NON-PERMANENCE RISK REPORT FUNDAECO REDD+ PROJECT (RISK AREA A)

Document Prepared By ecoPartners LLC for FUNDAECO

Project Title	*REDD+ PROJECT FOR CARIBBEAN GUATEMALA: THE CONSERVATION COAST*
Version	*3.3*
Date of Issue	*July 19, 2019*
Project ID	*1622*
Monitoring Period	*January 1, 2017 to December 31, 2018*
Prepared By	*Paz Lozano*
Contact	*ecoPartners Carbon LLC, 2930 Shattuck Avenue, Suite 304, Berkeley, CA, 94705* *plozano@ecopartnersllc.com* *http://www.epcarbon.com/*

1 INTERNAL RISK

Project Management		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	GHG credits are not based on planted species. Moreover, no GHG credits have previously been issued.	0
b)	While there are regular patrols funded by Fundaeco across the project area and within protected areas that hold carbon stocks on which GHG credits have been issued, much less than 50% of these are required to be protected by patrols. See project description annexes for example patrol logs (control y vigilancia2.doc).	0
c)	Management team includes individuals with significant experience in all skills necessary to successfully undertake project activities. See (e) below and sections 1.4 and 1.5 of Joint VCS-CCB Project Description (PD).	0
d)	Management team maintains a presence in-country and less than one travel day from project site. Fundaeco maintains a central office in Guatemala City where Izabal can be reached within 6-8 hours along the Carretera Jacobo Árbenz Guzmán/CA-9N. Additionally, Fundaeco holds several offices in Izabal located within protected areas. These offices are located within Cerro San Gil, Morales, Sierra Santa Cruz, and Rio Sarstun with approximately 10 field staff each, electricity, telephone, and vehicles for transportation.	0
e)	**Mitigation:** The ecoPartners team including Kyle Holland (Ph.D.) manages the technical components of the project design and implementation, as stated in the Plan de Implementación REDD V6.docx. The management team has extensive experience in AFOLU project design and carbon accounting under the VCS program.	-2
f)	**Mitigation:** Currently there is an adaptive management plan in place, as described in FUNDAECO's Implementation Plan (see Plan de Implementación REDD V7.docx)	-2
Total Project Management (PM) [as applicable, (a + b + c + d + e + f)] Total may be less than zero.		**-4**

Financial Viability		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	See (d) below.	0
b)	See (d) below.	0
c)	See (d) below.	0
d)	The project has already reached breakeven point. See the Budget and Cashflow Analysis (2012-2041)	0
e)	See (h) below.	0

f)	See (h) below.	0
g)	See (h) below.	0
h)	As of the current risk assessment, the project has already reached the breakeven point and has secured sufficient funding since the start of the project to reach breakeven.	0
i)	**Mitigation:** None	0
Total Financial Viability (FV) [as applicable, ((a, b, c or d) + (e, f, g or h) + i)] Total may not be less than zero.		**0**

Opportunity Cost		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	See (f) below.	0
b)	See (f) below.	0
c)	See (f) below.	0
d)	See (f) below.	0
e)	See (f) below.	0
f)	NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity. See NPV Analysis.xlsx for the NPV analysis of project activities and alternative land uses.	-4
g)	**Mitigation:** FUNDAECO is a non-profit organization. See Estatuos FUNDAECO.pdf for their bylaws, establishing them as a not-for-profit organization.	-2
h)	**Mitigation:** see (b) in project longevity. Fundaeco's land holdings are protected by a legally binding agreement that covers the length of the project crediting period.	-2
i)	Not applicable.	0
Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g + h or i)] Total may be less than 0.		**-8**

Project Longevity		
a)	See (b) below.	0
b)	The document titled "ACTA NOTARIAL PUNTO DE ACTA REDD+.pdf" legally designates all Fundaeco owned lands as part of the REDD+ project and stipulates that the management of these lands will be carried out in accordance with the REDD+ project goals and continued for a total of 60 years. This constitutes a legally binding contract. The previous project area size was 54,441.8 ha, with 899.4 ha added during this monitoring period. Of	15

	the 55,341.2 hectares of the Project Area, the land area in Risk Area A totals roughly 11,668 hectares. The REDD+ Database present in the Fundaeco VM00015 Accounting Model details which properties are owned by Fundaeco and thus a part of Risk Area A. Although Fundaeco is legally committed to protecting their lands for a period of 60 years, the Implementation Plan and Financial Model only cover a 30 year project lifetime, thus the overall project lifetime is set at 30 years. (See Plan de Implementación REDD V7.docx and Budget and Cashflow Analysis).	
Total Project Longevity (PL) May not be less than zero		**15**

Internal Risk	
Total Internal Risk (PM + FV + OC + PL) Total may not be less than zero.	**3**

2 EXTERNAL RISKS

Land Tenure and Resource Access/Impacts		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	Ownership and resource access / use rights of properties in Risk Area A are held by Fundaeco. Section 3 of the Joint VCS-CCB Project Description (PD) describes Decree 07-2013 that establishes carbon rights of use for landowners in Guatemala. See the REDD+ Database in the Fundaeco VM0015 Accounting Model.xlsm for land titles held by Fundaeco.	0
b)	Not applicable. See (a) above for justification.	0
c)	Not applicable. Land tenure is well-defined in the project area and there are no known disputes over land ownership or tenure.	0
d)	Not applicable. There are no disputes over access rights inside the project area. Fundaeco's right of use is firmly established within its landholdings, see PD Section 3.2.	0
e)	Not applicable, the project is not a WRC project.	0
f)	**Mitigation:** See Project Longevity (b) above. Fundaeco's land holdings are protected by a legally binding agreement.	-2
g)	**Mitigation:** Not applicable. No disputes over access/use rights exist.	0
Total Land Tenure (LT) [as applicable, ((a or b) + c + d + e + f + g)] Total may not be less than zero.		**0**

Community Engagement		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	FUNDAECO has consulted with 2101 of the 2800 families living within the Grouped Project Area. This means that at least 75% of the families living within the Project Area have been consulted as part of the FPIC process. This is described in more detail in the FPIC guidance document (See Informe de Proceso de Consulta Previa _ GPV4.docx). During this monitoring period, even though new Project Activity Instances were added, all of those landowners that were added had been included within the original consultation estimates.	0
b)	Of the families living within 20km of the project area, roughly 5,000 households are likely to be dependent on the project in any way due to their proximity to the project area. A mobility analysis of agents within the project area found that the longest distance willing to travel to collect timber, firewood, or clear an area for cultivation was 2.6 km. In order to conservatively estimate the number of households surveyed by FUNDAECO, all households within the project zone were considered for this analysis. Of those roughly 5,000 households within the project zone, FUNDAECO has consulted with 2101 of those households that may be dependent on the project area. This means that FUNDAECO has consulted with roughly 42% of the households that may be dependent on the project area within the surrounding region, which is well above the 20% threshold.	0
c)	**Mitigation:** The project generates net positive impacts on social and economic well-being of local communities; see Joint VCS-CCB PD section 6.1 and MR section 4.1.	-5
Total Community Engagement (CE) [where applicable, (a + b + c)] Total may be less than zero.		**-5**

Political Risk		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	See (b) below.	0
b)	Score of -0.59. See WGI_GovernanceScore.xlsx for the WGI dataset summarized for Guatemala for the years 2013-2017, the last 5 years for which data is available.	4
c)	See (b) above.	0
d)	See (b) above.	0
e)	See (b) above.	0
f)	Guatemala's Readiness Project Idea Note (R-PIN) was accepted by the World Bank Forest Carbon Partnership Facility (FCPF) in June 2009, authorizing a grant of US$200,000 to help Guatemala prepare its REDD+ Readiness	-2

	Preparation Proposal (R-PP). Guatemala submitted the R-PP in March 2012 which the FCPF approved and authorized a further grant of US$3.6m. The Guatemalan national government in coordination with multiple ministries, national stakeholders, and international aid is preparing an Emissions Reduction Project Idea Note (ER-PIN) to establish a national REDD+ program along with a purchase agreement with FCPF for Verified Emissions Reductions (VERs).	
Total Political (PC) [as applicable ((a, b, c, d or e) + f)] Total may not be less than zero.		**2**

External Risk	
Total External Risk (LT + CE + PC) Total may not be less than zero.	**0**

3 NATURAL RISKS

Forest Fires

While fire is used in some areas of the project for agricultural purposes to clear *guamil* or secondary forest, the project area has a very low risk of loss due to forest fires. The forests within the project area are considered tropical humid broadleaf forests and have a low likelihood of forest fire. This is evidenced by annual bulletins released by the *Institucional Nacional de Bosques* (INAB) in Guatemala that report on forest health and forest fire incidence across the country. The bulletins and summarized data can be found in INAB Boletin Estadistico. From 2004-2009[1] approximately 80-hectares were burned in the Izabal region that the *Sistema Nacional de Prevención y Control de Incendios Forestales* (SIPECIF) responded to. This relatively small area accounts for approximately 0.1% of the project area and is considered insignificant (less than 5% of carbon stocks) in terms of released emissions. Starting in 2010, INAB changed their yearly reports to only include the 6 districts with the most fires in that year. From 2010-2017[2], Izabal was never listed in this report, and in 2017 and 2018, Izabal was one of only two departments in Guatemala in which no forest fires were reported[3].

No specific studies exist within the project area of Guatemala for the return interval for forests, however, there is considerable research on fire behavior in tropical rainforest systems in other geographies that can be generalized to Guatemala. Historical records and charcoal analysis of soil profiles show that tropical forest first, even in wetter forests, are not unprecedented.[4] Fire can be considered endemic but rare in tropical rainforest with return intervals of hundreds if not thousands of years.[5] Fire susceptibility in tropical

[1] Data from www.inab.gob.gt. Accessed 10/20/2017. Annual bulletins were released up until 2009, and remain the most reliable data source.
[2] Data from http://www.sifgua.org.gt/Incendio.aspx. Accessed 10/02/19.
[3] Lopez, Ronald Amilcar Mendoza. Incendios forestales han afectado a 20 de 22 departamentos de Guatemala. Diario de Centro América (17 April 2017). (Informe año 2016, and Informe año 2015) and https://conred.gob.gt/site/Boletines-Informativos

[4] Sanford, R. L., Saldarriaga, J., Clark, K., Uhl, C. & Herrera, R. Amazon rainforest fires. Science 227, 53–55 (1985).
[5] Kauffman, J. B.& Uhl, C. in Fire in the Tropical Biota (ed. Goldammer, J. G.) 117–134 (Springer, Berlin, 1990).

forest occurs largely because of moisture stress, during periods of extensive drought, when normally moist fuels dry out and become potentially flammable. However, closed-canopy evergreen rainforest are remarkably resistant to drought.[6] For this reason, the tropical humid broadleaf forests in Sarstun-Motagua are considered to have a very low likelihood of forest fire.

Natural Risk (Fire)	
Significance	Insignificant
Likelihood	Once every 100 years or more
Score (LS)	0
Mitigation	1.0 (none)

Pest and Disease Outbreaks

Due to the project area's wet tropical climate, high biodiversity levels, and natural distribution of native species, the forests have low susceptibility to losses due to pest and disease compared to forest plantations. No evidence of pest or disease outbreaks has been identified in the project area. The FAO profile for Guatemala shows a low incidence of disease outbreak across the country with 1,000 hectares being reported under the category "Disturbance by insects".[7] The Instituto Nacional de Basques (INAB) in Guatemala released annual bulletins from 2004 to 2009[8] that reported tree species with pest and/or disease outbreaks and the area affected. The bulletins and a summarized data can be found in INAB Boletin Estadistico. The species listed with pest/ disease damage were cross-referenced with the existing forest inventory data for Izabal collected by the Universidad de Valle (UVG) and no species were identified and unlikely exist in the project area. Therefore the impact on carbon stocks in the project area by pest and disease is considered to be insignificant and the likelihood infrequent.

Natural Risk (Pest and Disease)	
Significance	Insignificant
Likelihood	Every 50 – 100 years
Score (LS)	0
Mitigation	1.0 (none)

Extreme Weather

Although hurricanes do affect the Caribbean coast, due to its geographic location, Izabal is very infrequently subjected to hurricanes. The only hurricane on record passing through the Izabal region was in 1887 and was a category 1 hurricane, the lowest category (see attached 1887 - Unnamed - Cat1 Hurricane.JPG). The frequency of hurricanes is on a level of once every 100 years or more and thus poses no risk to the project area. Severe flooding can occur as a result of tropical storms or depressions in the region, of which only three have hit Izabal in the past 100 years (see 1934 - Unnamed - Tropical

[6] Uhl, C., Kauffman, J. B.&Cummings,D. L. Fire in theVenezuelanAmazon 2: Environmental conditions necessary for forest fires in the evergreen rainforest of Venezuela. Oikos 53, 176–184 (1988).

[7] http://www.fao.org/forestry/country/32267/en/gtm/, accessed March 2, 2016.

[8] See footnote 1, above.

Storm.JPG, 1971 - Laura - Tropical Storm.JPG, 2012- Helene -Tropical Depression.JPG, Historical Hurricane Tracks.JPG). These weather events pose no risk to forest carbon stocks, but do affect areas with annual crops due to a lack of vegetation stabilizing the topsoil, and ultimately these risks aren't considered applicable to the project area. The document reporte_depresion 12E.pdf provides an example of the environmental damages that occurred on the Pacific coast of Guatemala as a result of a tropical depression. The primary environmental damage as a result of these types of storms is a loss of topsoil due to erosion within deforested areas, but no loss of forest carbon stocks are reported. Flooding and drought occur naturally throughout the project zone and life in the region has adapted to the natural cycles of these events. Protection of natural forest from deforestation and degradation will reduce the impacts of flooding events.

Natural Risk (Extreme Weather)	
Significance	Insignificant
Likelihood	Not applicable
Score (LS)	0
Mitigation	1.0 (none)

Geologic Risk

Seismic events are a regular occurrence within Guatemala, however, the majority of seismic activity is located to the west due to the subduction of the *Placa de Cocos* beneath the *Placa del Caribe.* The project area is located in the G6 seismic zone that runs from east to west across the country where, in 2012, only 8 seismic events was recorded that were detectable without significant equipment.[9] Only one of these was located in the Izabal region. Moreover, in the G6 zone it is estimated that significant events that cause destruction occur every 225 ± 50 years.[10] Active volcanoes lie far to the west of the project area and do not pose a significant threat to carbon stocks.[11] Both the seismic and volcanic impact on carbon stocks is considered to be insignificant due to no historical evidence of loss from these types of natural events.

Natural Risk (Extreme Weather)	
Significance	Insignificant
Likelihood	Once every 100 years or more
Score (LS)	0
Mitigation	1.0 (none)

No other natural risks were identified.

Score for each natural risk applicable to the project

[9] Boletin sismologico (2012). Instituto Nacional de Sismologia, Vulcanologia, Meteorologia, e Hidrologia (INSIVUMEH)

[10] White , R. Tectonic implications of upper-crustal seismicity in Central America". Bulletin of the Seismological Society of America, Decade Map Volume I. 1991, Chapter 18.

[11] http://www.volcanodiscovery.com/guatemala.html, accessed March 2, 2016.

(Determined by (LS × M)	
Fire (F)	0
Pest and Disease Outbreaks (PD)	0
Extreme Weather (W)	0
Geological Risk (G)	0
Other natural risk (ON)	0
Total Natural Risk (as applicable, F + PD + W + G + ON)	**0**

4 OVERALL NON-PERMANENCE RISK RATING AND BUFFER DETERMINATION

4.1 Overall Risk Rating

Risk Category	Rating
a) Internal Risk	3
b) External Risk	0
c) Natural Risk	0
Overall Risk Rating (a + b + c)	**10**

4.2 Calculation of Total VCUs

The total ex-post VCUs calculated, accounting for the buffer contribution are outlined in the table below.

	Estimated net GHG emission reductions or removals (tCO2e)		**Ex Post Buffer Credits (tCO2e)**		**Ex ante VCUs Tradable (tCO2e)**	
Year	**Risk Area A**	**Risk Area B**	**Risk Area A**	**Risk Area B**	**Risk Area A**	**Risk Area B**
1	44,281	184,028	7,749	32,205	36,532	151,823
2	87,580	363,973	15,326	63,695	72,253	300,278
3	98,326	408,632	17,207	71,511	81,119	337,122
4	114,953	477,732	20,117	83,603	94,836	394,129
5	129,641	538,777	22,687	94,286	106,954	444,491
6	187,475	779,127	18,747	77,913	168,727	701,214
7	195,659	813,141	19,566	81,314	176,093	731,827
Risk Area Totals	**857,915**	**3,565,410**	**121,400**	**504,527**	**736,515**	**3,060,884**

Project Totals	**4,423,325**	**625,927**	**3,797,398**