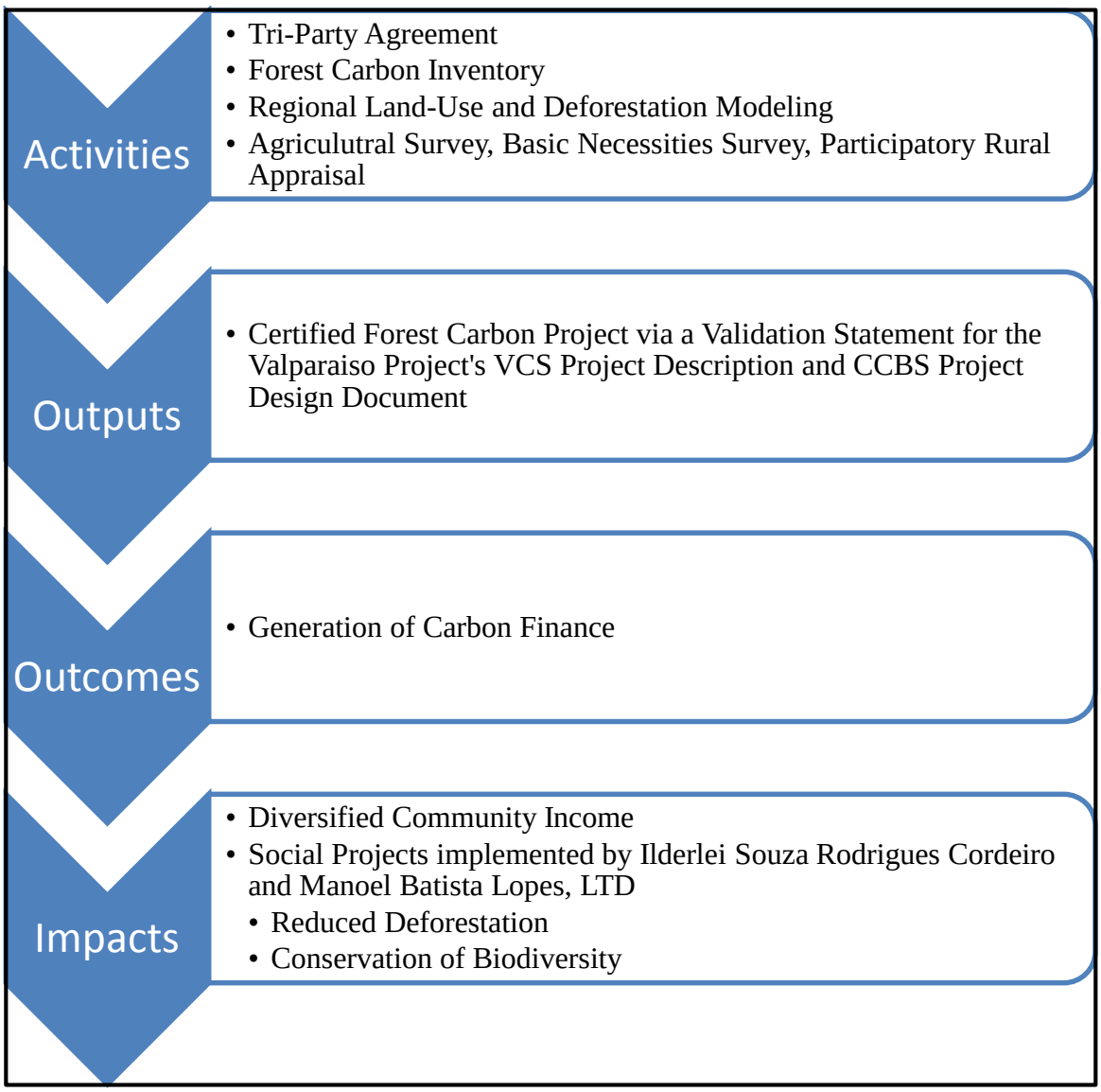


*Figure 15: Activities, Outputs, Outcomes and Impacts of Carbon Finance*

*IF, THEN Statements*
If the 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 are successfully accomplished, then the output will be a certified forest carbon project with a validation statement for the VCS and CCBS. If the validation statement is received, then carbon finance can be generated. If carbon finance is generated, then the communities will diversify incomes and Ilderlei Souza Rodrigues Cordeiro and Manoel Batista Lopes, ME will be able to implement social projects and programs. If communities diversify incomes and social projects (e.g., agricultural extension trainings) and programs are implemented, then deforestation will be reduced and biodiversity will be conserved.

*Agricultural Surveys*
The following Theory of Change is for Agricultural Surveys.

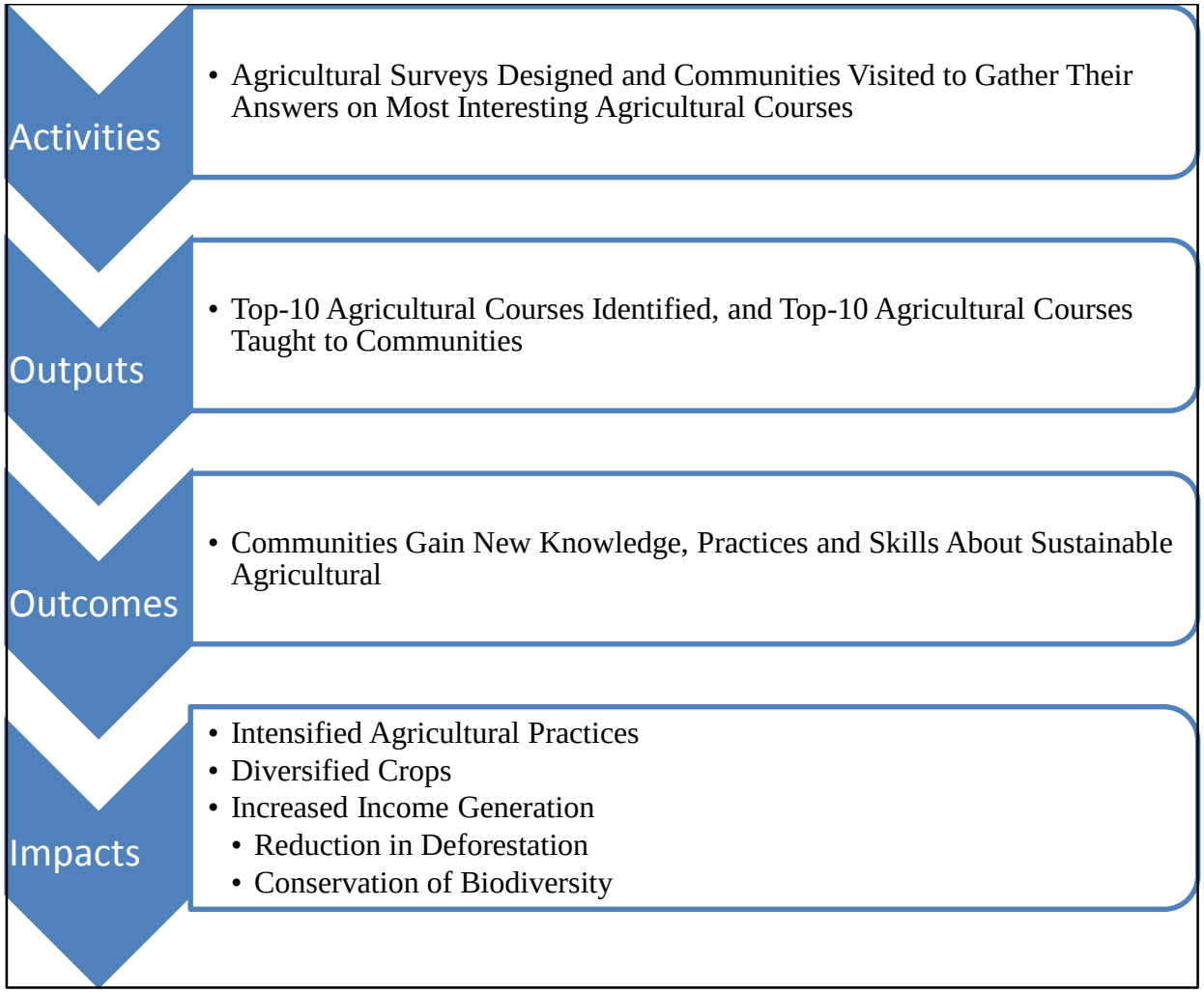


*Figure 16: Activities, Outputs, Outcomes and Impacts of Agricultural Survey*

*IF, THEN Statements*
If agricultural surveys are designed and communities are asked about what are the most interesting agricultural courses, then the Project Proponents will have identified the top-10 courses and the courses can 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. 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 reduced and biodiversity will be conserved.

*Basic Necessities Survey*

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

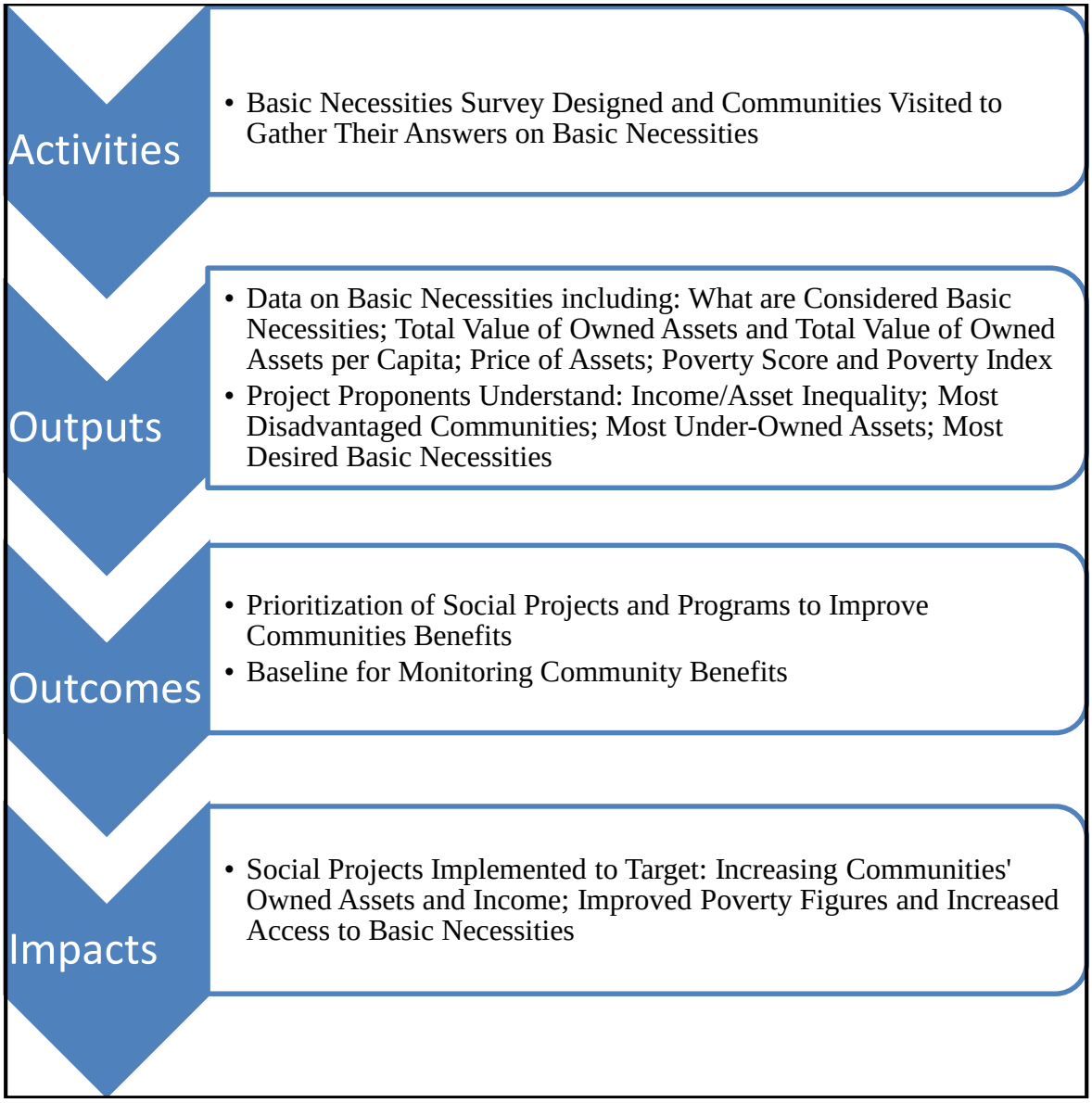


*Figure 17: Activities, Outputs, Outcomes and Impacts of Basic Necessities Survey*

*IF, THEN Statements*

If the BNS is designed and communities are surveyed, then the Project Proponents will have data on basic necessities, community assets and poverty which will enable 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. If this data is collected and understood by the Project Proponents, then social project and programs are prioritized for improving community benefits and a baseline for monitoring benefits is established. If social projects and programs are prioritized, then 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).

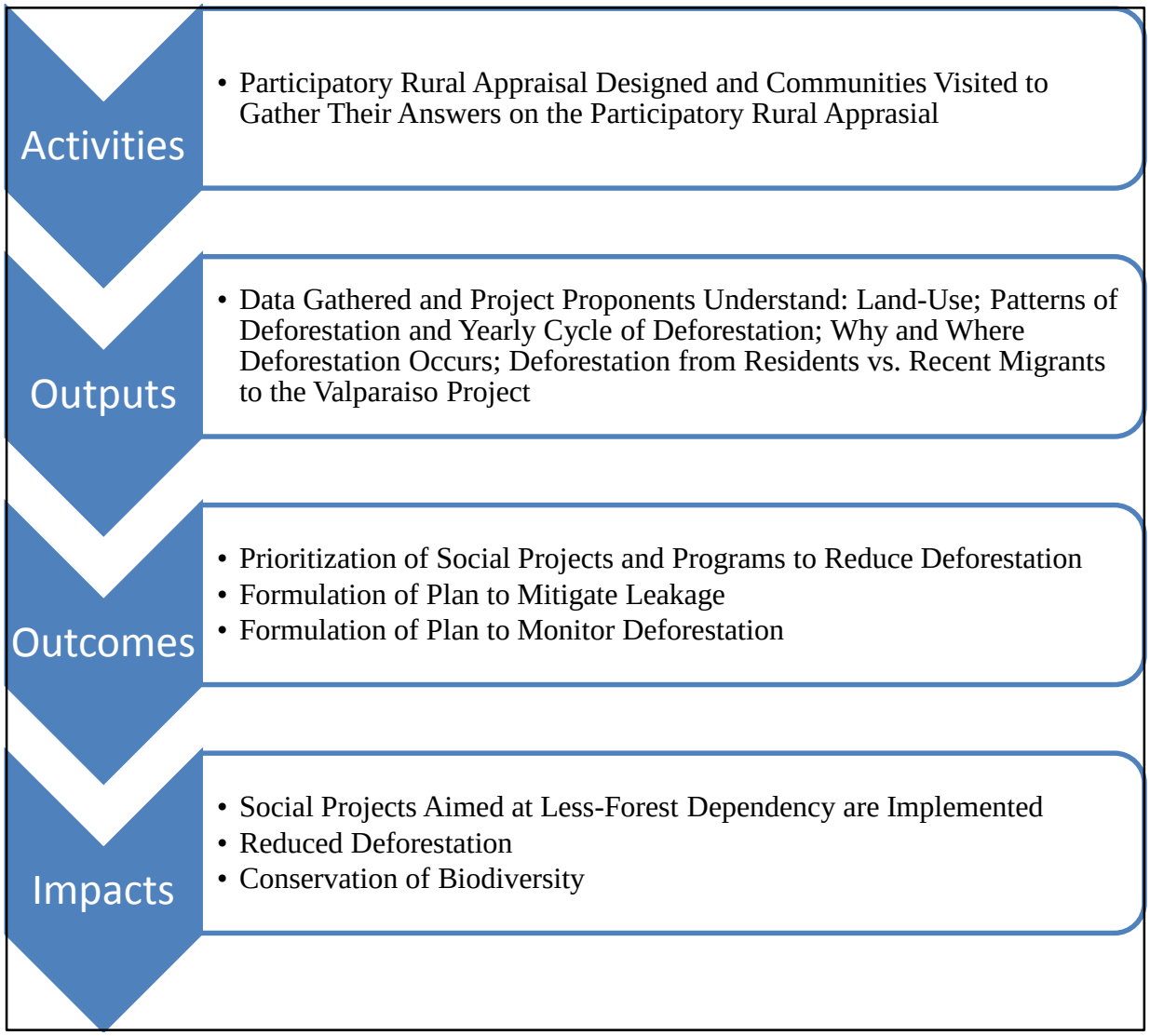


*Figure 18: Activities, Outputs, Outcomes and Impacts of Participatory Rural Appraisal*

*IF, THEN Statements*
IF PRAs are designed and communities are surveyed, then data will be gathered and the Project Proponents will understand: Land-Use; Patterns of Deforestation and Yearly Cycle of Deforestation; Why and Where Deforestation Occurs; Deforestation from Residents vs. Recent Migrants to the Valparaiso Project. If this data is collected and deforestation is understood by the Project Proponents, then social projects and programs aimed at reducing deforestation can be prioritized and plans for mitigating leakage and monitoring deforestation can be formulated. If social projects and programs are prioritized, then deforestation will be 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 results in net positive community benefits in the 'with project' scenario. As demonstrated, the estimated impacts on all communities from the Valparaiso Project are expected to be positive throughout the Project Lifetime and such positive benefits include socio-economic well-being and benefits for ecosystem services. Such community impacts and biodiversity impacts will be regularly monitored and periodically verified by an independent firm approved by the CCBS.

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 mainly subsistence agriculture and some 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 Valparaiso Project, which seeks to provide alternative economic opportunities to communities and mitigate deforestation, will ensure net positive socio-economic benefits for communities in the 'with project' scenario by: enabling communities to increase agricultural intensification practices; increase local incomes (i.e., through improved market access and diversified agricultural production); and to diversify incomes (i.e., through learning and gaining access to new crops). These activities would not have resulted in the 'without project' scenario.

In the 'with project' scenario, the Landowner is committed to providing local projects and programs to the communities which will have net positive impacts on the communities. This includes improving the local health and dental clinic and providing local employment opportunities.

Furthermore, the Valparaiso Project's full community monitoring plan is to monitor the indicators derived from the Participatory Rural Appraisal, the Basic Necessities Survey, and Theory of Change's outputs, outcomes and community impacts. The frequency of monitoring and reporting to ensure that these indicators are directly linked to the Valparaiso Project's major community objectives and are leading to the anticipated net positive community impacts will take place every two years.

**CM1.2. 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 Valparaiso Project such as food, 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 shall not disrupt the communities' access to fishing and by maintaining the Valparaiso Project's primary forests, the Project shall also assist with maintaining a healthy population of game.

*Medicines*
Being a forest conservation project, the Project shall preserve the primary forest's medicinal plants. In addition, Manoel Batista Lopes, ME will also improve the health clinic at the Valparaiso Project.

*Building Materials*
Although the Project seeks to eliminate deforestation – which might negatively impact the communities' access to building materials – the communities use relatively little timber to repair their houses. To mitigate this potential negative impact, the communities will be allowed to continue extracting timber to repair their houses and over time, the Project will promote replanting hardwood species that can be specifically used by the communities for housing.

*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 Valparaiso Project property.

## CM2. Offsite Stakeholder Impacts

The Valparaiso Project Proponents have undertaken an extensive stakeholder identification and consultation, including with offsite stakeholders.

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

- The largest adjacent property owner to the Valparaiso Project is Ilderlei Souza Rodrigues Cordeiro, owner of the Russas Project which is located South of the Valparaiso Project
- Pedro Viga (nickname is Pedro Cameli) (property near Jurua River at mouth of Valparaiso River)
- Family of Mario Lobao (Mario passed away, property North of Valparaiso)
- Seringal Liberdade, owned by the Mappes Monte Negro family (approximately 120,000 hectares to the East of Valparaiso Project and between both Valparaiso parcels). The Mappes Monte Negro family also donated a portion of their property to INCRA for approximately 300 families, which is informally referred to as the Liberdade Settlement
- INCRA settlement Santa Luzia is located along Ramal 3 and up to the end of Ramal 3

The Project Proponents have spoken extensively with Ilderlei Souza Rodrigues Cordeiro and met with the Mappes Monte Negro family and the Santa Luzia INCRA settlement about the Project.

### CM2.1. Potential Negative Offsite Stakeholder Impacts

The Project Proponents have identified the following potential 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 Valparaiso 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.

**CM2.2. 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 Valparaiso Project have good relationships and no conflicts with main stakeholders living outside the Project Zone have been identified through stakeholder consultations.

Regarding the increased cost of land, the Valparaiso Project will have less an impact on rising costs of land than the completion of BR-364 and Ramal 3's paving. In contrast, the Valparaiso Project might decrease the value of surrounding land. The Valparaiso 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, Manoel Batista Lopes, ME will discuss the Valparaiso Project with adjacent landowners to offer expanding forest conservation projects beyond the boundaries of the Valparaiso 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. However, Acre's State System of Incentive for Environmental Services (SISA) seeks to improve rural livelihoods which should reduce in-migration into the both the Project Zone and areas adjacent to the Project Zone. Furthermore, the Project Proponents will monitor 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 Valparaiso Project and into the surrounding non-Valparaiso 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 monitor community benefits throughout the Project Zone. Children from surrounding communities will be allowed to attend the local school and surrounding communities will be allowed to visit the dental and health clinic.

**CM2.3. Net Effect of Project on Stakeholders**

The Valparaiso Project shall have a net positive impact 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:

- Health clinic, dental clinic and school at the Russas-Valparaiso Project are accessible to offsite communities. Agricultural extension trainings will also be offered.
- Increased learning curve for future REDD+ projects amongst private landowners in Acre
- Sharing of knowledge, best practices, and lessons learned with stakeholders including the State of Acre

## CM3. Community Impact Monitoring

The Project Proponents have designed an initial community impact monitoring plan and a full community impact monitoring plan. 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.

### CM3.1. Initial Community Monitoring Plan

The initial community monitoring plan involved regular communication between Manoel Batista Lopes, ME, Ilderlei Souza Rodrigues Cordeiro 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 Cruzeiro do Sul and Porto Walter.

From these conversations and based off Carbon Securities and CarbonCo's experience at the Purus Project, it was determined that a Basic Necessity Survey (BNS), Participatory Rural Assessment (PRA) and the Theory of Change would be the three best tools to monitor community net benefits and the communities' High Conservation Values. The BNS and PRA shall be administered every two years, with the initial surveys conducted from March to May 2013. The specific variables to be annually monitored are the indicators of the Theory of Change (activities, outputs, outcomes, and impacts), while the access to Basic Necessities, along with the value of owned assets, value of owned assets per capita, poverty score and poverty index, inequality of owned assets and inequality of owned assets per capita will be monitored every two years. Please see the full monitoring plan below for additional details.

### CM3.2. 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.

The PRA inquired about HCVs such as the communities' hunting, fishing, building materials, and the collection of medicinal plants. The PRA will be regularly administered and additional questions to identify trends in the availability of medicinal plants, building materials, and food (i.e., from both the forests and rivers) will be added to the next PRA. As an example of the PRA's ability to monitor HCVs, it was discovered via community meetings and the initial PRA that local fishing stocks in the Valparaiso River are being depleted because commercial fishermen from outside the Project Zone are now entering into the Project Zone to fish. This situation will be monitored and the Project signs now specify no commercial fishing is allowed.

The BNS will also be regularly administered and will identify trends in the overall availability of basic needs and HCVs including access to housing, health clinic, food, and clean drinking water.

This said, the specific HCVs related to hydrological services that provide benefits to the local communities are the provision of fish, using the rivers as a mode of transportation, and as a source of clean drinking water. Thus, the BNS will track the access to clean drinking water, transportation (i.e., access to boat or canoe), and the PRA inquired about fishing.

**CM3.3. Full Monitoring Plan**

The Valparaiso Project's full community monitoring plan is to monitor the indicators derived from the PRA, BNS and Theory of Change's outputs, outcomes and community impacts. The frequency of monitoring and reporting to ensure that these indicators are directly linked to the Valparaiso Project's major community objectives and are leading to the anticipated net positive impacts will take place every two years for the PRA and BNS and annually for the Theory of Change.

The specific indicators of the Theory of Change which will be annually monitored and reported are as follows:

*Indicators of Activities*

- Signed Tri-Party Agreement between Project Proponents
- Completion of Forest Carbon Inventory
- Completion of Regional Deforestation and Land-Use Modeling
- Completion of VCS Project Description and CCBS Project Design Document
- Completion of the Agricultural Survey, Basic Necessities Survey and Participatory Rural Appraisal

*Indicators of Outputs*

- Validation Statement for VCS Project Description and CCBS Project Design Document
- Spreadsheet with Top-10 Agricultural Courses Identified
- Agricultural Extension Trainings / Courses Conducted
- 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
- Summary Statistics on: Income/Asset Inequality; Most Disadvantaged Communities; Most Under-Owned Assets; Most Desired Basic Necessities
- 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

*Indicators of Outcomes*

- Value of Carbon Finance Generated
- Communities Gain New Knowledge, Practices and Skills About Sustainable Agricultural
- Prioritization and Implementation Plan for Social Projects and Programs to Reduce Deforestation and Improve Community Benefits
- Baseline for Monitoring Community Benefits
- Formulation of Plan to Mitigate Leakage
- Formulation of Plan to Monitor Deforestation

*Indicators of Impacts*

- Community Income Diversified
- Increased Income Generation
- Reduced Deforestation
- Intensified Agricultural Practices
- Diversified Crops
- Increasing Communities' Owned Assets and Owned Assets per Capita
- Improved Poverty Figures and Poverty Scores
- Increased Access to Basic Necessities
- Improved Health and Dental Clinic

The specific variables that will be monitored and reported every two years with the BNS and PRA are as follows:

- Communities' access to Basic Necessities
- Value of Owned Assets
- Value of Owned Assets per Capita
- Poverty Score
- Poverty Index
- Inequality of Owned Assets
- Inequality of Owned Assets per Capita

This community monitoring plan is ultimately designed to ensure equitable benefits distribution. To this end, the plan shall:

- Document receipt of benefits
- Ensure attention is paid to gender and generational distribution of benefits
- Adaptive management to address shortcomings associated with improper distribution of benefits
- Monitoring plan will be shared with stakeholders
- Avoid elite capture

The Project Proponents will seek to increase the number of households participating in the Valparaiso Project.

Although very limited leakage is predicted outside of the Project Zone due to the project activities of the Valparaiso Project, the other stakeholders who might be negatively impacted due to the Valparaiso Project are the communities and landowners living adjacent to the Project Zone and within the municipalities of Cruzeiro do Sul and Porto Walter.

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 first review the Brazilian Census every four years to document the socio-economic variables in the municipalities of Cruzeiro do Sul and Porto Walter. 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[89]

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 Cruzeiro do Sul and Porto Walter due the project activities of the Valparaiso Project.

# BIODIVERSITY SECTION

## B1. Net Positive Biodiversity Impacts

The Valparaiso Project will generate net positive biodiversity impacts while maintaining, or enhancing, high conservation values. In order to contribute to net positive biodiversity impacts, the Project shall not use invasive species nor genetically modified organisms (GMOs).

### B1.1. Biodiversity Impacts

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

The Project Proponents are using 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-

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

hectare reserves indicate that the number of species, and in some cases population sizes, in these groups varies with the size of the reserve."[90]

The 'without project' scenario involves 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, shall have 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 Valparaiso 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.

**B1.2. 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 – will be negatively affected by the Valparaiso Project. Regarding the biodiversity high conservation values (HCVs), the Valparaiso Project has several qualifying attributes and this includes possibly threatened species, threatened or rare ecosystems, and critical ecosystem services.

To demonstrate that such HCVs will not be negatively affected by the Project, one can observe via satellite imagery or firsthand observations that the Valparaiso Project's tropical rainforest (i.e. a threatened or rare ecosystem), and its associated ecosystem services, is being maintained as intact forest cover. In addition, the Valparaiso Project developed a full biodiversity monitoring plan which shall monitor medium-to-large mammals including any threatened species. Both the Project's intact forest cover and the biodiversity monitoring plan will be periodically verified.

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 Valparaiso Project.

**B1.3. Identify All Species to be used by the Project**

There will be no known invasive species used in the Project because the Valparaiso Project is mainly a payment for ecosystem services forest conservation project. A few communities plant locally sourced seeds of hardwood species for eventual use as timber. These specific species include:

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

- Angelim (*Hymenolobium sp*)
- Cedro-rosa, Cedrella odorata and Cerejeira (*Amburana acreana*)
- Garapeira (*Apuleia molaris* /*Apuleia leiocarpa*)
- Itauba (*Mezilaurus itaúba*)
- Jacareúba (*Calophyllum brasiliense*)
- Mulateiro (*Calicophyllun spruceanun*)

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

Furthermore, the potential spread of invasive species will not increase as a result of the Valparaiso Project and the Project Proponents will monitor for signs of invasive species (See: section *G3. Project Design and Goals*, subsection *5. Risks to Climate, Community and Biodiversity Benefits*).

### B1.4. 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 Valparaiso Project. See section B1.3 for the list of locally sourced, native species to be used by the Project.

### B1.5. 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 Valparaiso Project to generate GHG emissions reductions or removals.

## B2. Offsite Biodiversity Impacts

The Project Proponents have evaluated and will mitigate the potential negative offsite biodiversity impacts which result from the Valparaiso Project.

### B2.1. Potential Negative Offsite Biodiversity Impacts

*Identify Potential Negative Offsite Biodiversity Impacts*

Due to the fact that the Valparaiso 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.[91] 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.

[91] 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

### B2.2. Mitigation Plans

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

Although negative offsite biodiversity impacts are unlikely, the Valparaiso 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 activity-shifting leakage mitigation activities designed and this includes:

- Discussing the Project with adjacent landowners to potentially expand the forest conservation efforts (which already resulted in the inclusion of the Russas Project)
- Alignment with the State of Acre's Payment for Ecosystem Services Scheme
- Monitoring the leakage belt and offering social projects and programs to communities throughout the Project Zone

The State of Acre's Payment for Ecosystem Services Scheme (known as *Sistema de Incentivo a Serviços Ambientais* or "SISA" in Portuguese) is 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."[92] 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.

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 the Valparaiso Project property. Furthermore, the largest adjacent property – the Russas Project – is being developed as a forest conservation project as well which will increase habitat connectivity and minimize the likelihood of activity-shifting leakage.

### B2.3. Net Effect of Project on Biodiversity

*Evaluate Unmitigated Negative Offsite Biodiversity Impacts against Biodiversity Benefits within Project*

The overall effect of the Valparaiso Project on both offsite and onsite (i.e., within the Valparaiso Project Zone and outside the Project Zone) biodiversity is expected to be overwhelmingly positive. This mitigation of deforestation and preservation of forest cover will have a significantly positive effect on biodiversity. Thus, the overall effect of the Valparaiso Project on biodiversity is expected to be overwhelmingly positive because much more forest cover will be preserved as opposed to deforested as a result of the project activities.

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

## B3. Biodiversity Impact Monitoring

The Project Proponents have an initial biodiversity monitoring plan and a full biodiversity impact monitoring plan. 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.

### B3.1. 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.

### B3.2. 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 Valparaiso Project are the various deforestation mitigation activities (e.g., agricultural extension training, deforestation monitoring, etc.) 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 will include:

- Review satellite imagery for 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

Additional mechanisms to ensure effective maintenance or enhancement of HCVs will be developed utilizing adaptive management, stakeholder consultation, and eventually be incorporated into the full monitoring plan. For example, if small-sized, threatened or endangered species such as amphibians, reptiles, or insects are identified in the Project Area (i.e., an example of an HCV), then the Project Proponents will incorporate the monitoring of these species, if necessary, into the full biodiversity impact monitoring plan.

### B3.3. Full Monitoring Plan

*Commit to Developing a Full Monitoring Plan*

The Project Proponents' full monitoring plan will continue with monitoring forest cover and habitat availability, along with monitoring 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.

Monitoring forest cover and using wildlife cameras will be sufficient to monitor all wildlife species of interest – particularly medium-to-large mammals – throughout the Project Zone's rainforests. This has been demonstrated via local studies conducted near the Project Zone indicating the type of biodiversity likely present, along with CarbonCo and Carbon Securities' successful use of wildlife cameras at the Purus Project (another REDD+ project near Manoel Urbano, Acre) which has identified numerous mammals such as:

- Black agouti (*Dasyprocta fuliginosa*)
- Collared Peccary (*Pecari tajacu*)
- Giant Anteater (*Myrmecophaga tridactyla*)
- Jaguar (*Panthera onca*)
- Lowland tapir (*Tapirus terrestris*)
- Ocelot (*Leopardus pardalis*)
- Paca (*Cuniculus paca*)
- Puma (*Puma concolor*)
- Short-Eared Dog (*Atelocynus microtis*)
- Squirrel Monkey (*Saimiri sciureus*)

The basic process of developing the biodiversity monitoring plan was:

- 1. Conducted background research
- 2. Identify local partners and community members to assist with monitoring plan

Background research included: Reviewing the wildlife camera trap techniques deployed by other REDD project developers;[93] How to position cameras, sampling designs, and field crews;[94,95] Technical elements of mammalian diversity and populations using wildlife camera traps,[96,97] along with reviewing wildlife camera trap models.[98]

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

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[93] 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.
[94] Grant Harris et. al, "Automatic Storage and Analysis of Camera Trap Data," Available: http://dx.doi.org/10.1890/0012-9623-91.3.352
[95] 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.
[96] 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
[97] Tim O'Brien, "Wildlife Picture Index: Implementation Manual Version 1.0," Available: static.zsl.org/files/wcs-wpno39-wildlifepictureindex-928.pdf
[98] TrailCamPro, "Trail Camera Selection Guide," Available: http://www.trailcampro.com/trailcameraselectionguide.aspx

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

- Review vegetation maps of the Valparaiso Project to identify general areas within the Project to set up wildlife camera traps
- Consult local communities, S.O.S. Amazônia, and/or André Luis Botelho de Moura to identify the specific locations to set up wildlife camera traps
- Purchase and placement of wildlife cameras throughout the Project Area, rotating the cameras to different vegetation strata as necessary
- 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 be 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.

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 population and distribution of threatened and endemic species will be conducted.

*Outcomes*
The outcomes based off the outputs will be an analysis of medium-to-large mammal populations and a better understanding of their distribution throughout the Valparaiso 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 Valparaiso Project shall monitor biodiversity impacts both spatially throughout the Valparaiso Project as well as temporally over the Valparaiso Project Lifetime. The goal is to conduct a biodiversity monitoring project every four years.

# GOLD LEVEL SECTION

## GL2. Exceptional Community Benefits

The Project Proponents will assist all communities in and around the Valparaiso Project, including the more vulnerable communities within the Project.

**GL2.1-2. Project Zone and Socio-Economic Status**
According to the United Nations Development Programme's International Human Development Index (HDI), Brazil is considered a high human development country.[99] However, it can be demonstrated that at least 50% of the population in the Project Zone are below the national poverty line. According to a World Bank study[100], the national poverty line per capita per month in Brazil is 180.14 (2005 PPP$) while the nominal median monthly income per capita of a rural, permanent private household in the municipality of Cruzeiro do Sul is R$130.75.[101]

**GL2.3-4. Involvement of Poorest Community Members**
Project Proponents will not practice selective enrollment – all community members, regardless of background, longevity on project, size of holding, etc. will be allowed to participate.

All social projects and programs (e.g., health and dental clinic, agricultural extension trainings, etc.) will be offered to all communities. Furthermore, the Project Proponents are aware of the potential for elite capture and will seek to prevent this risk.
In addition to partnering with Ilderlei Souza Rodrigues Cordeiro, Manoel Batista Lopes, ME plan to involve the local church to hold after-church meetings to specifically assist women and children with alternative socioeconomic activities.

The Basic Necessity Survey (BNS) allows the Project Proponents to identify the 50% of households within the lowest category of well being. As of June 2013, the lowest quartile included communities with:

- Owned assets less than: R$34,839.00
- Owned assets per capita less than: R$5,320.63
- Poverty score less than: 13.833
- Poverty index less than: 52.20%

Benefit distribution will be very equal. Land titling will take into account per capita, so larger families will get larger parcels of land.

Furthermore, the Project Proponents have identified the particular needs of the eight households within the lowest quartile of the 32 communities surveyed via the Basic Necessity Survey. Thus, the assets and services deemed by 100% of these four households in the lowest quartile as Basic Necessities, but are the least owned among this lowest quartile, are as follows:

- Telephone (12.5% owned by lowest quartile)
- Planting Tool (12.5% owned)
- Boat or Canoe and Diesel (12.5% owned)
- Weedwacker (12.5% owned)

[99] UNDP, "International Human Development Index," Available: http://hdrstats.undp.org/images/explanations/BRA.pdf
[100] Martin Ravallion et al., "Dollar a Day Revisited," Available: http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2008/09/02/000158349_20080902095754/Rendered/PDF/wps4620.pdf
[101] IBGE, "Cruzeiro do Sul," Available: http://www.ibge.gov.br/cidadesat/link.php?codigo=120020&idtema=16

The Project Proponents then designed the Project in order for at least 50% of these households to benefit substantially from the Project. This includes addressing some of their particular needs (such as increasing access to transportation and focusing on agricultural extension courses) and by also seeking to increase their incomes in order for them to eventually purchase assets (such as a telephone or television) to satisfy their other needs.

The Project Proponents have identified scenarios which might prevent the poorest quartile of communities to benefit substantially from the Project and this includes:

- Poorer families might live further away from the project headquarters.
- Fewer tools to produce agriculture.
- Might not have boat, motor or diesel to travel
- Communities might have poorer soil quality where they live.
- Poorer health and less nutrition.

*Poorer Families might live further away from the Project Headquarters*
I.S.R.C will pay for the diesel, assuming these families have working boats and motors, to allow further communities to participate in the Project and attend meetings and agricultural courses.

*Fewer Tools to Produce Agriculture*
The Project will give free agricultural extension courses for the communities to learn new techniques. The association will help with the mechanization of the land. The association will prioritize the improvement of the poorer communities' manic flour houses.

*Might not have Boat, Motor or Diesel to Travel*
The boat being purchased by the Valparaiso Project will allow those communities without a boat to participate in the Project and specifically to participate in the commercialization and market access of their crops.

*Might Have Poorer Soil Quality Where They Live*
Teaching fishing courses will allow those communities with poorer soil quality an alternative means to generate income. The agricultural courses will teach new techniques to take into account poorer soil. For example, the soil might be bad for bananas but might be good for manioc and this is something the agricultural courses will help to teach.

*Poorer Health and Less Nutrition*
The agricultural courses will seek to increase the productivity and hence, improve the nutrition of local communities. The health clinic will be improved and the doctor visits to the community will increase. The doctor will visit all communities including poorer communities. The doctor visits are free, which will most benefit the poorer communities who would otherwise be less able to pay for such doctor visits.

Basic Necessity Survey was utilized to identify any poorer and more vulnerable households and individuals whose well-being or poverty may be negatively affected by the project. All communities have been consulted and there should be no negative impacts.

**GL2.5. Community Impact Monitoring**

The Basic Necessities Survey and Poverty Index have enabled the Project Proponents to identify positive and negative impacts on the poorest communities and more vulnerable groups within the Project, including women. This being said, the Project Proponents will continue to monitor community impact variables such as: value of owned assets; value of owned assets per capita; poverty score and poverty index; inequality of owned assets and inequality of owned assets per capita.

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# ACRONYMS

| | |
|---|---|
| ACR | American Carbon Registry |
| AFOLU | Agriculture, Forestry, and Other Land Use |
| BNS | Basic Necessities Survey |
| CCBS | Climate, Community and Biodiversity Standard |
| CDM | Clean Development Mechanism |
| CNPJ | Cadastro Nacional da Pessoa Jurídica |
| CPF | Cadastro de Pessoas Físicas |
| CPT | Center for Technical Production |
| EMBRAPA | Brazilian Agricultural Research Corporation |
| ESI | Environmental Services, Inc. |
| FAO | Food and Agricultural Organization of the United Nations |
| FPIC | Free, Prior and Informed Consent |
| FUNTAC | Fundacao de Tecnologia do Estado do Acre |
| GDP | Gross Domestic Product |
| GHG | Greenhouse Gasses |
| HCV | High Conservation Values |
| IBAMA | Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis |
| INCRA | Instituto Nacional de Colonização e Reforma Agrária |
| IMAC | Instituto de Meio Ambiente do Acre (“Environmental Institute of Acre”) |
| IMC | Instituto de Mudanças Climáticas (“Climate Change Institute”) |
| IPAM | Instituto de Pesquisa Ambiental da Amazônia |
| ITERACRE | Instituto de Terra do Acre |

| | |
|---|---|
| IUCN | International Union for the Conservation of Nature |
| KBA | Key Biodiversity Area |
| MOU | Memorandum of Understanding |
| PD | Project Description (prepared for VCS) |
| PDD | Project Design Document (prepared for CCBS) |
| PESACRE | Grupo de Pesquisa e Extensão em Sistemas Agroflorestais do Acre |
| PIN | Project Identification Note |
| PRA | Participatory Rural Assessment or Participatory Rural Appraisal |
| REDD | Reducing Emissions from Deforestation and Degradation |
| ROW | REDD Offset Working Group |
| SENAR | Servico Nacional de Aprendizagem Rural |
| SISA | Acre's State System of Incentives for Environmental Services |
| US EPA | United States Environmental Protection Agency |
| VCS | Verified Carbon Standard |
| VCUs | Verified Carbon Units (issued under Verified Carbon Standard) |
| VERs | Verified Emission Reductions |

# APPENDIX A
# Stakeholder Identification

**Project Proponents, Communities, and Primary Stakeholders of Valparaiso Project**

- Manoel Batista Lopes ME, specifically Manoel Batista Lopes
- Communities living within the Valparaiso Project
- Carbonfund.org Foundation, Inc. and CarbonCo, LLC
- Freitas Group International LLC and Carbon Securities
- I.S.R.C. Investimentos e Acessória MEA, specifically Ilderlei Souza Rodrigues Cordeiro

**Secondary Stakeholders of Valparaiso Project**

- TerraCarbon
- TECMAN LTDA
- Professor Antonio Willian Flores de Melo of UFAC
- Landowners and Communities living around Project
- State of Acre, particularly:
    - Climate Change Institute of Acre (IMC)
        - Eufran Amaral, Diretor Presidente do IMC-Acre (President)
        - Mônica Julissa, Diretora do IMC-Acre (Director)
        - Pavel Jezek
    - CEFLORA (Centro de Formação e Tecnologia da Floresta or Center for Training and Forest Technology)
    - The Secretary of Small Business
    - Edgar de Deus, the State Secretary of Environmental Affairs
    - Instituto de Terra do Acre (ITERACRE)
    - Secretary of Tourism for the State of Acre
    - Secretary of Agriculture
    - Secretary of Commerce
- Municipality of Cruzeiro do Sul, particularly:
    - Vagner Sales, Mayor of Cruzeiro do Sul
    - The Legislature for the Municipality of Cruzeiro do Sul
    - Maria Francisca R. Nascimento, the Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul
    - Professor Paulo Bernarde from the Federal University of Acre in Cruzeiro do Sul
- State of California
    - California Air Resources Board (ARB)
    - REDD Offset Working Group (ROW)
    - Governors' Climate and Forest Task Force
- Environmental Services, Inc. (ESI), the Project Auditor
- Verified Carbon Standard Association
- Climate, Community and Biodiversity Alliance
- Moura e Rosa Empreendimentos Imobiliários MEA (i.e., owners of the Purus Project) – specifically Normando Sales, Felipe Moura Sales, Paulo Silva Cesário Rosa, and Wanderley Rosa
- José Augusto Rocha, the Secretary of Environment for the city of Guajará

- André Luis Botelho de Moura, wildlife camera specialist
- Fernando Lima, the President of Instituto de Meio Ambiente do Acre (IMAC, "Environmental Institute of Acre" in English)
- Hamilton Casara, Former President of IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis or Brazilian Institute of Environment and Renewable Natural Resources)
- Diogo Alexandre de Souza, a biologist at the Associação Amigos do Peixe-Boi (Friends of the Manatee Association) in the State of Amazonas
- Miguel Scarcello from S.O.S Amazônia
- Sarney Filho, the Federal Minister of Environment Affairs
- President of the Commission of Environmental Affairs of the Federal Congress
- President Jerônimo Goergen of the Amazon Commission of the House of Representatives
- Natalie Unterstell, Brazil's Federal Ministry of Environment
- Ludovino Lopes, Partner at Ludovino Lopes Advogados
- EMBRAPA, particularly Judson Valentim, Diretor Regional da EMBRAPA-Acre (Regional Director)

**Other (Tertiary) Stakeholders of Valparaiso Project**

*Nongovernmental Organizations (NGOs), Unions and Associations*

- Conservation and environmental organizations active in and around Acre such as
    - IPAM (Instituto de Pesquisa Ambiental da Amazônia)
    - Worldwide Fund for Nature (WWF)
    - Conservation International
    - The Nature Conservancy
    - Wildlife Conservation Society
    - PESACRE (Grupo de Pesquisa e Extensão em Sistemas Agroflorestais do Acre)
- Western Climate Initiative
- FETACRE, na pessoa da Senhora Liziane Pedrosa (Federation of Rural Workers of Acre)
- Global Canopy Programme and particilarly Luis Meneses Filho

*Private Sector*

- Carbon Market participants and especially REDD+ project developers
- California's Capped Entities and participants of California's Cap-and-Trade System
- Other Private Landowners Throughout State of Acre

*Government Agencies and Government Officials*

- Vice President of Brazil, Michel Temer
- Cesar Messias, Vice-Governador do Estado do Acre (Vice-Governor of the State of Acre)
- Ronald Polanco, Presidente do Tribunal de Contas do Estado do Acre (President of the Court of Auditors of the State of Acre)
- Valmir Gomes Ribeiro, Conselheiro do Tribunal de Contas do Estado do Acre e maior criador de Quelônios do Brasil (Advisor to the Court of the State of Acre and owner of the largest turtles farm of Brazil)
- Fábio Vaz, Assessor do Governo do Estado do Acre e coordenador da Comissão que criou o projeto de lei aprovado pela Assembléia Legislativa do Acre sobre Crédito de

Carbono, Serviços Ambientais e que deu origem ao IMC – Lei n°2.308/2010 (Advisor to the Government of the State of Acre and coordinator of the Committee that created the bill passed by the Legislative Assembly of Acre on Carbon Credit, Environmental Services which gave rise to the Climate Change Institute - Law No. 2.308/2010)

- Patrícia Rego, Procuradora Geral de Justiça do Estado do Acre, ex-Procuradora responsável pela Coordenadoria do Meio Ambiente (Attorney General of the State of Acre, a former prosecutor responsible for Coordination of Environment)
- Lúcio Flávio, ex-Coordenador Geral da UCEGEO-Acre (former General Coordinator of UCEGEO-Acre)
- Assuero Doca Veronez, Presidente da Federação da Agricultura do Estado do Acre e Vice-Presidente da Confederação Nacional de Agricultura (President of the Federation of Agriculture of the State of Acre and Vice-President of the National Confederation of Agriculture)
- Leila Medeiros, ex-Secretaria de Meio Ambiente do Município de Rio Branco e atual Assessora do Ministério Publico Estadual (Former Secretary of Environment of the Municipality of Rio Branco and current Advisor to the State Prosecutor)
- Embaixador Figueiredo, Representante do Brasil na Conferência das Partes, da ONU (Representative of Brazil to the Conference of the Parties to the UN)
- Izaias Faria de Abreu, Técnico do Senado Federal e Chefe de Gabinete do Senador Walter Pinheiro – PT/BA (Chief of Staff to Senator Walter Pinheiro – PT/BA)
- Luiz Afonso Zaire, Chefe de Gabinete do Ministro Felix Fischer - atual Vice-Presidente do Superior Tribunal de Justiça - STJ (Office of the Chief Minister Felix Fischer - now Vice-President of the Superior Court of Justice – STJ)
- Gilcely Evangelista, Procuradora de Justiça do Estado do Acre (Judicial Prosecutor for the State of Acre)
- Ministério Publico Estadual
- INCRA (Instituto Nacional de Colonização e Reforma Agrária or the National Institute for Colonization and Agrarian Reform)
- Câmara dos Deputados Federal, através do Presidente Dep. Gladson Cameli
- Rui Moreira – Diretor Geral do Tribunal Superior Eleitoral e Doutor em Fotografia

*General Public*

- Scientific Community such as Biologists, Foresters and Ecologists
- Birding Community and Wildlife Conservationists
- Ecotourism Participants

*Academia*

- Dr. Irving Foster Brown, Pesquisador da UFAC sobre mudanças climáticas (Senior Scientist at Woods Hole Research Center and Professor in Graduate Program of Ecology and Natural Resource Management at the Federal University of Acre)
- Cleber Salimon, Professor at Centro de Ciências Biológicas e da Natureza (Universidade Federal do Acre)
- Gregory P. Asner, Department of Global Ecology, Carnegie Institution for Science, at Stanford University

- Ewerson Duarte da Costa, especialista em Direito Ambiental e Recursos Hídricos pela Universidade Gama Filho do Rio

*Media*

- Alan Rick, Apresentador do Programa Gazeta Entrevista da TV Gazeta-Rio Branco (Anchorman on TV Gazeta Entrevista, Rio Branco)
- Jairo Carioca, Jornalista
- Chico Araujo, Diretor da Agência de Notícias Amazônia (Director of News Agency Amazon)
- Mário Nelson Duarte, Jornalista (trabalhou muitos anos na Rádio Jovem Pan de São Paulo) e Consultor aposentado do Senado Federal (Journalist who worked many years for Jovem Pan Radio Station and retired as a Senate Consultant)