

The Valparaiso Project

A Tropical Forest Conservation Project in Acre, Brazil



Prepared by Brian McFarland from:

CarbonCo, LLC

3 Bethesda Metro Center, Suite 700
Bethesda, Maryland 20814
(240) 247-0630

With significant contributions from:
James Eaton and Rebecca Dickson, TerraCarbon
Manoel Batista Lopes, ME
Pedro Freitas, Carbon Securities

A Climate, Community and Biodiversity Standard Project Implementation Report

TABLE OF CONTENTS

TABLE OF CONTENTS	Page 1
COVER PAGE	Page 4
INTRODUCTION	Page 5
G1. ORIGINAL CONDITIONS IN THE PROJECT AREA	
G1.1-3. General Information	Page 6
G1.4. Climate Information	Page 7
G1.5-6. Community Information	Page 9
G1.7-8. Biodiversity Information	Page 17
G2. BASELINE PROJECTIONS	
G2.1-2. Land Use without Project	Page 24
G2.3. Carbon Stock Exchanges without Project	Page 27
G2.4. Local Communities without Project	Page 27
G2.5. Biodiversity without Project	Page 28
G3. PROJECT DESIGN and GOALS	
G3.1. Scope and Project Goals	Page 28
G3.2. Major Activities	Page 30
G3.4. Project Timeframe	Page 42
G3.5. Risks to Climate, Community and Biodiversity Benefits	Page 45
G3.6-7. Enhancement of Climate, Community and Biodiversity Benefits	Page 49
G3.8-10. Stakeholder Identification and Involvement	Page 51
G3.11. Financial Mechanisms and Project Implementation	Page 61
G4. MANAGEMENT CAPACITY and BEST PRACTICES	
G4.1. Roles and Responsibilities of Project Proponents	Page 62
G4.2. Key Technical Skills and Staff	Page 67
G4.3. Orientation and Training	Page 67
G4.4. Community Involvement	Page 68
G4.5. Relevant Laws and Regulations	Page 69
G4.6. Worker Safety Assurance	Page 70
G4.7. Financial Status of Organizations	Page 71
G5. LEGAL STATUS and PROPERTY RIGHTS	
G5.1. Compliance with Laws	Page 72
G5.2-3. Approval from Appropriate Authorities	Page 78
G5.4. Non-Involuntary Relocation	Page 79
G5.5. Identification of Illegal Activities and Mitigation Strategy	Page 79
G5.6. Property Rights and Carbon Rights	Page 79

TABLE OF CONTENTS

CL1. NET POSITIVE CLIMATE IMPACTS

CL1.1. Estimation of Net Changes in Carbon Stocks	Page 80
CL1.2. Other non-CO ₂ Greenhouse Gases	Page 81
CL1.3. Project Activities' GHG Emissions	Page 81
CL1.4. Net Climate Impact	Page 81
CL1.5. Avoidance of Double Counting	Page 81

CL2. OFFSITE CLIMATE IMPACTS (“LEAKAGE”)

CL2.1. Types of Leakage	Page 81
CL2.2. Mitigation of Leakage	Page 81
CL2.3-4. Subtraction of Unmitigated Negative Offsite Climate Impacts	Page 82

CL3. CLIMATE IMPACT MONITORING

CL3.1. Initial Monitoring Plan	Page 82
CL3.2. Full Monitoring Plan	Page 82

CM1. NET POSITIVE COMMUNITY IMPACTS

CM1.1. Community Impacts	Page 82
CM1.2. Impact on High Conservation Values	Page 92

CM2. OFFSITE STAKEHOLDER IMPACTS

CM2.1. Potential Negative Offsite Stakeholder Impacts	Page 93
CM2.2. Mitigation Plans	Page 94
CM2.3. Net Effect of Project on Stakeholders	Page 94

CM3. COMMUNITY IMPACT MONITORING

CM3.1. Initial Community Monitoring Plan	Page 95
CM3.2. Initial High Conservation Values Plan	Page 95
CM3.3. Full Monitoring Plan	Page 96

B1. NET POSITIVE BIODIVERSITY IMPACTS

B1.1. Biodiversity Impacts	Page 99
B1.2. Impact on High Conservation Values	Page 100
B1.3. Identify All Species to be used by the Project	Page 100
B1.4. Possible Adverse Effects of Non-Native Species	Page 101
B1.5. Non-Use of GMOs	Page 101

B2. OFFSITE BIODIVERSITY IMPACTS

B2.1. Potential Negative Offsite Biodiversity Impacts	Page 101
B2.2. Mitigation Plans	Page 101
B2.3. Net Effect of Project on Biodiversity	Page 102

B3. BIODIVERSITY IMPACT MONITORING

B3.1. Initial Biodiversity Monitoring Plan	Page 103
B3.2. Initial High Conservation Values Plan	Page 103
B3.3. Full Monitoring Plan	Page 103

TABLE OF CONTENTS

GL2. EXCEPTIONAL COMMUNITY BENEFITS

GL2.1-2. Project Zone and Socio-Economic Status	Page 106
GL2.3-4. Involvement of Poorest Community Members	Page 106
GL2.5. Community Impact Monitoring	Page 108

BIBLIOGRAPHY	Page 109
---------------------------	----------

ACRONYMS	Page 117
-----------------------	----------

COVER PAGE

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:

Brian McFarland, Director
CarbonCo, LLC
3 Bethesda Metro Center, Suite 700
Bethesda, Maryland, United States of America
Phone: +1-(240) 595-6883 Email: BMcFarland@CarbonCoLLC.com

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

Shawn McMahon, Forestry, Carbon, and GHG Services - Senior Manager
Environmental Services, Inc.
7220 Financial Way, Suite 100, Jacksonville, Florida, 32256
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. Project Implementation Period Covered by the PIR: March 19, 2011 to December 31, 2013.

VII. History of CCB Status: The Valparaiso Project’s CCBS Project Design Document is projected to be validated in July 2014.

VIII. Edition of CCB Standard Being Used for Verification: Second Edition.

IX. Brief Summary of Climate, Community and Biodiversity Benefits Generated by the Project Since the Start Date and During Current Implementation Period Covered by the PIR: Net climate, community and biodiversity benefits between March 19, 2011 and December 31, 2013 include, but are not limited to: a reduction in the Project Area’s deforestation; preservation of biologically diverse habitats; community engagement; local hires and transfer of technical knowledge; offering agricultural extension courses; starting patrols for deforestation; and the overall development of the third-ever, VCS-CCBS validated REDD+ project in the State of Acre, Brazil.

X. Gold Level Criteria Being Used and Brief Summary of Exceptional Benefits: 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 and Version Number: This version 1.0 was completed on June 27, 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 Valparaiso Project is under validation by Environmental Services, Inc. to the Verified Carbon Standard (VCS, Version 3.3) and to the [Climate, Community and Biodiversity Standard](#) (CCBS, Second Edition) with Gold Distinction.

This initial Project Implementation Report (PIR) covers the monitoring and reporting period from March 19, 2011 (i.e., the Project Start Date) to December 31, 2013.

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.

Net climate, community and biodiversity benefits between March 19, 2011 and December 31, 2013 include, but are not limited to: a reduction in the Project Area’s deforestation; preservation of biologically diverse habitats; community engagement; local hires and transfer of technical

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.

knowledge; offering agricultural extension courses; starting patrols for deforestation; and the overall development of the third-ever, VCS-CCBS validated REDD+ project in the State of Acre, Brazil.

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

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

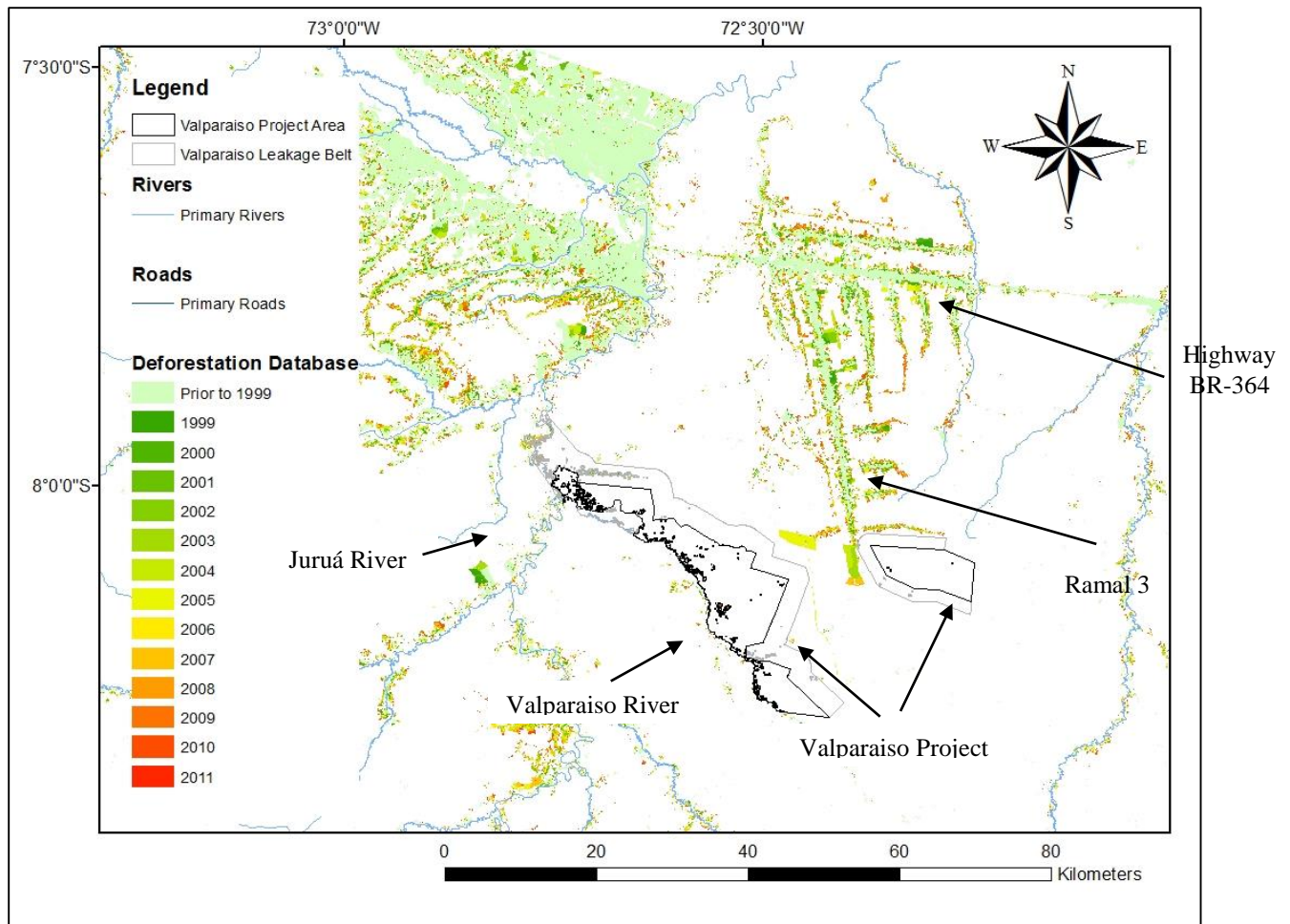
The Valparaiso Project is located in the State of Acre, Brazil alongside the Valparaiso River and the Juruá River. The Valparaiso Project is approximately 40 kilometers (i.e., approximately 25 miles) south from the city of Cruzeiro do Sul and north from the city of Porto Walter.

The following political map is the State of Acre which borders the Brazilian state of Amazonas along with the countries of Peru and Bolivia.²



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

² V-Brazil.com, "Map of Acre, Brazil," Available: <http://www.v-brazil.com/tourism/acre/map-acre.html>



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

Project activities between March 19, 2011 and December 31, 2013 – for example, hiring of local project managers, establishing Project headquarters, and monitoring of deforestation – took place throughout the Project Area and Project Zone, with a particular emphasis on locations experiencing the greatest deforestation pressures (i.e., along the Juruá and Valparaiso 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.

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

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 between February and March 2013 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 State³ publication “Ecological and Economical Zoning” where land cover is classified using the Brazilian Forest Classification System.⁴

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 ₂ e ha ⁻¹
Estimation of Carbon Stocks for Strata FAP	460.8 tCO ₂ e ha ⁻¹
Estimation of Carbon Stocks for Strata FAP + FAB + FD and Strata FAP + FD + FAB	487.0 tCO ₂ e ha ⁻¹
Estimation of Carbon Stocks for Strata FAP + FD	393.3 tCO ₂ e ha ⁻¹
Estimation of Carbon Stocks for Strata FAP - Alluvial	372.9 tCO ₂ e ha ⁻¹
Estimation of Carbon Stocks for Strata FABD	424.4 tCO ₂ e 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 validated VCS Project Description.

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

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

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.⁵ The largest cities in Acre include Rio Branco along with Cruzeiro do Sul, Feijó, Sena Madureira, and Tarauacá.

In 2010, there were 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.

As of 2013, there was an estimated 776,463 residents in Acre⁶ with approximately 80,377 residents in the municipality of Cruzeiro do Sul⁷ and approximately 10,143 residents in the municipality of Porto Walter.⁸

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:⁹

⁵ IBGE, "Acre – Summary," Available: <http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#>

⁶ IBGE, "States@," Available: <http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac>

⁷ IBGE, "Cruzeiro do Sul," Available:

<http://cidades.ibge.gov.br/xtras/perfil.php?lang=&codmun=120020&search=acre|cruzeiro-do-sul>

⁸ IBGE, "Porto Walter," Available:

<http://cidades.ibge.gov.br/xtras/perfil.php?lang=&codmun=120039&search=acre|porto-walter>

⁹ IBGE, "Click here to get information about municipalities at Cities@," Available:

<http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#>

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\$

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.¹⁰

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\$

¹⁰ IBGE, "Click here to get information about municipalities at Cities@," Available: <http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#>

One can observe from this 2010 Census that rural communities in Cruzeiro do Sul have low household incomes and a higher percentage of inadequate sanitation. Furthermore, rural 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.¹¹

The aggregated results of the participatory rural assessment (PRA), which was conducted between March and May 2013 throughout the Project Zone, are as follows:

¹¹ 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.

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)

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 km² (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%)¹²

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,¹³ passed on October 5th, 1988
- Brazilian Civil Code,¹⁴ which is the Federal Law 10406, passed on January 10th, 2002
- Brazilian Civil Procedure Code,¹⁵ which is the Federal Law 5869, passed on January 11th, 1973

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

¹² State of Acre and GCF, “Acre GCF Database,” Available: [http://www.gcftaskforce.org/documents/Final_db_versions/GCF%20Acre%20Database%20\(November%202010\).pdf](http://www.gcftaskforce.org/documents/Final_db_versions/GCF%20Acre%20Database%20(November%202010).pdf), Page 1

¹³ Presidency of the Republic, “CONSTITUIÇÃO DA REPÚBLICA FEDERATIVA DO BRASIL DE 1988,” Available: http://www.planalto.gov.br/ccivil_03/Constituicao/Constituicao.htm

¹⁴ Presidency of the Republic, “LEI N° 10.406, DE 10 DE JANEIRO DE 2002.,” Available: http://www.planalto.gov.br/ccivil_03/Leis/2002/L10406.htm

¹⁵ Presidency of the Republic, “LEI N° 5.869, DE 11 DE JANEIRO DE 1973.,” Available: http://www.planalto.gov.br/ccivil_03/Leis/L5869.htm

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.

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).¹⁶

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.¹⁷

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.

¹⁶ Conservation International, "Brazil," Available: http://www.conservation.org/where/south_america/brazil/pages/brazil.aspx

¹⁷ State of Acre and GCF, "Acre GCF Database," Available: [http://www.gcftaskforce.org/documents/Final_db_versions/GCF%20Acre%20Database%20\(November%202010\).pdf](http://www.gcftaskforce.org/documents/Final_db_versions/GCF%20Acre%20Database%20(November%202010).pdf), Page 2

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 species occur. The first are vast areas (more than 180,000 km²) dominated by the highly competitive arborescent bamboos *Guadua sarcocarpa* and *G. weberbaueri* near Acre, Brazil extending into Peru and Bolivia (Daly and Mitchell 2000).¹⁸ 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 led 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).¹⁹ The rare palm *Itaya amicum* 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 km² holds the record for birds species: 554. On the white sand areas in the north, plants endemic to this soil type include *Jacqueshuberia lorentensis*, *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).²⁰ 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).²¹ 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

¹⁸ Daly, D. C. & J. D. Mitchell 2000, "Lowland vegetation of tropical South America – an overview," Available: <http://ibcperu.org/doc/isis/8004.pdf>

¹⁹ Henderson, A. 1995. *The palms of the Amazon*. Oxford University Press, New York.

²⁰ 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.

²¹ 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-Bolivia and USAID.

widespread three-toed 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.

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).^{22,23}

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.”²⁴ 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*²⁵

²² 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.

²³ World Wildlife Fund, “Upper Amazon basin of Peru, Brazil and Bolivia - Neotropic (NT0166),” Available: <http://worldwildlife.org/ecoregions/nt0166>

²⁴ MORATO, Elder F.; AMARANTE, Sérgio 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

²⁵ 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.primatesg.org/storage/PDF/NP11.3.callimico.imperator.pdf>

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 Instituto del Bien Común.

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*).²⁶

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 in March, April and June 2013 – 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 26 species in Acre as Near Threatened, Vulnerable, Endangered, Critically Endangered and Extinct.²⁷

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.²⁸

²⁶ Patton et al., “Rio Juruá Mammals,” pages 260-261.

²⁷ IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2. <www.iucnredlist.org>. Downloaded on 01 February 2012.

²⁸ World Wildlife Fund, “Southwest Amazon moist forests: Export Species,” Available: <http://www.worldwildlife.org/science/wildfinder/>

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."²⁹ 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"³⁰

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](#)"³¹ which encompasses the Project Zone.

The primary forests of the Valparaiso Project are considered tropical rainforests due to the Köppen classification of Acre as tropical³² and the Food and Agricultural Organization of the United Nations' (FAO) designation of Acre as being within the tropical rainforest ecological zone.³³ 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

²⁹ The Nature Conservancy, "Rainforests: Facts About Rainforests," Available:

<http://www.nature.org/ourinitiatives/urgentissues/rainforests/rainforests-facts.xml>

³⁰ WWF, "Role of the Global Ecoregions and how they are selected," Available:

http://wwf.panda.org/about_our_earth/ecoregions/about/role/

³¹ WWF, "Southwestern Amazon Moist Forests," Available:

http://wwf.panda.org/about_our_earth/ecoregions/swamazon_moist_forests.cfm

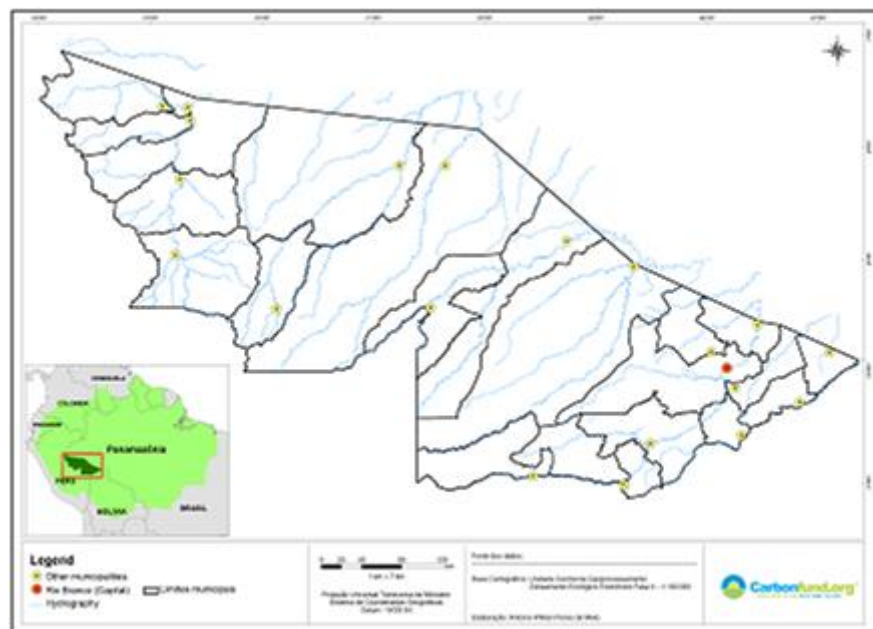
³² Peel MC, Finlayson BL & McMahon TA (2007), Updated world map of the Köppen-Geiger climate classification, *Hydrol. Earth Syst. Sci.*, 11, 1633-1644.

³³ FAO, "Ecological Zones: Brazil," Available: <http://www.fao.org/forestry/country/19971/en/bra/>

- 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

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.”³⁴



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 located alongside 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

³⁴ State Government of Acre Portal, “Geographic Data,”

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.

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 açai (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 several species of birds, mammals and reptiles.

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)³⁵

	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

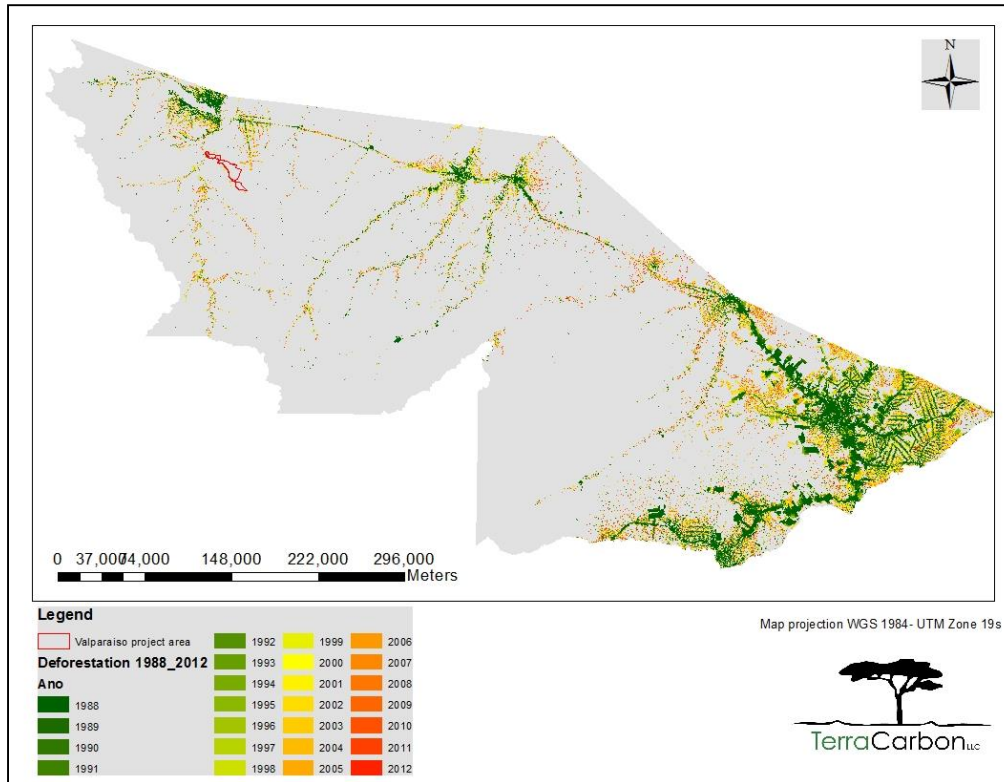
More specifically, the following are the annual deforestation rates for the state of Acre, along with the nearby Brazilian states of Amazonas and Rondônia:

Annual Rates of Deforestation (Square Kilometers per Year)³⁶

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

³⁵ 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>.

³⁶ 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 validated 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 validated 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 validated VCS Project Description. A discussion of the net change in the emissions of non-CO₂ GHG emissions is also included. In addition, the validated 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 was described in sufficient detail for independent validation and ongoing verification to the CCBS and VCS, as well as for all stakeholders to adequately evaluate and participate in the 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.

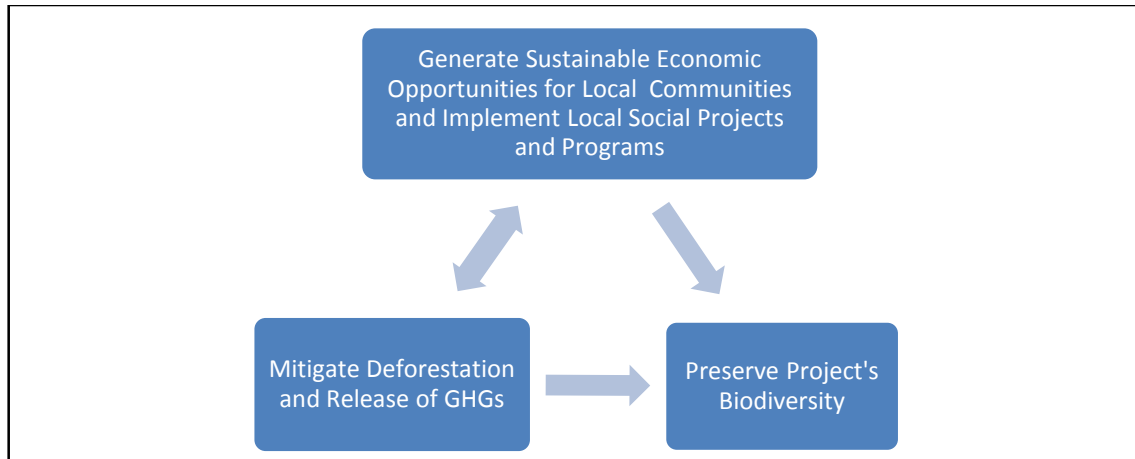


Figure 3: Model of Relationships between Major Climate, Community and Biodiversity Objectives

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 were undertaken by the Project Proponents from March 19, 2011 to December 31, 2013.

Major Climate Objective

To mitigate deforestation and reduce the amount of greenhouse gas (GHG) emissions, the Project Proponents undertook, or began to plan for, the following project activities between March 19, 2011 and December 31, 2013:

- 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 undertook, or began to plan for, the following project activities between March 19, 2011 and December 31, 2013:

- 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 undertook, or began to plan for, the following project activities between March 19, 2011 and December 31, 2013:

- 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 between March 17, 2011 and December 31, 2013 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.

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.

The forest carbon inventory was conducted by the renowned local forestry company TECMAN and was overseen by both CarbonCo and the international experts at TerraCarbon. TECMAN was contracted by CarbonCo in January 2013, participated in a web-based training from TerraCarbon in January 2013, and then TECMAN conducted the Russas Project’s forest carbon inventory from February to March 2013.

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

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

Regional Land-use and Deforestation Modeling

Similar to the need for a measurement of carbon stocks, there was a need to develop a regional land-use and deforestation model to determine a performance baseline for the Project Proponents. Such models now allow the Project Proponents to predict where (i.e., location),

when, from what (i.e., drivers and agents) and how much deforestation is expected, along with where to assist with leakage mitigation and primarily where to monitor.

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

Professor Flores was contracted by CarbonCo in April 2013 and assisted with the review of the Russas Project's modeling from approximately March to July 2013.

Professor Flores is another example of a local hire; Professor Flores received a transfer of technical knowledge and know-how from TerraCarbon.

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

Address Underlying Deforestation Drivers to Mitigate Release of GHGs

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

Addressing the underlying deforestation drivers - for example, providing agricultural extension trainings - is relevant to achieving the climate objective of reducing net GHG reductions by reducing the communities' dependence on forest resources through intensification of agricultural and livestock practices, by providing alternative income, along with providing education about the effects 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). This climate monitoring plan was devised between March 19, 2011 and December 31, 2013.

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.

Project Awareness, Meet Community and Discuss Project

Between March 19, 2011 and December 31, 2013 the Project Proponents visited the Valparaiso Project together and met with the local communities in June 2012, March-April 2013, June 2013 and August 2013.

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.

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 December 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.

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



Valparaiso Project Sign (Photo Credit: Brian McFarland)

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) 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 named Marmude Dene de Carvalho (“Marmude”), 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.



Local Project Manager and Patrollers (Photo Credit: Brian McFarland)

Project uniforms for both the Russas and Valparaiso Projects were purchased in July 2013. Also in July 2013, Marmude coordinated the placement of Russas and Valparaiso Project signs throughout the Project Zone.

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 Açúcar 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	Suínos - 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. I.S.R.C engaged the State of Acre's CEFLOA (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.

In July 2013, five courses were taught to the families living in the Russas Project and the Valparaiso Project along with families living in the leakage belt. A total of 27 people participated from the Russas Project, 34 people participated from the Valparaiso Project, and 40 people from the leakage belts participated. These five courses were the production of soursop (i.e., also known as graviola), passion fruit, banana, maize, and cassava. The courses also incorporate lessons on the control of pests and diseases through agro-ecological practices, the production of seedlings, and the use of traditional seeds. The courses were taught by the consultant Adair Pereira Duarte of S.O.S Amazonia, who is an environmental manager and specialist in agro-ecology.

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. From March 2011 to December 2013, Manoel Batista Lopes, ME preliminarily reviewed boat models and reviewed the costs to acquire such boats.





Agricultural Extension Training Courses (Photo Credit: Ilderlei Cordeiro)

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 manioc 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)

From March 2011 to December 2013, several initial steps were taken to eventually create this association to assist with the processing of acai and manioc flour. In March 2011, during the very early stages of designing the Project, many communities spoke of the large amount of acai which can be found in the region and that income from selling manioc flour was very important but more support was needed. In 2012, I.S.R.C. agreed to make the necessary investments to create an association to assist with the processing of acai and manioc flour when there is eventually revenue from the sale of carbon offset credits. From 2012 to 2013, the Project Proponents looked into the approximate costs to help process acai and manioc flour and the Project Proponents also looked at a model of processing acai in Cruzeiro do Sul. Furthermore,

the Basic Necessity Surveys (BNSs) and the Participatory Rural Assessment (PRAs), which were conducted in March and April 2013, further confirmed the importance of acai and manioc flour.

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.

Between March 2011 and December 2013, Ilderlei spoke to the local families about the local families receiving land title. In addition, Ilderlei spoke with the director of ITERACRE, which is the State of Acre's Institute of Land, about land regulations of the residents. ITERACRE offered their services to be partners and the Project Proponents received a letter of support from ITERACRE for the Valparaiso Project.

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.

Although sharing carbon revenue with the local communities is a longer term activity, the Project Proponents – particularly Ilderlei – discussed with the communities that they would be eligible for a share of the carbon revenue in the future. In addition, the Project was designed and implemented throughout March 2011 to December 2013 which are necessary actions to eventually having a verified REDD+ project with issued carbon offset credits.

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 Carvalho 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.

Although improving the health clinic and dental clinic are longer term activities, there were a few concrete steps taken from March 2011 to December 2013. In 2013, as Mr. Sebastião Melo de Carvalho was completing his nursing program and expressed his desire to provide health services in the Valparaiso River Basin. Sebastião spoke of the need to implement a program of oral prevention in the Russas and Valparaiso Projects by donation toothbrushes and toothpaste to the schools. Ilderlei realized the importance of these initiatives and talked to local families about incorporating this into the Project design. Furthermore, Ilderlei and Sebastião distributed mosquito nets throughout the Russas-Valparaiso Projects to help combat malaria in the Juruá River Basin.

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. The initial and full community impact monitoring plans were designed between March 17, 2011 and December 31, 2013 and the community monitoring plans were made publicly available in July 2013.

Major Biodiversity Objective

To preserve the Project's rich biodiversity, the Project Proponents will generate sustainable economic opportunities for the local communities and implement local social projects with the goal of addressing the underlying causes of deforestation and reducing the release of GHGs. In

addition, the Project Proponents will rapidly assess biodiversity on the Project and develop a biodiversity monitoring plan.

Rapidly Assess Biodiversity on Project

A rapid assessment 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.

The initial and full biodiversity monitoring plans were designed between March 19, 2011 and December 31, 2013 and the biodiversity monitoring plans were made publicly available in July 2013.

Wildlife cameras were deployed to the Purus Project, which is another REDD+ project in the State of Acre, Brazil being implemented by CarbonCo and Carbon Securities, and this provided many lessons learned for CarbonCo and Carbon Securities. This includes identifying local partners, proper placement of wildlife cameras, the quality of photographs to be expected, and the type of preventative maintenance to be conducted. These wildlife cameras will be deployed to the Russas-Valparaiso Projects in 2014.

G3.4. Project Timeframe

This initial Project Implementation Report covers the monitoring and reporting period from March 19, 2011 to December 31, 2013.

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, with key accomplishments between March 19, 2011 and December 31, 2013, is as follows:

Pre- and Post-Validation: Years 1 and 2 (2012-2013)

- Signing of Tri-Party Agreement between Project Proponents
 - The Valparaiso Project's Tri-Party Agreement was signed in May 2012
- Stakeholder Consultations and Community Visits
 - Stakeholder consultations and community visits occurred through March 2011 to December 2013, with the Project Proponents visiting the Valparaiso Project together in June 2012, March-April 2013, June 2013 and August 2013.
- Forest Carbon Inventory
 - TECMAN was contracted by CarbonCo in January 2013 for the forest carbon inventory, TECMAN participated in a web-based training from TerraCarbon in January 2013, and then TECMAN conducted the forest carbon inventory from February to March 2013.
- Land-use and Deforestation Modeling
 - Professor Flores was contracted by CarbonCo in April 2013 and assisted with the review of the Valparaiso Project's modelling from approximately March to July 2013.
- Project Design Documents Written
 - The Valparaiso Project's Climate, Community and Biodiversity Standard (CCBS) Project Design Document and Verified Carbon Standard (VCS) Project Description (both English and Portuguese versions) were written between November 2012 and July 2013.
- Hire Project Manager
 - In the earlier stages of the Project, Jose Getulio Silva ("Getulio") was the initial, informal project manager. Manoel Batista Lopes, ME then partnered with Ilderlei Souza Rodrigues Cordeiro in April 2013 to work on the social projects and programs of the Valparaiso Project in conjunction with Ilderlei's Russas Project
- 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. Ilderlei hired Marmude Dene de Carvalho in March 2011 to patrol for deforestation and such patrols continued through December 2013.
- Initiate Training and Agricultural Extension Courses for Communities
 - Communities throughout the Valparaiso Project Zone were surveyed on their most desired agricultural extension courses from March to May 2013. The five

agricultural training courses on the production of soursop (i.e., also known as graviola), passion fruit, banana, maize, and cassava took place in July 2013.

- Biodiversity and Community Impact Monitoring Plans Developed
 - The Valparaiso Project's biodiversity and community impact monitoring plans were developed between March 2011 and July 2013, the Participatory Rural Assessment (PRA) and the Basic Necessity Survey (BNS) which were used to develop the community impact monitoring plan were administered in March and April 2013, and both monitoring plans were publicly posted in July 2013.
- Project Validated to CCBS and VCS Standards
 - The validation site visit of the Valparaiso Project took place in August 2013 and the Project is projected to be validated to the CCBS and VCS Standards in July 2014.
- Renovate Headquarters
 - The initial renovation of the Valparaiso Project's headquarters took place in 2013.

Post-Validation: Years 3 to 5 (2014-2016)

- Help Communities Obtain Land Tenure
 - Ilderlei began to discuss with the communities the process of them receiving official land tenure. Ilderlei spoke with ITERACRE and the Project Proponents also received a letter of support from ITERACRE.
- Create Association to Process Açaí and Manioc Flour
 - Ilderlei discussed importance of manioc flour and the availability of acai with the local communities. In addition, the Project Proponents looked into the approximate costs to help process acai and manioc flour and the Project Proponents also looked at a model of processing acai in Cruzeiro do Sul.
- Improve Health Center and Dental Clinic
 - In 2013, as Mr. Sebastião Melo de Carvalho was completing his nursing program and expressed his desire to provide health services in the Valparaiso River Basin. Sebastião spoke of the need to implement a program of oral prevention in the Russas and Valparaiso Projects by donation toothbrushes and toothpaste to the schools. Ilderlei realized the importance of these initiatives and talked to local families about incorporating this into the Project design. Furthermore, Ilderlei and Sebastião distributed mosquito nets throughout the Russas-Valparaiso Projects to help combat malaria in the Juruá River Basin.

Post-Validation: Years 6 to 10 (2017-2022)

- Profit Sharing of Carbon Credits
 - Although a long-term activity, the Russas Project was designed and implemented from March 2011 to December 2013 which are very important steps to eventually having a verified REDD+ project with issued carbon offset credits.
- Reassessment of Land-use and Deforestation Modeling Baseline
 - This is a long-term activity.

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

Between March 2011 and December 2013, the Project Proponents conducted an extensive risk analysis and identified 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

Although no natural risks are known to have significantly impacted the Valparaiso Project between March 2011 and December 2013, the following are some potential natural risks that could impact 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.³⁷

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

³⁷ Center for Weather Prediction and Climate Studies, “Home,” Available: <http://www1.cptec.inpe.br/>
National Observatory, “Seismic Data,” <http://www.on.br/conteudo/modelo.php?endereco=servicos/servicos.html>

Amazon (e.g. Para, Mato Grosso, Rondonia and Maranhao).³⁸ 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 Arago 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 study³⁹ of fires in the Amazon, Cochrane and Laurance documented a relationship between fire incidence and distance from forest edge, with decreasing fire return intervals with increasing distance from edge. They also found that effects of forest fires depend on the extent and condition of fuel sources. In general, drought conditions need to be present prior to the initiation of rainforest fires. While initial fires can have a significant effect on the smaller diameter (<40 cm dbh) trees, it is only with subsequent burns, that significant losses (mortality of up to 40% of trees) of forest biomass can be expected⁴⁰. 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 study⁴¹ 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).⁴²

³⁸ 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

³⁹Cochrane M.A.& Laurance W.F., 2002. Fire as a large-scale edge effect in Amazonian forests, *Journal Of Tropical Ecology*, 18:311-325.

⁴⁰Cochrane 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.

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

⁴² State Government of Acre Portal, “Geographic Data,”

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.⁴³ 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.⁴⁴ 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.⁴⁵ The Project Proponents will carefully monitor any invasive species known 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.

Anthropogenic Risks

Although no anthropogenic risks are known to have significantly impacted the Valparaiso Project between March 2011 and December 2013, the following are some potential anthropogenic risks that could impact 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

Although no project risks are known to have significantly impacted the Valparaiso Project between March 2011 and December 2013, the following are a few of the potential future project risks identified by the Project Proponents:

- 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

⁴³ National Biodiversity Commission, "Technical Committee," Available:

<http://www.mma.gov.br/sitio/index.php?ido=conteudo.monta&idEstrutura=15&idConteudo=7474&idMenu=368>

⁴⁴ 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>

⁴⁵ 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>

- “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’.”⁴⁶
- “Increased land speculation or in-migration, thus creating conditions for increased competition and social conflict within and between communities.”⁴⁷
- State of Acre’s CEFLOA (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 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 (BNS) will be regularly administered (with the initial BNS administered in March to May 2013) to enable the rapid

⁴⁶ 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.

⁴⁷ 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.

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 and the initial five courses, which were offered to families in the leakage belt, were already taught in July 2013. 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 CEFLOA (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.”⁴⁸

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.⁴⁹ For example, the Valparaiso Project Proponents have:

- Integrated 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.
- Planned on eventually training 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.
- Monitored 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

⁴⁸ Convention on Biological Diversity, “Preamble,” Available: <http://www.cbd.int/convention/articles/?a=cbd-00>

⁴⁹ 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>

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*, were 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 which took place between March 2011 and December 2013 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
- Carbonfund.org educating donors and the general public on the importance of supporting forest conservation projects
- Ilderlei Cordeiro speaking to a wide-range of stakeholders about REDD+ projects

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

Between March 2011 and December 2013, the Project Proponents 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* of the validated CCBS PDD.

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

These following stakeholders, considered primary and secondary stakeholders, were involved in project design to optimize climate, community and biodiversity benefits while ensuring the 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 which took place during the initial monitoring and reporting period from March 19, 2011 to December 31, 2013.

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 Eufraan 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, Eufraan 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.

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 Eufraan 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.

June – December 2013 – From June to December 2013, Ilderlei continued to meet with numerous stakeholders to discuss the Russas-Valparaiso Projects. Ilderlei also promoted the public comment period to stakeholders. Such stakeholder meetings included the Mayor of Mazinho Santiago, municipal councilors Romário Tavares, Iria Matos, Jota Marronzinho, Altemar and Elenildo, along with the municipal environmental secretary Francisca and representatives of municipal agriculture department.

CarbonCo, Carbon Securities, and Manoel Batista Lopes, ME held biweekly meetings during the development phase of the project. Post-validation, CarbonCo, Carbon Securities and Manoel Batista Lopes, ME 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 collective site visit was done in 2012, 2013 and 2014. This yearly visit will also include meetings with other stakeholders such as: the Climate Change Institute (IMC); IMAC (Institute of Environmental Affairs for Acre); The State Secretary of Environmental Affairs for the Municipality of Cruzeiro do Sul; 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 were made available in both English and Portuguese. This allowed for a wider-range of stakeholder participation including local communities and government officials in Acre, Brazil.
- Secondly, the Project Documents were communicated to community members in an appropriate manner to overcome the fact that some community members might be illiterate. For example, Marmude Dene de Carvalho visited the communities during the CCBA Public Comment Period to explain the Project's Public Comment Period and solicit their comments. A copy of the Portuguese CCBS PDD was also left at the Russas Project.
- The CCBS Project Design Document were publicly posted for a minimum of 30 days on the CCBA website and comments were solicited. The CCBS PDD 30-day Public Comment Period officially ran from July 18th to August 17th, 2013.
- CarbonCo's parent company Carbonfund.org Foundation, Inc. publicized the Project Documents on its website and solicited comments on the Project via a newsletter announcement to Carbonfund.org's 20,000+ members. Carbonfund.org's newsletter for the CCBS PDD Public Comment Period announcement was sent on July 22nd, 2013.

- Furthermore, the Project Documents were sent on July 24th, 2013 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, Marmude Dene de Carvalho visited as many communities as possible living within the Project Zone. To facilitate comments from the communities, Marmude Dene de Carvalho individually met with each community and offered to transcribe their comments.

With respect to other stakeholders, I.S.R.C. announced the Public Comment Period and the offering of agricultural courses on the Rádio Juruá FM and Rádio Verdes Florestas from July 19th to July 23rd, 2013 and then again on August 15th, 2013. 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 informed listeners about the Valparaiso Project and about the CCBS, encouraged listeners to review the CCBS PDD, and asked for comments to be submitted. In addition, the Public Comment Period and offering of agricultural courses was also announced in the “Journal Tribune Juruá” on July 25, 2013, see [here](#).

Formalize Clear Process for Handling Unresolved Conflicts and Grievances

Between March 2011 and December 2013, the Project’s grievances procedure was designed and communicated to local communities.

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 seeks to promote the highest level of transparency, while protecting proprietary information and respecting intellectual property rights. To achieve this goal, these actions took place between March 2011 and December 2013 to promote the Project's transparency:

- The Valparaiso Project is being independently validated by Environmental Services, Inc. to the CCBS and VCS, two leading certification standards.
- The CCBS PDD was publicly posted for 30 days.
- Carbonfund.org and CarbonCo LLC's financial statements were annually audited by an independent, certified public accountant.
- The Project Proponents presented the Project to a wide-range of officials, including but not limited to: 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 was publicly displayed on Ecosystem Marketplace's [Forest Carbon Portal](#)

The Project undertook 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 Market Environmental Registry (a VCS-approved registry) was selected 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 and verification.

A detailed pro forma for the Project’s initial 30-year crediting period was 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 employ best practices, including local employment, awareness of worker rights, ensuring worker safety, and established 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.

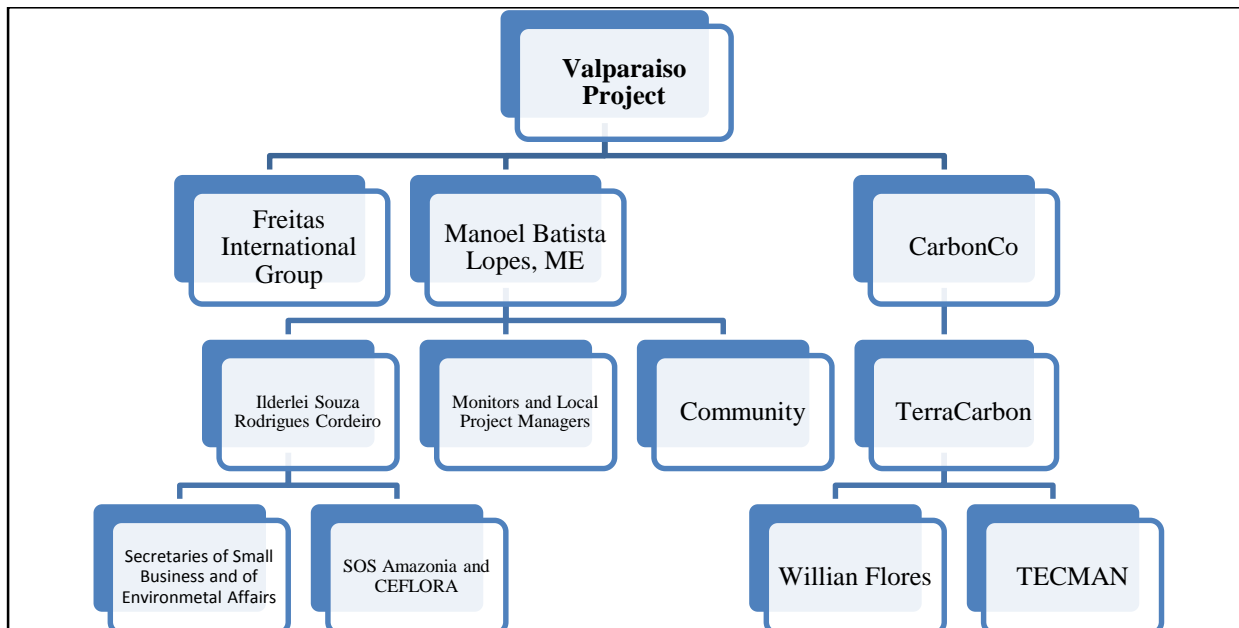


Figure 9: Governance Structure / Organizational Chart of the Valparaiso Project

CarbonCo LLC

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

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

CarbonCo is managing the project development portion of Carbonfund.org's work but is not in the business of climate change education and outreach, small scale carbon offset retail sales, nor corporate sustainability programs. CarbonCo instead is focusing on a number of project opportunities and the advisory services necessary to help these conservation projects reach certification. 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 and verification.

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 works with CarbonCo, LLC to identify and develop high quality carbon reduction 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 and

verification. To learn more about Carbon Securities, please see the validated [CCBS PDD](#) and visit: <http://www.carbonsecurities.org>.

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

- Promoting, encouraging and facilitating the participation and cooperation of 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 +1 (305) 209-0909 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: 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.

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/>.

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.

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. For detailed staff biographies, please see the Valparaiso Project’s validated CCBS PDD, section G4. Management Capacity and Best Practices, subsection 2. Key Technical Skills and Staff.

G4.3. Orientation and Training

Plan to Provide Orientation and Training for Project’s Employees and Relevant Community Members

The Valparaiso Project Proponents provided orientation and training for the Project’s employees and community members. Between March 2011 and December 2013, orientation and trainings 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 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 an online, refresher training for TECMAN in January 2013.
- Five agricultural extension training courses (soursop, passion fruit, banana, maize, and cassava) took place in July 2013.

- Ilderlei provide informal training to Marmude about how to monitor for deforestation, monitor for fire, and how to monitor for illegal logging and fishing.

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 additional agricultural extension trainings based off the top-ten agricultural extension courses
- 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.

Between March 2011 and December 2013, the communities were 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 açai processing plant, maintain the Project's headquarters, and to provide transportation services)
- Nurse for health and dental clinic

G4.5. Relevant Laws and Regulations

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

Between March 2011 and December 2013, the Project Proponents identified all relevant laws and discussed the laws impacts on the Valparaíso Project. For example, the Valparaíso Project meets, or exceeds, all applicable laws and regulations covering worker rights in Brazil and the Project Proponents will inform all workers about their rights.

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

- The Brazilian Constitution, Chapter II-Social Rights, Articles 7- 11⁵⁰

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).⁵¹
- Estatui normas reguladoras do trabalho rural: LEI N° 5.889, DE 8 DE JUNHO DE 1973 (Establishes Regular Norms for Rural Workers).⁵²

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 was presented to all employees to ensure workers are informed about their rights.

CarbonCo underwent 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.

⁵⁰ Massachusetts Institute of Technology, "Brazilian Constitution," Available: <http://web.mit.edu/12.000/www/m2006/teams/willr3/const.htm>

⁵¹ 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/De15452.htm

⁵² Presidency of the Republic. "LEI N° 5.889, DE 8 DE JUNHO DE 1973," Available: http://www.planalto.gov.br/ccivil_03/leis/L5889.htm

G4.6. Worker Safety Assurance

Comprehensively Assess Situations and Occupations that Pose a Substantial Risk to Worker Safety Between March 2011 and December 2013, the Valparaiso Project Proponents comprehensively assessed the situations and particular occupations that could pose risks to worker safety. The Project Proponents will continue to inform workers of such risks, explain how to minimize such risks, and the Project Proponents will use best work practices.

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

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 America⁵³ and specifically within the State of Acre.⁵⁴ The snake species of greatest concern are the fer-de-lance (*Bothrops atrox*) and the South American bushmaster (*Lachesis muta*).⁵⁵ 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.

⁵³ J.-P. Chippaux. "Reviews/Analyses," Available:

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2305789/pdf/bullwho00388-0084.pdf>

⁵⁴ 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,"

⁵⁵ 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



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

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

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. In addition, Ilderlei and Sebastião Melo de Carvalho helped distribute mosquito nets throughout the Project Zone, which should assist with malaria prevention.

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 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, were provided to the independent validation firm, Environmental Services, Inc.

G5. Legal Status and Property Rights

The Valparaiso Project is compliant with 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 between March 2011 and December 2013 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.”⁵⁶

Furthermore, there was an international MOU between California (United States), Chiapas (Mexico) and Acre (Brazil) signed on November 16, 2010.⁵⁷

The State of Acre is also an active member in the Governors’ Climate and Forest Task Force.⁵⁸

National Laws and Regulatory Frameworks

The Valparaiso Project will continue to abide by Brazilian national laws and especially the Brazilian Constitution. This includes Chapter 6 of the Brazilian Constitution which specifically discusses environmental issues in Article 225.⁵⁹

⁵⁶ 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>

⁵⁷ 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

⁵⁸ Governors’ Climate and Forest Task Force, “About GCF,” <http://www.gcftaskforce.org/about.php>

⁵⁹ Georgetown University, “1988 Constitution, with 1996 reforms in English,” Available: <http://pdba.georgetown.edu/Constitutions/Brazil/english96.html#mozTocId920049>

Compliance with Law

Although the Valparaíso 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 Valparaíso Project will incorporate environmental education.

The Brazilian Forest Code is of particular importance to the Valparaíso Project. This includes:

- The original Brazil Forest Code entitled, Law No. 4771, September 15, 1965.⁶⁰
- Revision of Brazil Forest Code under Law No. 7803, July 18, 1989.⁶¹
- Provisional Measure entitled 2166-67, August 24, 2001.⁶²
- Revision of Brazil Forest Code under Law No. 12.651 of May 25, 2012.⁶³

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.⁶⁴ Many of these provisions have been revised since 1965.

Compliance with Law

The Valparaíso 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 exploitation of forests and succeeding formations, both public domain and private domain, will

⁶⁰ Presidency of the Republic, “Law No. 4771, September 15, 1965,” Available: http://www.planalto.gov.br/ccivil_03/Leis/L4771.htm

⁶¹ Presidency of the Republic, “Law No. 7803, July 18, 1989,” Available: http://www.planalto.gov.br/ccivil_03/leis/L7803.htm

⁶² Presidency of the Republic, “Provisional Measure 2166-67, August 24, 2001,” Available: https://www.planalto.gov.br/ccivil_03/MPV/2166-67.htm

⁶³ 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

⁶⁴ Presidency of the Republic, “Law No. 4771, September 15, 1965,” Available: http://www.planalto.gov.br/ccivil_03/Leis/L4771.htm

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.⁶⁵

Compliance with Law

The Valparaíso Project will continue to 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 Valparaíso 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.⁶⁶

Compliance with Law

As mentioned previously, the Valparaíso 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.⁶⁷

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,

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

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.⁶⁸

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.⁶⁹

Compliance with Law

The Valparaiso Project has 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.

⁶⁸ Presidency of the Republic, “Law No. 6.938, August 31, 1981,” Available: http://www.planalto.gov.br/ccivil_03/leis/L6938.htm

⁶⁹ Presidency of the Republic, “Law No. 6.938, August 31, 1981,” Available: http://www.planalto.gov.br/ccivil_03/leis/L6938.htm

Another important national Brazilian law that is relevant to the Valparaiso Project is the National Climate Change Policy (NCCP).⁷⁰

Compliance with Law

A key component of Brazil's National Climate Change Policy is the voluntary reduction in greenhouse gas emissions. The Valparaiso Project is 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 continue to 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."⁷¹

Compliance with Law

As a tropical forest ecosystem services project, otherwise known as REDD+, the Valparaiso Project shall continue 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."⁷² The Law also established the institutional responsibility for the management of State Forests, defines forests, and outlines the administrative penalties for non-compliance.

⁷⁰ World Bank, "State and Trends of the Carbon Market 2010," Available:

http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/StateAndTrend_LowRes.pdf.

⁷¹ 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>

⁷² The Governor of the State of Acre, "Acre Forestry Law, December, 27, 2001," Available:

http://webserver.mp.ac.gov.br/?dl_id=800

Compliance with Law

The Valparaiso Project is on private property and thus, this law is not relevant. Nevertheless, the Project Proponents shall continue contributing to the sustainable use of forest resources, preserve biodiversity, and also “promote ecotourism, recreation, forestry research and education.”⁷³

G5.2-3. Approval from Appropriate Authorities

Document that the Project has Approval from the Appropriate Authorities

Between March 2011 and December 2013, the Valparaiso Project received approval from Manoel Batista Lopes who privately owns the Valparaiso Project property and the Project Proponents also received approval from the local communities. Such approvals are evidenced by the Tri-Party Agreement between the Project Proponents, along with the “ata” signed by the local communities.

The Project Proponents were in active communication with the State of Acre between March 2011 and December 2013. The Project Proponents also received 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

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.

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

⁷³ The Governor of the State of Acre, “Acre Forestry Law, December, 27, 20 01,” Available: http://webserver.mp.ac.gov.br/?dl_id=800

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

Between March 2011 and December 2013, the Project Proponents identified the following 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 also kept 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.

A review of the Landowner and the Valparaiso Project property was conducted between March 2011 and December 2013 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."⁷⁴

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.⁷⁵

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.

⁷⁴ VCS. 2012 VCS Standard. Version 3.2, 01 February 2012. Verified Carbon Standard, Washington, DC.

⁷⁵ <http://www.receita.fazenda.gov.br/grupo2/certidoes.htm>

Finally, Carbon Securities and CarbonCo visited the IBAMA, or Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, website⁷⁶ 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 documentation⁷⁷ 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).⁷⁸

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.⁷⁹ 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.

CLIMATE SECTION

CL1. Net Positive Climate Impacts

The Valparaiso Project generated net positive climate impacts between March 19, 2011 and December 31, 2013 by mitigating deforestation within the Valparaiso 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 estimated net change in carbon stocks due to the project activities between March 19, 2011 and December 31, 2013, please see the Valparaiso Project's VCS Monitoring Report.

⁷⁶ IBAMA, "Certidão Negativa de Débito," Available: <http://www.ibama.gov.br/sicafext/sistema.php>

⁷⁷ Ministry of Justice of Brazil, "Cadastro de Cartório do Brasil," Available: <http://portal.mj.gov.br/CartorioInterConsulta/consulta.do?action=prepararConsulta&uf=AC>

⁷⁸ 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>

⁷⁹ José D.G. Miguez, "CDM in Brazil," Available: www.oecd.org/dataoecd/9/6/2790262.pdf

CL1.2. Other non-CO₂ Greenhouse Gases

Estimate the Net Change in the Emissions of Non-CO₂ GHG Emissions

To review the estimated net change in other non-CO₂ GHG emissions of the Valparaiso Project between March 19, 2011 and December 31, 2013, please see the Valparaiso Project's VCS Monitoring Report.

CL1.3. Project Activities' GHG Emissions

Estimate any Other GHG Emissions Resulting from Project Activities

Please see the Valparaiso Project's VCS Monitoring Report 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 had a net positive climate impact between March 17, 2011 and December 31, 2013 by mitigating deforestation and the subsequent release of greenhouse gas emissions. For the detailed methodology and calculations of this net positive impact, please see the VCS Monitoring Report.

CL1.5. Avoidance of Double Counting

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

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

CL2. Offsite Climate Impacts ("Leakage")

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

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 validated VCS Project Description and the VCS Monitoring Report 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 designed between March 2011 and December 2013 to address the activity-shifting leakage. This includes:

- The Valparaiso Project worked 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 were offered to communities in leakage belt
- Manoel Batista Lopes, ME with its partnership with Ilderlei Souza Rodrigues Cordeiro monitored 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 subtracted any likely project-related and unmitigated negative offsite climate impacts.

Non-CO₂ Gases

The Project accounted for any non-CO₂ GHG emissions (e.g., methane or nitrous oxides) if they were likely to account for more than a 5% increase or decrease (in terms of CO₂e) of the net change calculations.

CL3. Climate Impact Monitoring

Between March 2011 and December 2013, the Valparaiso Project Proponents developed a climate impact monitoring plan which identified 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 validated VCS Project Description section 4 *Monitoring*. This full climate impact monitoring plan, and its ongoing monitoring results, were made publicly available on the internet and were also made available to the communities and the Valparaiso Project's other stakeholders.

COMMUNITY SECTION

CM1. Net Positive Community Impacts

The Valparaiso Project generated net positive community impacts between March 19, 2011 and December 31, 2013 which were 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 were monitored to ensure positive net benefits for all communities (see Section, *CM3. Community Impact Monitoring*).

The general process between March 19, 2011 and December 31, 2013 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
- Theory of Change Modified, as Necessary

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 helped 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:

Aggregated 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:

Aggregated 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		Summary Statistics for Inside Valparaiso Project	
Highest Total Value of Owned Assets	R\$ 57,248.00	Highest Total Value of Owned Assets Per Capita	R\$ 31,924.00
Lowest Total Value of Owned Assets	R\$ 1,664.00	Lowest Total Value of Owned Assets Per Capita	R\$ 1,664.00
Total Value of Owned Assets Range	R\$ 55,584.00	Total Value of Owned Assets Per Capita Range	R\$ 30,260.00
Average Total Value of Owned Assets	R\$ 39,085.83	Average Total Value of Owned Assets Per Capita	R\$ 8,718.36
% Above Total Value of Owned Assets Average	50.00%	% Above Total Value of Assets Per Capita Average	26.67%
% Below Total Value of Owned Assets Average	50.00%	% Below Total Value of Assets Per Capita Average	73.33%
Summary Statistics for Valparaiso Project's Leakage Belt		Summary Statistics for Valparaiso Project's Leakage Belt	
Highest Total Value of Owned Assets	R\$ 64,656.00	Highest Total Value of Owned Assets Per Capita	R\$ 25,609.50
Lowest Total Value of Owned Assets	R\$ 29,921.00	Lowest Total Value of Owned Assets Per Capita	R\$ 5,877.82
Total Value of Owned Assets Range	R\$ 34,735.00	Total Value of Owned Assets Per Capita Range	R\$ 19,731.68
Average Total Value of Owned Assets	R\$ 45,617.80	Average Total Value of Owned Assets Per Capita	R\$ 10,237.40
% Above Total Value of Owned Assets Average	40.00%	% Above Total Value of Assets Per Capita Average	20.00%
% Below Total Value of Owned Assets Average	60.00%	% 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).”⁸⁰ Likewise, the Valparaiso Project strategies and activities will lead to outputs, followed by outcomes, and ultimately by net positive climate, community and biodiversity impacts.⁸¹

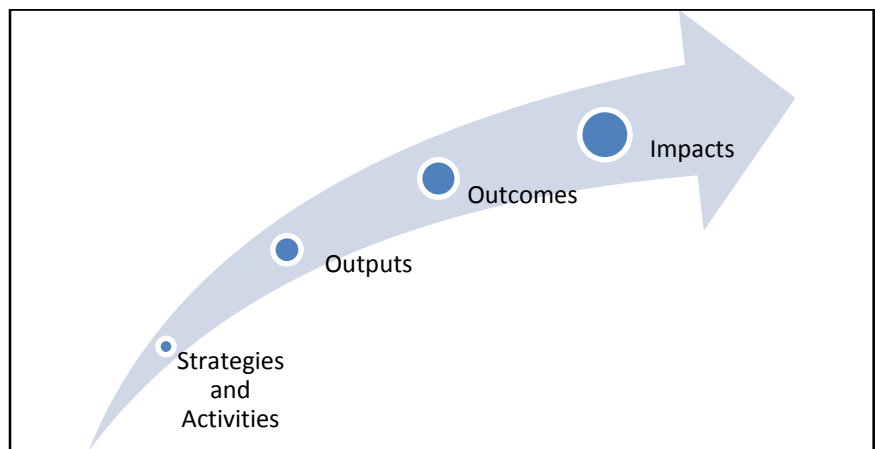


Figure 14: Progression from Project Strategies and Activities through Community Impacts

⁸⁰ 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.

⁸¹ The linkages between the Valparaiso Project’s Strategies and Activities, Outputs, Outcomes, and Impacts were conceptualized with assistance from Brigitta Jozan, Independent Advisor

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.⁸²

The following causal analysis has been conducted to demonstrate net positive community impacts from the Valparaiso Project.⁸³

⁸² Sources: Based on GEF Evaluation Office and Conservation Development Centre 2009; Schreckenberget al. 2010.

⁸³ 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.

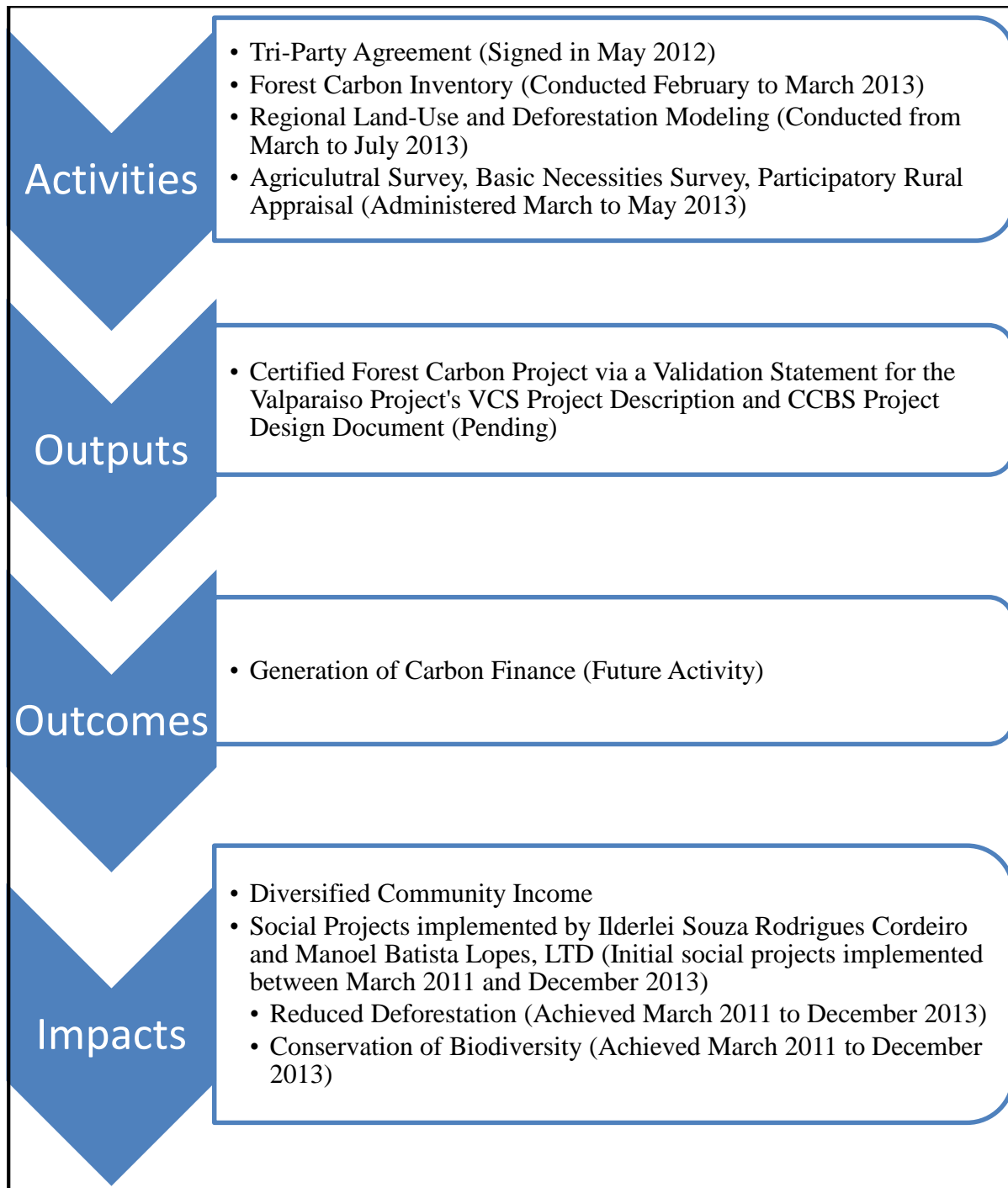


Figure 15: Activities, Outputs, Outcomes and Impacts of Carbon Finance

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.

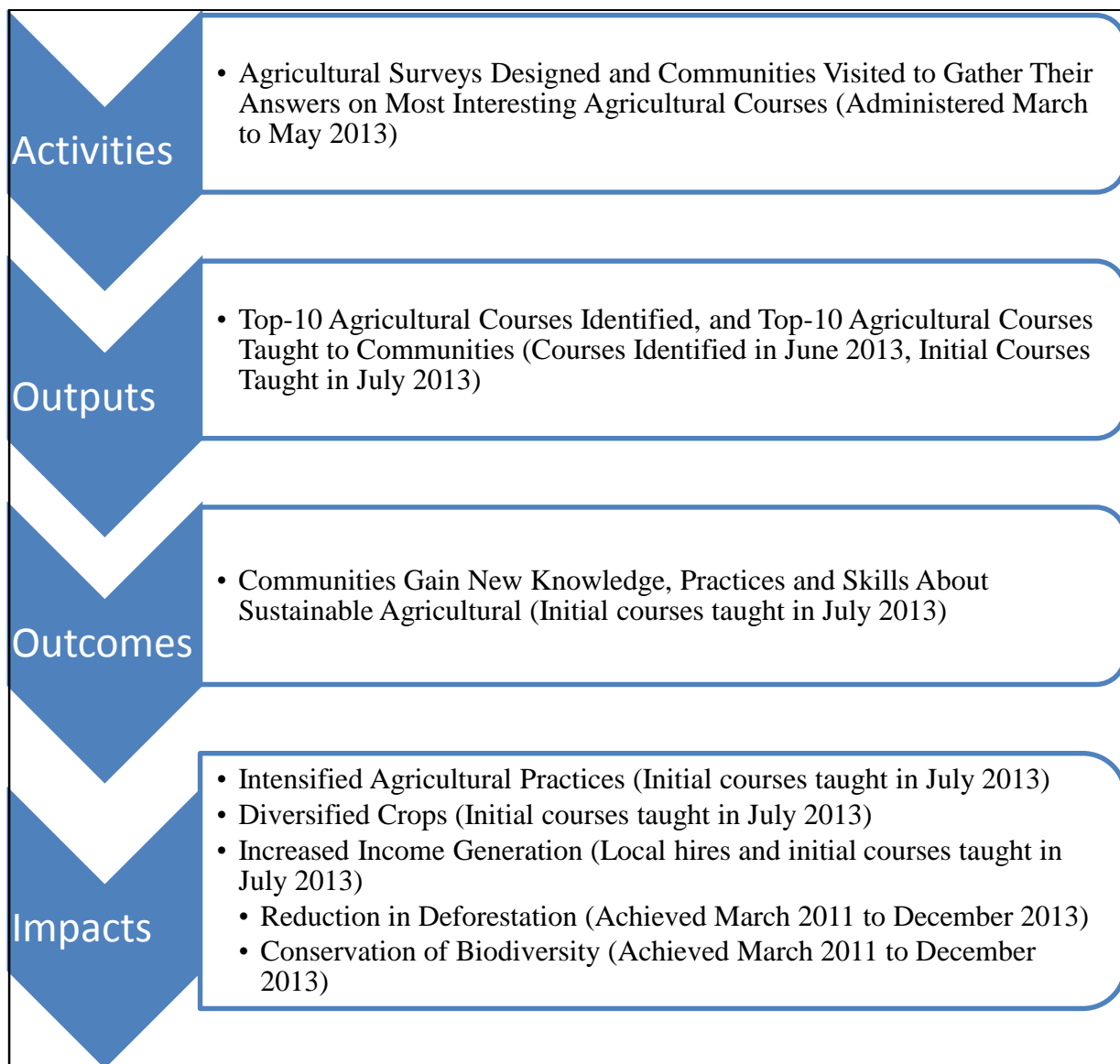


Figure 16: Activities, Outputs, Outcomes and Impacts of Agricultural Survey

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).

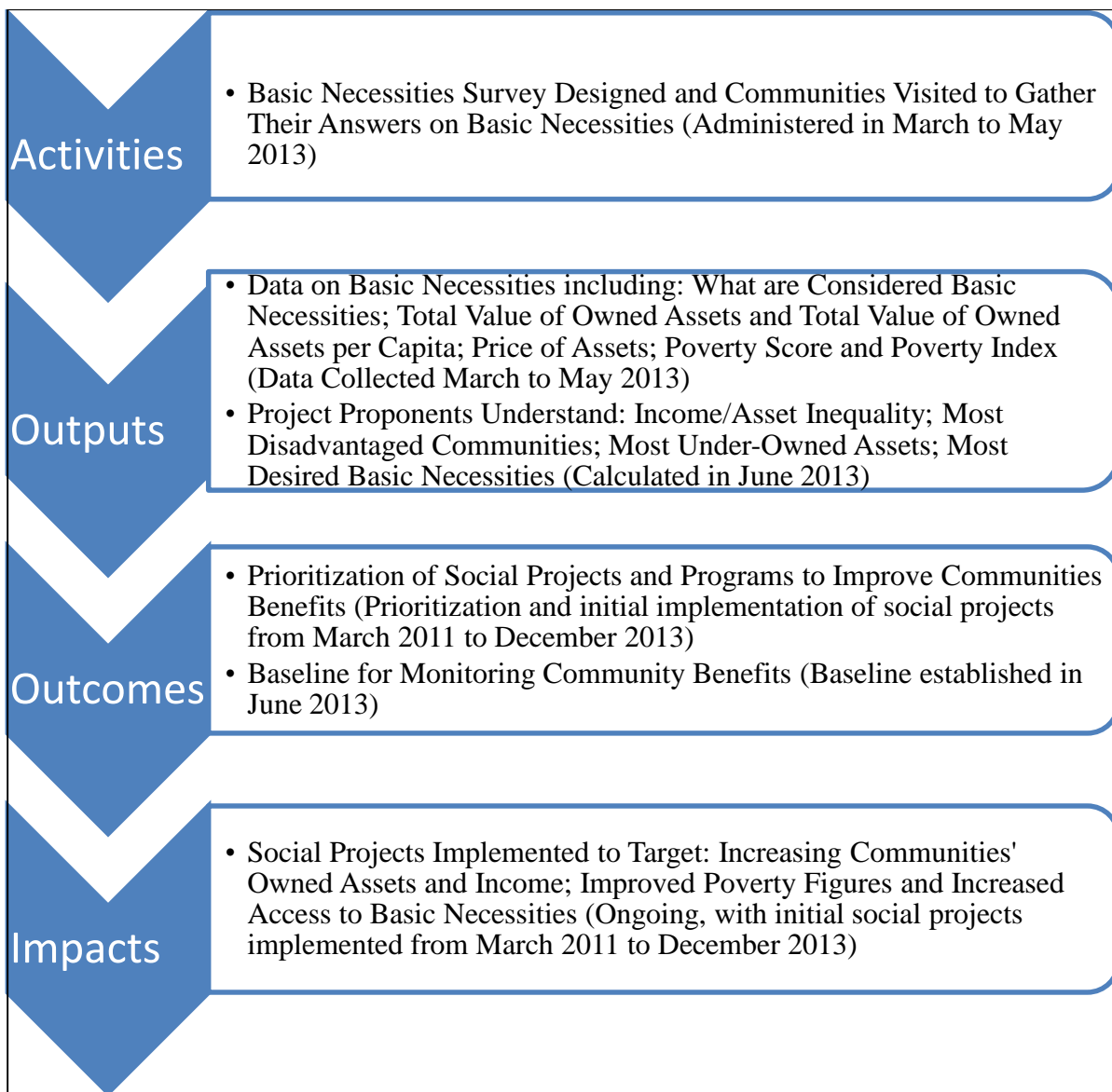


Figure 17: Activities, Outputs, Outcomes and Impacts of Basic Necessities Survey

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).

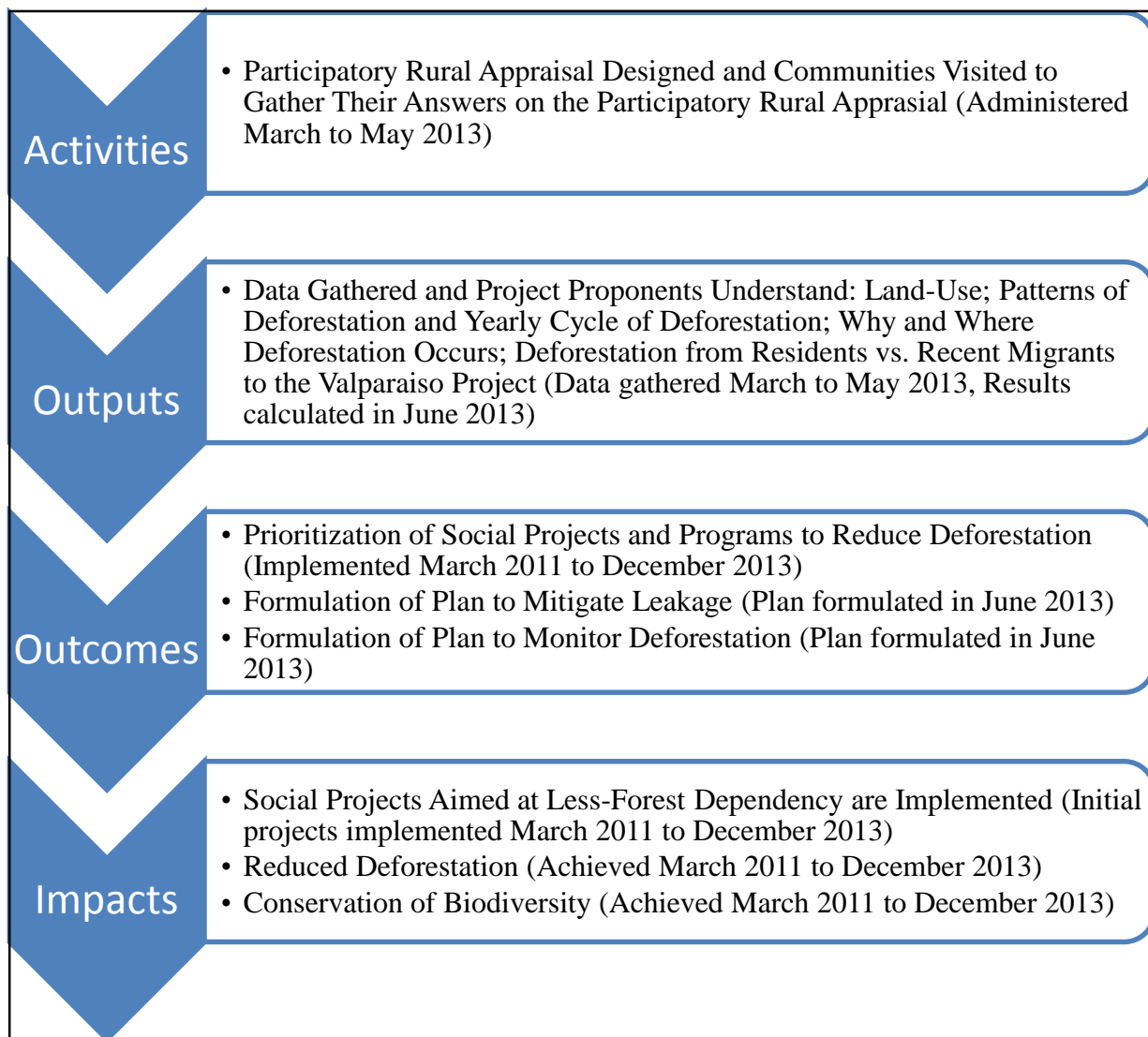


Figure 18: Activities, Outputs, Outcomes and Impacts of Participatory Rural Appraisal

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 resulted in net positive community benefits in the 'with project' scenario from March 2011 to December 2013. 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, provided net positive socio-economic benefits for communities in the 'with project' scenario from March 2011 to December 2013 by: creating awareness about the Project and the need to preserve the forests for future generations; discussions with communities and initiation of the process to formalize land tenure of communities; providing the first five agricultural courses along with delivery of seeds, graviola, and passion fruit; hiring local staff and implementation of monitoring team; expansion of Marmude's house to serve as the initial Project headquarters. These activities would not have resulted in the 'without project' scenario.

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 undertook an extensive stakeholder identification and consultation, including with offsite stakeholders, from March 2011 to December 2013.

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 spoke 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

Although no negative offsite stakeholder impacts took place between March 2011 and December 2013, the Project Proponents 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 between March 2011 and December 2013.

Regarding the increased cost of land, the Valparaiso Project did not have a noticeable impact on rising costs of land especially if compared to the paving of BR-364 and Ramal 3. 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 discussed 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, but was not identified as a result of the Valparaiso Project between March 2011 and December 2013. 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 monitored deforestation throughout the Project Zone and will seek to minimize deforestation within the Project Zone. Similarly, there is a possibility of out-migration from the Valparaiso Project and into the surrounding non-Valparaiso Project property forests. To mitigate out-migration, the Project Proponents held numerous community meetings and seek to implement a variety of social projects and programs.

With respect to increased conflict, illicit activities, alcoholism, and elite capture, the Project Proponents will continue to monitor community benefits throughout the Project Zone. Children from surrounding communities will be allowed to attend 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 had a net positive impact from March 19, 2011 to December 31, 2013 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 will be 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

Between March 2011 and December 2013, the Project Proponents designed an initial community impact monitoring plan and a full community impact monitoring plan. The Project Proponents disseminated 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 Project's community impact monitoring baseline was established from March to May 2013, when the PRA and BNS were conducted by the Project Proponents with the local communities.

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
 - The Valparaiso Project's Tri-Party Agreement was signed in May 2012.
- Completion of Forest Carbon Inventory
 - The forest carbon inventory was completed in March 2013.
- Completion of Regional Deforestation and Land-Use Modeling
 - The regional deforestation and land-use modelling was completed in July 2013.
- Completion of VCS Project Description and CCBS Project Design Document
 - The final draft versions of the VCS Project Description and CCBS Project Design Document were completed in July 2013. The final versions of these Project Documents are project to be validated in July 2014.
- Completion of the Agricultural Survey, Basic Necessities Survey and Participatory Rural Appraisal
 - The Agricultural Survey, Basic Necessities Survey and the Participatory Rural Appraisal were completed in May 2013.

Indicators of Outputs

- Validation Statements for VCS Project Description and CCBS Project Design Document
 - The validation statements for the VCS Project Description and the CCBS Project Design Document are projected to be received in July 2014.
- Spreadsheet with Top-10 Agricultural Courses Identified
 - The spreadsheet identifying the top-10 agricultural courses was completed in May 2013.
- Agricultural Extension Trainings / Courses Conducted
 - The first five agricultural courses were taught in July 2013.

- 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
 - The spreadsheet compiling data on the basic necessities was completed in May 2013.
- Summary Statistics on: Income/Asset Inequality; Most Disadvantaged Communities; Most Under-Owned Assets; Most Desired Basic Necessities
 - Summary statistics were calculated in May 2013.
- Participatory Rural Appraisal 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
 - The Participatory Rural Appraisal Surveys were completed in May 2013 and the spreadsheet compiling this data was completed in May 2013.

Indicators of Outcomes

- Value of Carbon Finance Generated
 - Future activity, expected in 2014 or 2015 after Project is verified
- Communities Gain New Knowledge, Practices and Skills About Sustainable Agricultural
 - Initial five agricultural courses taught in July 2013
- Prioritization and Implementation Plan for Social Projects and Programs to Reduce Deforestation and Improve Community Benefits
 - Social projects – such as teaching agricultural courses and discussing land tenure with communities – were prioritized and implemented between March 2011 and December 2013
- Baseline for Monitoring Community Benefits
 - Baseline established in June 2013
- Formulation of Plan to Mitigate Leakage
 - Leakage plan formulated in June 2013
- Formulation of Plan to Monitor Deforestation
 - Deforestation monitoring plan formulated in June 2013

Indicators of Impacts

- Community Income Diversified
 - Ongoing, with initial agricultural courses taught in July 2013
- Increased Income Generation
 - Ongoing, with initial agricultural courses taught in July 2013
- Reduced Deforestation
 - Achieved between March 2011 and December 2013
- Intensified Agricultural Practices
 - Ongoing, with initial agricultural courses taught in July 2013
- Diversified Crops
 - Ongoing, with initial agricultural courses taught in July 2013
- Increasing Communities' Owned Assets and Owned Assets per Capita
 - Ongoing, next Basic Necessity Survey (BNS) to be administered in 2015
- Improved Poverty Figures and Poverty Scores
 - Ongoing, next BNS to be administered in 2015

- Increased Access to Basic Necessities
 - Ongoing, next BNS to be administered in 2015
- Improvement in Health and Dental Clinic
 - Future activity, mosquito nets distributed and local nurse identified

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

Although very limited leakage is predicted outside of the Project Zone due to the project activities of the Valparaíso Project, the other stakeholders who might be negatively impacted due to the Valparaíso 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 supply⁸⁴

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. The next Brazilian census is scheduled for 2014 and will be used to establish a baseline of these socio-economic variables for outside stakeholders living in the municipalities of Cruzeiro do Sul and Porto Walter.

BIODIVERSITY SECTION

B1. Net Positive Biodiversity Impacts

The Valparaiso Project generated net positive biodiversity impacts while maintaining high conservation values from March 2011 to December 2013. 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-hectare reserves indicate that the number of species, and in some cases population sizes, in these groups varies with the size of the reserve."⁸⁵

⁸⁴ IBGE, "Click here to get information about municipalities at Cities@," Available: <http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#>

⁸⁵ Richard O. Bierregaard Jr. et. al., "The Biological Dynamics of Tropical Rainforest Fragments," pages 859-866.

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, had positive biodiversity impacts such as:

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

With no negative biodiversity impacts estimated as a result of the Valparaiso Project between March 2011 and December 2013, these aforementioned positive biodiversity impacts resulted in a net positive impact on biodiversity in the ‘with project’ scenario throughout the Project Zone.

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 – were negatively affected by the Valparaiso Project from March 2011 to December 2013. 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 were not 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, were 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. This monitoring plan was made publicly available in July 2013.

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

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

There were no known invasive species used in the Project between March 2011 and December 2013 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:

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

- Mulateiro (*Calicophyllum spruceanum*)

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 did not increase as a result of the Valparaiso Project and the Project Proponents will continue to 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 and no GMOs were used between March 2011 and December 2013.

B2. Offsite Biodiversity Impacts

The Project Proponents 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.⁸⁶ 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.

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

⁸⁶ 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

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 between March 2011 and December 2013. 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."⁸⁷ 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.

From March 2011 to December 2013, 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 extended 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 – was 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 between March 2011 and December 2013 was overwhelmingly positive. The mitigation of deforestation and preservation of forest cover had a significantly positive effect on biodiversity. Thus, the overall effect of the Valparaiso Project on biodiversity was overwhelmingly positive because much more forest cover will be preserved as opposed to deforested as a result of the project activities.

B3. Biodiversity Impact Monitoring

The Project Proponents have an initial biodiversity monitoring plan and a full biodiversity impact monitoring plan. The Project Proponents disseminated this full biodiversity impact monitoring plan and the results of the monitoring plan specifically to the local communities and

⁸⁷ Environmental Defense Fund, "Ready for REDD: Acre's State Programs for Sustainable Development and Deforestation Control," Page 8.

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 and stakeholder consultation. 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 was 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) from June 2013 to March 2014 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*)

From March 2011 to December 2013, 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;⁸⁸ How to position cameras, sampling designs, and field crews;^{89,90} Technical elements of mammalian diversity and populations using wildlife camera traps,^{91,92} along with reviewing wildlife camera trap models.⁹³

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.

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 (Achieved in 2013)

⁸⁸ 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.

⁸⁹ Grant Harris et. al, "Automatic Storage and Analysis of Camera Trap Data," Available: <http://dx.doi.org/10.1890/0012-9623-91.3.352>

⁹⁰ 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.

⁹¹ C. Carbone et. al, "The use of photographic rates to estimate densities of tigers and other cryptic animals," Available: nationalzoo.si.edu/.../024e33-5a96-49f6-9080-33bbdb0c92c0.pdf

⁹² Tim O'Brien, "Wildlife Picture Index: Implementation Manual Version 1.0," Available: static.zsl.org/files/wcs-wpno39-wildlifepictureindex-928.pdf

⁹³ TrailCamPro, "Trail Camera Selection Guide," Available: <http://www.trailcampro.com/trailcameraselectionguide.aspx>

- Consult local communities and André Luis Botelho de Moura to identify the specific locations to set up wildlife camera traps (Achieved in 2013)
- Purchase and placement of wildlife cameras throughout the Project Area, rotating the cameras to different vegetation strata as necessary (Cameras originally purchased for Purus Project in May 2013 and will be used for the Russas-Valparaiso Projects)
- 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 continue to 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.⁹⁴ 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 study⁹⁵, 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\$130.75.⁹⁶

GL2.3-4. Involvement of Poorest Community Members

Project Proponents did not practice selective enrollment – all community members, regardless of background, longevity on project, size of holding, etc. were allowed to participate.

All social projects and programs (e.g., health and dental clinic, agricultural extension trainings, etc.) will continue to be offered to all communities. For example, in July 2013 the initial five agricultural courses (i.e., production of soursop, passion fruit, banana, maize, and cassava) were taught to the families living in the Russas Project and the Valparaiso Project. A total of 27 people participated from the Russas Project, 34 people participated from the Valparaiso Project, and 40 people from the leakage belts participated. 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 initial Basic Necessity Survey (BNS) allowed 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 continue to be very equal. Land titling will take into account per capita, so larger families will get larger parcels of land.

Furthermore, the Project Proponents 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:

⁹⁴ UNDP, "International Human Development Index," Available: <http://hdrstats.undp.org/images/explanations/BRA.pdf>

⁹⁵ 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

⁹⁶ IBGE, "Cruzeiro do Sul," Available: <http://www.ibge.gov.br/cidadesat/link.php?codigo=120020&idtema=16>

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

The Project Proponents 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 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. For example, fuel was provided to communities living in the Russas and Valparaiso Projects, along with communities in the leakage belt, in July 2013 in order for families to participate in the agricultural courses and fuel was also provided in August 2013 in order for families to participate in a community-wide meeting with the auditors.

Fewer Tools to Produce Agriculture

The Project gave free agricultural extension courses for the communities to learn new techniques in July 2013. The association will help with the mechanization of the land. The association will prioritize the improvement of the poorer communities' manioc 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. This boat has not yet been purchased, but will be acquired in conjunction with the establishment of an association to assist with acai processing and the manioc flour houses.

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. For example, the agricultural courses taught in July 2013 focused on improvements in agricultural production

through soil preparation techniques and through the use of cover crops for soil enhancement and to replace the use of fire.

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 were no negative impacts.

GL2.5. Community Impact Monitoring

The Basic Necessities Survey and Poverty Index have enabled the Project Proponents to establish a baseline and in the future, to identify positive and negative impacts on the poorest communities and more vulnerable groups within the Project, including women.

The Basic Necessities Survey is a differentiated approach because the Survey allows for the identification of the poorest communities and will enable the Project to specifically target their needs (for example, lack of transportation to participate in the Project). Furthermore, the Survey was administered with women throughout the Project and the Project will specifically target their unique needs (for example, access to education for their children) as well.

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.

BIBLIOGRAPHY

- 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.
- Aragão, Luiz E. O. C. and Yosio E. Shimabukuro. “The Incidence of Fire in Amazonian Forests with Implications for REDD.” *Science* 328, 1275 (2010); DOI: 10.1126/science.1186925
- Beltrão dos Anjos, Helio Daniel and Jansen Zuanon, Tony Marcos Porto Braga, and Keid Nolan Silva Sousa. “Fish, upper Juruá River, state of Acre, Brazil.” *Check List* 4(2): 198–213, 2008. ISSN: 1809-127X , Available: <http://www.checklist.org.br/getpdf?SL011-07>
- 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 FIS SC 19. Rio Branco; Rio de Janeiro, 1976.
- Bierregaard Jr., Richard O., Thomas E. Lovejoy, Valerie Kapos, Angelo Augusto dos Santos and Roger W. Hutchings. “The Biological Dynamics of Tropical Rainforest Fragments.” Source: *BioScience*. Vol. 42, No. 11, Stability and Change in the Tropics (Dec., 1992), pp. 859-866. Published by: University of California Press on behalf of the American Institute of Biological Sciences.
- Carbone, C., S. Christie, K. Conforti, T. Coulson, N. Franklin, J. R. Ginsberg, M. Griffiths, J. Holden, K. Kawanishi, M. Kinnaird, R. Laidlaw, A. Lynam, D. W. Macdonald, D. Martyr, C. McDougal, L. Nath, T. O’Brien, J. Seidensticker, D. J. L. Smith, M. Sunquist, R. Tilson and W. N. Wan Shahrudin. “The use of photographic rates to estimate densities of tigers and other cryptic mammals.” *Animal Conservation* (2001) 4, 75–79. Available: nationalzoo.si.edu/.../024ebe33-5a96-49f6-9080-33bbdb0c92c0.pdf
- CARE (2002), Annex XIV contains guidance on stakeholder analysis in project design: http://www.proventionconsortium.org/themes/default/pdfs/CRA/HLSA2002_meth.pdf
As cited in:
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. Accessed 19 February 2012. Available: <http://www.forest-trends.org/documents/index.php?pubID=2997>. Page 29.
- Center for Technical Production. “Courses.” Accessed 22 March 2012. Available: www.cpt.com.br
- Center for Weather Prediction and Climate Studies. “Home.” Accessed 13 March 2012. Available: <http://www1.cptec.inpe.br/>

- Chippaux, J.-P. "Reviews/Analyses: Snake-bites: appraisal of the global situation." Accessed 7 February 2012. Available: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2305789/pdf/bullwho00388-0084.pdf>
- Climate, Community & Biodiversity Alliance. "Project Design Standards, Second Edition." December 2008. Accessed 22 March 2012. Available: http://climate-standards.org/standards/pdf/ccb_standards_second_edition_december_2008.pdf
- 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. & Laurance W.F., 2002. Fire as a large-scale edge effect in Amazonian forests, *Journal of Tropical Ecology*, 18:311-325.
- 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.
- Conservation International. "Brazil." Accessed 31 January 2012. Available: http://www.conservation.org/where/south_america/brazil/pages/brazil.aspx
- Convention on Biological Diversity. "About the Convention: Text: Preamble." Accessed 30 March 2012. Available: <http://www.cbd.int/convention/articles/?a=cbd-00>
- Daly, D. C., and J. D. Mitchell. 2000. Lowland vegetation of tropical South America. Pages 391-453 in D. L. Lentz, editor, *Imperfect Balance: Landscape transformations in the Precolumbian Americas*. New York: Columbia University Press.
- 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-Bolivia and USAID.
- Federation of American Scientists. "Amazon Basin." Accessed 6 December 2012. Available: http://www.fas.org/irp/imint/docs/rst/Sect6/amazon_map01.jpg
- Food and Agricultural Organization of the United Nations. "Ecological Zones: Brazil" Accessed 27 July 2012. Available: <http://www.fao.org/forestry/country/19971/en/bra/>
- Food and Agricultural Organization of the United Nations. "Global Forest Resources Assessment 2010, Brazil Country Report." Forestry Department, Food and Agriculture Organization of the United Nations, Rome. July 2009. Accessed 8 November 2012. Available: <http://www.fao.org/forestry/20288-0f6ee8584eea8bff0d20ad5cebc071cf.pdf>.

- Food and Agriculture Organization of the United Nations. “State of the World’s Forests 2011, Annex, Table 2: Forest area and area change,” 2011. Accessed 11 October 2013. Available: <http://www.fao.org/docrep/013/i2000e/i2000e05.pdf>.
- Forest Trends. “Our Initiatives.” Accessed 7 February 2012. Available: <http://www.forest-trends.org/#>
- Galindo, Gabriela Ramirez. Center for International Forestry Research. “Reforming Brazil’s forest law: defeat or discernment?” 15 March 2012. Accessed 28 March 2012. Available: <http://blog.cifor.org/7992/reforming-brazils-forest-law-defeat-or-discernment/#.T2IzLcWPWQI>
- Georgetown University. “1988 Constitution, with 1996 reforms in English.” Accessed 15 December 2011. Available: <http://pdba.georgetown.edu/Constitutions/Brazil/english96.html#mozTocId920049>
- Global Invasive Species Database. “100 of the World’s Worst Invasive Alien Species List.” Accessed 29 February 2012. Available: <http://www.issg.org/database/species/search.asp?st=100ss&fr=1&str=&lang=EN>
- Global Invasive Species Database. “Alien Species.” Accessed 29 February 2012. 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>
- Government of Brazil and 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.” Accessed 15 January 2012. Available: <http://www.brazilcouncil.org/sites/default/files/MOUonCooperationRegardingClimateChange-Mar032010.pdf>
- Governor of the State of Acre. “Acre Forestry Law.” 27 December, 27, 2001.” Accessed 29 March 2012. Available: http://webserver.mp.ac.gov.br/?dl_id=800
- Governors’ Climate and Forest Task Force. “About GCF.” Accessed 10 December 2011. Available: <http://www.gcftaskforce.org/about.php>
- Harris, Grant, Ron Thompson, Jack L. Childs, and James G. Sanderson. July 2010. Automatic Storage and Analysis of Camera Trap Data. *Bulletin of the Ecological Society of America* 91:352–360. <http://dx.doi.org/10.1890/0012-9623-91.3.352>
- Henderson, A. 1995. *The Palms of the Amazon*. New York: Oxford University Press.
- High Conservation Value (HCV) Resource Network. “Part 3: Identifying and managing High Conservation Values Forests, a guide for forest managers.” Accessed 14 August 2012. Available: <http://www.hcvnetwork.org/resources/global-hcv-toolkits/hcvf-toolkit-part-3.pdf>. Pages 43-62.

- IBAMA. “Certidão Negativa de Débito.” Accessed 26 March 2012. Available: <http://www.ibama.gov.br/sicafitext/sistema.php>
- IBGE. “Acre – Summary.” Accessed 3 February 2012. Available: <http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#>
- IBGE. “Click here to get information about municipalities at Cities@.” Accessed 3 February 2012. Available: <http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac#>
- IBGE. “Cruzeiro do Sul.” Accessed 26 February 2014. Available: <http://cidades.ibge.gov.br/xtras/perfil.php?lang=&codmun=120020&search=acre|cruzeiro-do-sul>
- IBGE. “Municipal social indicators: an analysis of the 2010 Population Census universe results.” Accessed 28 February 2012. Available: http://www.ibge.gov.br/estadosat/temas.php?sigla=ac&tema=indic soc_mun_censo2010
- IBGE. “Porto Walter.” Accessed 26 February 2014. Available: <http://cidades.ibge.gov.br/xtras/perfil.php?lang=&codmun=120039&search=acre|porto-walter>
- IBGE. “States@: Acre.” Accessed 26 February 2014. Available: <http://www.ibge.gov.br/estadosat/perfil.php?sigla=ac>
- Imazon.org. “Deforestation and forest degradation in the Amazon Biome.” 2011. Accessed 11 October 2013. Available: <http://www.imazon.org.br/publications/other-publications/deforestation-and-forest-degradation-in-the-amazon-biome-1>
- IUCN 2011. IUCN Red List of Threatened Species. Version 2011.2. <www.iucnredlist.org>. Downloaded on 01 February 2012.
- Lopes, Maria Aparecida de Oliveira Azevedo and Jennifer Alexis Rehg. “OBSERVATIONS OF CALLIMICO GOELDII WITH SAGUINUS IMPERATOR IN THE SERRA DO DIVISOR, NATIONAL PARK, ACRE, BRAZIL.” *Neotropical Primates* 11(3), December 2003. Accessed 31 October 2013. Available: <http://www.primatesg.org/storage/PDF/NP11.3.callimico.imperator.pdf>
- Marengo, Jose A. “Regional Climate Change Scenarios for South America - The CREAS Project.” Accessed 22 March 2012. Available: http://unstats.un.org/unsd/climate_change/docs/papers/Session3_CCPapers_Marengo_1.pdf
- Massachusetts Institute of Technology. “Brazilian Constitution.” 21 October 2002. Accessed 22 March 2012. Available: <http://web.mit.edu/12.000/www/m2006/teams/willr3/const.htm>
- Massachusetts Institute of Technology, “Brazilian Constitution: Chapter VI-Environment.” 21 October 2002. Accessed 22 March 2012. Available: http://web.mit.edu/12.000/www/m2006/teams/willr3/const.htm#CHAPTER_VI_-_ENVIRONMENT

- Miguez, José D.G. “CDM in Brazil.” 18 March 2003. Accessed 29 March 2012. Available: www.oecd.org/dataoecd/9/6/2790262.pdf
- Ministry of Justice of Brazil. “Cadastro de Cartório do Brasil.” Accessed 26 March 2012. Available: <http://portal.mj.gov.br/CartorioInterConsulta/consulta.do?action=prepararConsulta&uf=AC>
- Ministry of Science, Technology and Innovation. “Designated National Authority (Interministerial Commission on Global Climate Change).” 2008. Accessed 29 March 2012. Available: <http://www.mct.gov.br/index.php/content/view/14666.html>
- MORATO, Elder F.; AMARANTE, Sérgio Túlio and SILVEIRA, Orlando Tobias. Rapid ecological assessment of wasp fauna (Hymenoptera: Aculeata) of the Serra do Divisor National Park, Acre, Brazil. *Acta Amaz.* [online]. 2008, vol.38, n.4, pp. 789-797. ISSN 0044-5967. <http://dx.doi.org/10.1590/S0044-59672008000400025>. Available: http://www.scielo.br/scielo.php?pid=S0044-59672008000400025&script=sci_abstract
- National Biodiversity Commission. “Technical Committee.” Accessed 13 March 2012. Available: <http://www.mma.gov.br/sitio/index.php?ido=conteudo.monta&idEstrutura=15&idConteudo=7474&idMenu=368>
- O’Brien, Tim. “Wildlife Picture Index: Implementation Manual Version 1.0.” Wildlife Conservation Society Working Paper No. 39. June 2010. Accessed 1 April 2012. Available: static.zsl.org/files/wcs-wpno39-wildlifepictureindex-928.pdf
- 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.
- Patton, James L., Maria Nazareth F. da Silva, and Jay R. Malcolm. “Mammals of the Rio Juruá and the Evolutionary and Ecological Diversification of Amazonia.” 2000. *Bulletin of the American Museum of Natural History*, Number 244.
- Peel MC, Finlayson BL & McMahon TA (2007). Updated world map of the Köppen-Geiger climate classification. *Hydrol. Earth Syst. Sci.*, 11, 1633-1644.
- 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.
- Pierini SV, D.A. Warrell, A de Paulo and R.D.G Theakston. “High incidence of bites and stings by snakes and other animals among rubber tappers and Amazonian Indians of the Juruá Valley, Acre State, Brazil.” *Toxicon*. 1996 Feb; 34(2):225-36. Accessed 7 February 2012. Available: <http://www.ncbi.nlm.nih.gov/pubmed/8711756>

- 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. Accessed 19 February 2012. Available: http://www.forest-trends.org/documents/files/doc_2998.pdf.
- Presidency of the Republic. “CONSTITUIÇÃO DA REPÚBLICA FEDERATIVA DO BRASIL DE 1988.” 5 October 1988. Accessed 14 August 2012. Available: http://www.planalto.gov.br/ccivil_03/Constituicao/Constituicao.htm
- Presidency of the Republic. “DECRETO-LEI N.º 5.452, DE 1º DE MAIO DE 1943.” Accessed 22 March 2012. Available: http://www.planalto.gov.br/ccivil_03/decreto-lei/De15452.htm
- Presidency of the Republic. “Law No. 4771: Establishing the new Forest Code.” 15 September 1965. Accessed 29 March 2012. Available: http://www.planalto.gov.br/ccivil_03/Leis/L4771.htm
- Presidency of the Republic. “Law No. 6.938: Provides for the National Environmental Policy, its aims and mechanisms for the formulation and implementation, and other measures.” 31 August 1981. Accessed 29 March 2012. Available: http://www.planalto.gov.br/ccivil_03/leis/L6938.htm
- Presidency of the Republic. “Law No. 7803: 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.” 18 July 1989. Accessed 29 March 2012. Available: http://www.planalto.gov.br/ccivil_03/leis/L7803.htm
- Presidency of the Republic. “LEI N° 10.406, DE 10 DE JANEIRO DE 2002.” 10 January 2002. Accessed 14 August 2012. Available: http://www.planalto.gov.br/ccivil_03/Leis/2002/L10406.htm
- Presidency of the Republic. “LEI N° 5.869, DE 11 DE JANEIRO DE 1973.” 11 January 1973. Accessed 14 August 2012. Available: http://www.planalto.gov.br/ccivil_03/Leis/L5869.htm
- Presidency of the Republic. “LEI N° 5.889, DE 8 DE JUNHO DE 1973.” Accessed 22 March 2012. Available: http://www.planalto.gov.br/ccivil_03/leis/L5889.htm
- Presidency of the Republic. “Provisional Measure 2166-67.” 24 August 2001. Accessed 29 March 2012. Available: https://www.planalto.gov.br/ccivil_03/MPV/2166-67.htm
- Ravallion, Martin, Shaohua Chen and Prem Sangraula. “Dollar a Day Revisited.” World Bank Policy Research Working Paper 4620. May 2008. Accessed 11 October 2013. Available: http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2008/09/02/000158349_20080902095754/Rendered/PDF/wps4620.pdf

- 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. Accessed 19 February 2012. Available: <http://www.forest-trends.org/documents/index.php?pubID=2997>
- 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., Accessed 19 February 2012. Available: <http://www.forest-trends.org/documents/index.php?pubID=2981>
- Secretariat of the Federal Revenue of Brazil. “Certidão Negativa - Imóvel Rural.” Accessed 26 March 2011. Available: http://www.receita.fazenda.gov.br/guiacontribuinte/cnd_%20itr.htm
- Secretariat of the Federal Revenue of Brazil. “CPF - Cadastro de Pessoas Físicas.” Accessed 26 March 2011. Available: <http://www.receita.fazenda.gov.br/PessoaFisica/CPF/CadastroPF.htm>
- State Government of Acre Portal. “Geographic Data.” Accessed 1 February 2012. Available: http://ac.gov.br/wps/portal/acre/Acre/estado-acre/sobre-o-acre!/ut/p/c5/rZHLcoJAEEW_xQ_QmQnMAMvhoQ4KiAwG2VAIxuIVjFC8vj7yAZpNuqtXp7pu1bk gBM_9jrvsFrdZ_R2XIAAhiTRXQu5ugyCcj1GHbgiSjnuHPPmZRDUrHE4zl01LhKxDp7VtMxMKH398f4IAipGXj3c2FdMxn9yeQ-Twvd9b-trhut_blxOzcmvkRo1aTmFr9NCa_BE2yjPGNeihYNvrbQFMEGaXatUn1QquZAnLioIwFiSiKCKCz0PyM-iNddMpd4Nxo6OlhgPFhMmklYVL8zMOoIQc5N0vnKQCHjy5a4SzrqpDPtljtjDO6TrQlThut6mvVOnbh3eAqa0-5fRBwaQtR9FV4dIN0Y14-1n6qiiizpyi9DiqS9-ZPukqEJvKDOvBIPcbHEY0VcNSWTsnl6CGdTrzwe4Xs-e545fDEUgjMIpZdNiCLg_9jE-yzyr1n2tq6u4F75XaWwHD_wQ6SLxS-jlRB6/dl3/d3/L2dBISvZ0FBIS9nQSEh/
- State of Acre and Governors’ Climate and Forests Task Force. “Acre GCF Database.” Version 2.1, October 25, 2010. Accessed 19 February 2012. Available: [http://www.gcftaskforce.org/documents/Final_db_versions/GCF%20Acre%20Database%20\(November%202010\).pdf](http://www.gcftaskforce.org/documents/Final_db_versions/GCF%20Acre%20Database%20(November%202010).pdf)
- 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.” Accessed 20 December 2011. Available: http://www.gcftaskforce.org/documents/MOU_Acre_California_and_Chiapas.pdf
- State of Acre. “Unofficial Translation, State of Acre, Bill No. 2.308 of October 22, 2010.” Accessed 20 December 2011. Available: <http://www.gcftaskforce.org/documents/Unofficial%20English%20Translation%20of%20Acre%20State%20Law%20on%20Environmental%20Services.pdf>

- State of Acre. “Zoneamento Ecológico-Econômico do Estado do Acre–Fase II Documentos Síntese.” 2006. Rio Branco, Acre.
- 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.
- The Nature Conservancy. “Rainforests: Facts About Rainforests.” Accessed 9 February 2012. Available: <http://www.nature.org/ourinitiatives/urgentissues/rainforests/rainforests-facts.xml>
- TrailCamPro. “Trail Camera Selection Guide.” 2012. Accessed 1 April 2012. Available: <http://www.trailcampro.com/trailcameraselectionguide.aspx>
- United Nations Development Programme. “International Human Development Index.” Accessed 28 February 2012. Available: <http://hdrstats.undp.org/images/explanations/BRA.pdf>
- Veloso, H.P., Rangel FO, A.L.R., Lima, J.C.A. “Classificação da vegetação brasileira, adaptada a um Sistema Universal.” 1991. IBGE, Rio de Janeiro.
- Verified Carbon Standard. “2012 VCS Standard, Version 3.2.” 01 February 2012. Accessed 23 March 2012. Available: <http://v-c-s.org/program-documents>
- Waldez, Fabiano 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
- 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. Available: http://tropicalconservationscience.mongabay.com/public/old/tropicalconservationscience/_ojs/index.php/tcs/article/download/195/134
- World Bank. “State and Trends of the Carbon Market 2010.” June 2011. Accessed 22 March 2012. Available: http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/StateAndTrend_LowRes.pdf. Pages 33-34.
- World Wildlife Fund. “Role of the Global Ecoregions and how they are selected.” 2013. Accessed 8 November 2013. Available: http://wwf.panda.org/about_our_earth/ecoregions/about/role/
- World Wildlife Fund. “Southwestern Amazon Moist Forests.” 2013. Accessed 8 November 2013. Available: http://wwf.panda.org/about_our_earth/ecoregions/swamazon_moist_forests.cfm

World Wildlife Fund. “Southwest Amazon moist forests: Export Species.” Accessed 9 February 2012. Available: <http://www.worldwildlife.org/science/wildfinder/>

World Wildlife Fund. “Upper Amazon basin of Peru, Brazil and Bolivia - Neotropic (NT0166).” Accessed 3 February 2012. Available: <http://worldwildlife.org/ecoregions/nt0166>

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