NON-PERMANENCE RISK REPORT

AGROCORTEX REDD PROJECT

Document Prepared By Ecológica Assessoria Ltda.

Project Title	Agrocortex REDD Project
Version	03.1
Date of Issue	07-December-2017
Project ID	Not available, the Project is not yet registered
Monitoring Period	Not applicable
Prepared By	Ecológica Assessoria Ltda.
Contact	Quadra 103 Sul, Rua SO-01, Lote 01, Sala 603 B, Edifício JK Business, Plano Diretor Sul, Palmas – TO, Brazil Postal Code: 77015-014 T: +55 (63) 3219-7100 marcelo@ecologica.org.br www.ecologica.org.br

1 INTERNAL RISK

Project Management		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	*Species planted (where applicable) associated with more than 25% of the stocks on which GHG credits have previously been issued are not native or proven to be adapted to the same or similar agro-ecological zone(s) in which the project is located.* Not applicable, the Project Activity involves the sustainable forest management of existing forest resources in the Project Area. However, seedlings from native species are produced in a tree nursery located outside the project area, which is maintained by the project proponent. Those seedlings are planted in harvested areas within the forest management area in order to increase the natural regeneration of the forest. The main produced species is Mahogany (*Swietenia macrophylla, King*).	0
b)	*Ongoing enforcement to prevent encroachment by outside actors is required to protect more than 50% of stocks on which GHG credits have previously been issued.* No, Project Proponents consider that less than 50% of the carbon stocks are fragile to encroachment by outside actors and, therefore, need active protection. The most fragile areas are located in the South of the Project area, surrounding the Purus River. Other areas subject to encroachment are those around existing roads (mainly the BR-364 Highway) and around established communities. Agrocortex performs an active monitoring of unplanned deforestation. Actions include monitoring the area based on satellite images (to detect heat sources and deforestation), airplane surveillance of distant areas and ground surveillance using pickup trucks and boats in areas surrounding established communities.	0
c)	*Management team does not include individuals with significant experience in all skills necessary to successfully undertake all project activities (ie, any area of required experience is not covered by at least one individual with at least 5 years experience in the area).* The work of the Ecológica Assessoria is included here under the direction of Stefano Merlin, co-founder and CEO of Ecológica Assessoria, co-founder the Ecológica Institute NGO in 1998, in the state of Tocantins Brazil. Ecológica Institute experience in forest projects dates back to 1998 with ten projects and contracts. To give two examples: the reforestation project located at the INCRA project called “Assentamento Manchete”, in Tocantins State, of which the project document was published on 25/August/2008[1]; and the	0

[1] More details at: <http://iecologica.blogspot.com.br/2009/06/entre-os-meses-de-janeiro-e-maio-de.html> and <http://www.ecologica.org.br/en/carbono-florestal/>. Last visit on: June 17th, 2017.

	conservation, regeneration and agroforestry systems projects on the Ilha do Bananal, consisting of two phases from 1998-2003 and 2000 - 2002, details of which can be found at the following web address: <http://www.ecologica.org.br/en/sequestro-de-carbono-na-ilha-do-bananal/>, and in peer-reviewed scientific journals[2]. In addition, the Ecológica Assessoria team under the leadership of Marcelo Haddad, has successfully validated and verified more than 20 voluntary emission reduction projects, including 19 VCS PDs, over nine years, details of which can be found on Mr. Haddad's CV: <http://buscatextual.cnpq.br/buscatextual/visualizacv.do?id=K4491762P1>. Four forestry projects were developed: "Ecomapuá Amazon REDD Project" in the State of Pará, "Genesis Forest Project: Reducing Greenhouse Gas Emissions from Deforestation and Degradation in the State of Tocantins, Brazil"; and "Genesis Forest Project: Reforestation of Brazilian Savannah with Native Species in the State of Tocantins, Brazil"[3]. Furthermore, other VCS REDD project located in the Amazonas State was developed, which is currently waiting for validation. He also participated in the development of Environmental and Socio-Economic Indicators for REDD projects to be used under the SOCIALCARBON Standard[4]. Moreover, Mr. Haddad participated in several activities in charge of the Governors Climate and Forests Task Force (GCF) in the State of Tocantins (workshops, REDD+ course, creation of database with landowners, estimates of GHG emission reductions by REDD+ in Tocantins, and development of reports to Environmental Agencies)[5]. Finally, Mr. Haddad's master thesis, entitled: "An analysis of REDD+ mechanisms and their benefits in Brazil"[6], obtained in May 2013, has the main aim of identifying the benefits of applying REDD+ mechanisms in Brazil, in accordance to the VCS requirements. The sustainable forest management plan within the project area was carried out by Gerflor Gerenciamento Florestal, a qualified service provider with experience on the design of sustainable management plans. In addition, the management team of Agrocortex includes qualified Forest Engineers. This team has been involved in the management of forest operations and on the certification of forest management against the Forest Stewardship Council (FSC), which	

[2] Boyd *et al*. Exploring socioeconomic impacts of forest based mitigation projects: Lessons from Brazil and Bolivia. Environmental Science & Policy. Number 10 (2007). pp. 419 – 433.

[3] The details of these projects can be found here: Ecomapuá Amazon REDD Project (VCS Project ID: 1094): <http://www.vcsprojectdatabase.org/#/project_details/1094>; and Genesis Forest Projects: <http://www.climate-standards.org/2009/02/13/genesis-forest-project-reforestation-of-brazilian-savannah-native-species-in-the-state-of-tocantins-brazil/> and <http://www.climate-standards.org/2009/02/13/genesis-forest-project-reducing-greenhouse-gas-emissions-from-deforestation-and-degradation-in-tocatins-state-brazil/>. Last visit on: June 17th, 2017.

[4] Available at: <http://www.socialcarbon.org/wp-content/uploads/2012/11/Template_Submission_of_Indicators-for-an-Amazon-REDD-Project_v1-1_08_11_20131.pdf>. Last visit on: December 17th, 2014.

[5] Available at: <http://www.ecologica.org.br/en/projeto-gcf-tocantins-a-forca-tarefa-dos-governos-para-clima-e-florestas/>. News media about the course carried out in September 2014: <http://atn.to.gov.br/noticia/196157/>. Last visit on: June 17th, 2017.

[6] Available at: <http://carbonosustentavelbrasil.files.wordpress.com/2013/09/dissertac3a7c3a3o-marcelo-h-s-haddad.pdf>. Last visit on: June 17th, 2017.

	demonstrates their qualification to manage this REDD Project.	
d)	*Management team does not maintain a presence in the country or is located more than a day of travel from the project site, considering all parcels or polygons in the project area.* The management team, responsible for reporting and responding to any events, such as unpermitted deforestation, degradation or unauthorized resource use, is located less than a day of travel from the Project site. Part of the management team is based inside the Project Area, while others are based in Manoel Urbano, the closest city to the Project Area. This team is capable of monitoring the Project Area using pickup trucks or boats. The portions of the Project Area that are more distant are those not yet being managed (for timber logging). These are located within 60km of the management team and can be monitored by airplane, if required.	0
e)	***Mitigation:*** *Management team includes individuals with significant experience in AFOLU project design and implementation, carbon accounting and reporting (eg, individuals who have successfully managed projects through validation, verification and issuance of GHG credits) under the VCS Program or other approved GHG programs.* Ecológica Assessoria team includes members responsible for the validation of verification of more than 20 voluntary emission reduction Projects, as described on item (c), above.	-2
f)	***Mitigation****: Adaptive management plan in place.* The Agrocortex REDD Project will apply SOCIALCARBON® Standard, which includes, as the relevant tool specifies, "processes for monitoring progress and documenting lessons learned or corrections that may be needed". Therefore the relevant mitigation score was applied here. This methodology is an innovative concept developed by the Ecológica Institute to measure the contribution of carbon projects to sustainability. The SOCIALCARBON® Methodology is based on six main indicators: Biodiversity; Natural; Financial; Human; Social and Carbon Resources, and aims to deliver high-integrity benefits to each resource. A new set of indicators has been developed as part of the efforts from the Project Proponents to properly measure the impacts and cobenefits resulting from the Agrocortex REDD Project. These indicators are called "indicators for REDD + SFMP projects" and will be available on the SOCIALCARBON website[7] once they are approved. Agrocortex also manages forest resources according to a Sustainable Forest Management Plan developed by third party experts and performed by its management team with significant experience in forest management. Such plan has procedures to identify and assess environmental and working safety risks.	-2

[7] SOCIALCARBON indicators are available at: <http://www.socialcarbon.org/documents/>. Last visit on May, 19, 2017.

	The plan also establishes procedures for the regular training of Agrocortex staff. Forest management is also certified according to FSC requirements on a regular basis. All these facts ensure forest management is performed according to best practices and that an adaptive management plan is in place.	
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)	*Project cash flow breakeven point is greater than 10 years from the current risk assessment.* Calculations of cash flow breakeven point revealed that it would be attained in 2031, which is more than 10 years from the current risk assessment. Cash flow in included conservative commercial revenue streams associated with timber production and additional revenues from Agrocortex operations (such as bamboo production and energy generation from wood residues). The cash flow in also included conservative estimates of revenues from the sale of GHG credits and from the payment of other environmental services. Cash flow out included all the project implementation costs, such as the costs associated with GHG credit generation (eg, validation, verification and registration) and the costs associated with the operations of the sustainable forest management plan and the wood processing facility.	3
b)	*Project cash flow breakeven point is greater than 7 and up to 10 years from the current risk assessment*	Not applicable
c)	*Project cash flow breakeven point greater than 4 and up to 7 years from the current risk assessment*	Not applicable
d)	*Project cash flow breakeven point is 4 years or less from the current risk assessment*	Not applicable
e)	*Project has secured less than 15% of funding needed to cover the total cash out before the project reaches breakeven* The project currently has secured funds to cover part of its expenses, but the amount secured represents less than 15% of the funding needed to cover the total cash out before the project reaches breakeven. Secured funds include agreements for the future sale of timber and bamboo from the Project area.	3
f)	*Project has secured 15% to less than 40% of funding needed to cover the total cash out required before the project reaches breakeven*	Not applicable
g)	*Project has secured 40% to less than 80% of funding needed to cover the total*	Not

	cash out required before the project reaches breakeven	applicable
h)	*Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven*	Not applicable
i)	***Mitigation**: Project has available as callable financial resources at least 50% of total cash out before project reaches breakeven* Agrocortex has available callable resources, as indicated by the following entities that are shareholders of Agrocortex Madeiras do Acre Agroflorestal Ltda: - Aprovechamientos Dasocráticos Sostenibles, S.L. (ADS/ MASAVEU) - Kendall Develops. S.A. (KENDALL) - Agroview Participações e Empreendimentos LTDA. - R. Capital SGPS, S.A. Such entities have confirmed they are able and willing to provide the financial resources needed to fund Agrocortex operations at the Project Area throughout the project's lifetime. Therefore, it is possible to conclude at least 50% of the funding requirements until the operation reaches breakeven are available.	-2
Total Financial Viability (FV) [as applicable, ((a, b, c or d) + (e, f, g or h) + i)] Total may not be less than zero.		**04**

Opportunity Cost		
Risk Factor	Risk Factor and/or Mitigation Description	Risk Rating
a)	*NPV from the most profitable alternative land use activity is expected to be at least 100% more than that associated with project activities; or where baseline activities are subsistence-driven, net positive community impacts are not demonstrated*	Not applicable
b)	*NPV from the most profitable alternative land use activity is expected to be between 50% and up to100% more than from project activities*	Not applicable
c)	*NPV from the most profitable alternative land use activity is expected to be between 20% and up to 50% more than from project activities*	Not applicable
d)	*NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities; or where baseline activities are subsistence-driven, net positive community impacts are demonstrated* NPV from the most profitable alternative land use activity is expected to be similar to the NPV for the proposed project activity. As described on Section 2.5 of the VCS PD (version 1, dated 13-June-2017), the most likely alternative scenario is considered the implementation of a sustainable forest management plan, however without carrying out additional activities with the aim of reducing deforestation. This scenario involves similar revenues, but with reduced cost, as the activities to certify emission reductions and to prevent unplanned	0

	deforestation would not occur. Simulations on the projected cash flow indicate the NPV for this scenario would be slightly higher than the NPV for the proposed project activity, but within the -20% to +20% threshold. Other land uses are not considered credible alternatives or to provide lower NPV. The scenario involving the continuation of current (pre-project) land use scenario is not expected to provide financial returns, as unplanned deforestation is performed by unrelated third parties, instead of a single entity. Cattle ranching would be a plausible alternative scenario for the land use. However, Agrocortex Madeiras do Acre Agroflorestal Ltda. would not undertake such activities as cattle ranching are not their area of specialization. In addition, a study from IDESAM demonstrates small scale cattle ranching is likely to present lower returns on investment than the project activity[8]. On such study, IDESAM has analyzed the expected return on investment for cattle ranching under different scenarios. Results from this study indicate the expected NPV is lower than the project expected NPV if taken in consideration that Agrocortex would only be allowed to convert 20% of its land area to pastureland, as defined by current Brazilian regulations. The study also indicates expected NPV from cattle ranching increase considerably for larger scale operations.	
e)	*NPV from project activities is expected to be between 20% and up to 50% more profitable than the most profitable alternative land use activity*	Not applicable
f)	*NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity*	Not applicable
g)	***Mitigation**: Project proponent is a non-profit organization* Agrocortex Madeiras do Acre Agroflorestal Ltda. is a for-profit company established according to Brazilian law. However, its major shareholder is Aprovechamientos Dasocráticos Sostenibles, S.L., which is mainly composed by Fundación Maria Cristina Masaveu Peterson, a non-profit organization based in Madrid, Spain. Such Foundation is dedicated to cultural projects, focused on the diffusion, conservation and recovery of historical heritage, professional training of young workers and scientific research. More information on the Foundation can be found at: <http://www.fundacioncristinamasaveu.com/en/>.	-2
h)	***Mitigation**: Project is protected by legally binding commitment (see Section 2.2.4) to continue management practices that protect the credited carbon stocks over the length of the project crediting period* The project is protected by legally binding commitment to continue management practices that protect carbon stocks, but they do not cover the entire crediting period. Agrocortex has received permissions to manage forest resources based on a Sustainable Forest Management Plan that was made	0

[8] IDESAM (INSTITUTO DE CONSERVAÇÃO E DESENVOLVIMENTO SUSTENTÁVEL DO AMAZONAS). Viabilidade econômica da pecuária semi-intensiva no sul do Amazonas. Document available at: <http://www.idesam.org.br/publicacao/relatorio-viabilidade-pecuaria.pdf >. Last visit on 12-June-2017.

	available to IBAMA, the Environmental Agency responsible for licensing these activities in the Project region. The Project area started being managed according to such plan on 2012, and as the Plan has a lifetime of 30 years, management practices should be maintained until 2042, which is before the end of the crediting period (defined as 30/06/2044). It is important to note that Agrocortex is allowed (and has the intention) to request the renewal of the sustainable forest management plan for more 30 years once this first period is over. However, as a conservative measure, no mitigation is considered for this item.	
i)	***Mitigation**: Project is protected by legally binding commitment (see Section 2.2.4) to continue management practices that protect the credited carbon stocks over at least 100 years* The Project is not protected by legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years.	0
Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g + h or i)] Total may be less than 0.		**-02**

Project Longevity		
a)	*Without legal agreement or requirement to continue the management practice* Not applicable, Agrocortex has legal agreements/requirements to continue the management practice (as evidenced by the Sustainable Forest Management Plan).	0
b)	*With legal agreement or requirement to continue the management practice* The project longevity is considered to be of 30 years, as this is the duration of the crediting period as established by the Project Proponents in line with VCS requirements for AFOLU projects. Agrocortex will continue the management practice at least during this 30 years period. In addition, as described on item (h) of Opportunity Cost (above), the Sustainable Forest Management Plan represents a requirement to continue management practices until 2042 (thus, 28 years from the Project Start Date, that was defined as 01/07/2014). Hence, the equation below was used to determine Project longevity: Project longevity = 30 –(30/2) = 15	15
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.	**((-4)+4+(-2)+15 = 13**

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 are held by same entity(s)* Yes, both ownership and resource access/use rights are held by the same entity. Agrocortex Madeiras do Acre Agroflorestal Ltda. (i.e., the project proponent) is the company responsible for operations in Brazil, being part of a Brazilian holding company named Agrocortex Florestas do Brasil S.A. The latter also holds Agrocortex Florestas Tropicais Ltda., which owns Batisflor Florestal Ltda., the landowner of Fazenda Seringal Novo Macapá (where the project area is located). In March/2014, the Agrocortex holding company and Batisflor Florestal Ltda. established an agreement to harvest forest products/by-products and NTFPs in a manner consistent with the conservation of the local ecosystem, granting rights of timber harvesting, NTFPs extraction and carbon credits to Agrocortex Madeiras do Acre Agroflorestal Ltda.	0
b)	*Ownership and resource access/use rights are held by different entity(s) (eg, land is government owned and the project proponent holds a lease or concession)*	Not applicable
c)	*In more than 5% of the project area, there exist disputes over land tenure or ownership* There are no disputes over land tenure or land ownership within the project area.	0
d)	*There exist disputes over access/use rights (or overlapping rights)* There are no disputes over access/use rights (or overlapping rights) within the project area. In addition, a portion of land measuring 3,690.22 ha located on the southern portion of Fazenda Seringal Novo Macapá was excluded from the Project Area, as it is expected that the ownership of this area will be transferred to the local community in the near future. This includes areas surrounding the places where communities are currently established. This area will also be defined as the Leakage Management Area, where social, environmental and economic activities will be developed and monitored according to the SOCIALCARBON methodology. This will help preventing disputes over access/use rights on the Project Area.	0
e)	*WRC projects unable to demonstrate that potential upstream and sea impacts that could undermine issued credits in the next 10 years are irrelevant or expected to be insignificant, or that there is a plan in place for effectively*	Not applicable

	mitigating such impacts.	
f)	***Mitigation:*** *Project area is protected by legally binding commitment (eg, a conservation easement or protected area) to continue management practices that protect carbon stocks over the length of the project crediting period* The project is protected by legally binding commitment to continue management practices that protect carbon stocks, but they do not cover the entire crediting period, as described on item (h) of Opportunity Cost.	0
g)	***Mitigation:*** *Where disputes over land tenure, ownership or access/use rights exist, documented evidence is provided that projects have implemented activities to resolve the disputes or clarify overlapping claims* There are no disputes over land tenure, ownership or access/use rights within the project area.	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)	*Less than 50 percent of households living within the project area who are reliant on the project area, have been consulted* There are no communities or households living within the project area.	0
b)	*Less than 20 percent of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted* According to a Social and environmental assessment performed by Agrocortex, there are 120 families living around the Project Area. As part of this assessment, surveys were conducted with all of these families so Agrocortex could mitigate impacts and create positive dialogues and partnerships with them. This assessment concluded that 58 families were reliant on the project area for food, water or to perform economic, social or cultural activities. As part of the survey, all 120 families have been consulted on potential social and environmental impacts resulting from the forest management performed by Agrocortex. In addition, local presentations and meeting were performed for one of the communities where 10 families lived at the time of the survey.	0
c)	***Mitigation:*** *The project generates net positive impacts on the social and economic well-being of the local communities who derive livelihoods from the project area* A proportion of funds from the sale of carbon credits will be used for socially and	-5

	environmentally beneficial programs run within the leakage management area. Besides forest conservation, the present project aims to improve and quantify its social and environmental benefits through application of the SOCIALCARBON® Methodology. This methodology is an innovative concept developed by the Ecológica Institute to measure the contribution of carbon projects to sustainability. The SOCIALCARBON® Methodology is based on six main indicators: Biodiversity; Natural; Financial; Human; Social and Carbon Resources. In addition, the sustainable forest management plan within the Agrocortex project's area is certified under the FSC. This certification, combined with the SOCIALCARBON® Standard, will help to demonstrate social and environmental benefits beyond GHG emissions reductions or removals.	
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)	*Governance score of less than -0.79*	Not applicable
b)	*Governance score of -0.79 to less than -0.32*	Not applicable
c)	*Governance score of -0.32 to less than 0.19* Mean of the 6 World Bank Institute Worldwide Governance Indicators for Brazil across the most recent five years of available data (between 2011 – 2015)[10]: -0.024 Please, see table below.	2

Voice & Accountabillity		Political Stability and Absence of Violence		Government Effectiveness		Regulatory Quality		Rule of Law		Control of Corruption	
Year	Rank	Year	Rank	Year	Rank	Year	Rank	Year	Rank	Year	Rank
2011	0.474	2011	-0.137	2011	-0.116	2011	0.169	2011	-0.003	2011	0.149
2012	0.439	2012	0.045	2012	-0.129	2012	0.103	2012	-0.097	2012	-0.068
2013	0.374	2013	-0.282	2013	-0.096	2013	0.081	2013	-0.110	2013	-0.117
2014	0.424	2014	-0.098	2014	-0.154	2014	-0.073	2014	-0.084	2014	-0.380
2015	0.383	2015	-0.379	2015	-0.189	2015	-0.213	2015	-0.193	2015	-0.433
Mean	**0.419**	**Mean**	**-0.170**	**Mean**	**-0.137**	**Mean**	**0.014**	**Mean**	**-0.097**	**Mean**	**-0.169**

The mean of Governance Scores across the six indicators of the World Bank Institute's Worldwide Governance Indicators (WGI), averaged over the most recent five years of available data (between 2011 and 2015) for Brazil was equal to -0.024.

[10] Available at: <http://info.worldbank.org/governance/wgi/index.aspx#home>. Last visit on: May, 15, 2017.

d)	*Governance score of 0.19 to less than 0.82*	Not applicable
e)	*Governance score of 0.82 or higher*	Not applicable
f)	***Mitigation**: Country is implementing REDD+ Readiness or other activities, as set out in this Section 2.3.3.* The Project Area is located in the States of Acre and Amazonas. Both states/jurisdictions are participating in the Governors' Climate and Forest Taskforce (GCF)[11].	-2
Total Political (PC) [as applicable ((a, b, c, d or e) + f)] Total may not be less than zero.		**0**

External Risk	
Total External Risk (LT + CE + PC) Total may not be less than zero.	**0+(-5)+0 =-5** **External risks = 0[12]**

3 NATURAL RISKS

Natural Risk (eg, Fire, Pest and Disease outbreaks, Extreme Weather)	
Significance	**Fire** – fire risk was estimated by Agrocortex management team as being insignificant. It is important to notice Agrocortex management team performs active monitoring of fires on the Project Area based on satellite images (from PRODES[13]) and other Programs from INPE, the Brazilian National Institute of Space Research. In addition, aerial surveillance is also used to detect and prevent fire within the Project Area. Data from INPE[14]indicates the Project Area is located in an area where fire risk is considered low and where no large scale fire was detected from 2005 to 2016 (based on images with 1km resolution)[15]. **Pest and Disease Outbreaks** –This risk was assessed by Agrocortex management team, who has considered it as probably not causing any loss to the carbon stocks in the Project Area. There is no record of any pest and disease outbreak in the project area of the Agrocortex Project. The project area is covered

[11] Available at: <http://www.gcftaskforce.org/about>. Last visit on: May, 15, 2017.
[12] According to the AFOLU Non-Permanence Risk Tool, the total calculation for this parameter may not be less than zero.
[13]PRODES Project - Brazilian Amazon Forest Monitoring through Satellite.Instituto Nacional de Pesquisas Espaciais (INPE). Availableat: <http://www.obt.inpe.br/prodes/index.php>. Last visited on 28-March-2017.
[14]Fire risk map. Available at: <https://queimadas.dgi.inpe.br/queimadas/risco-de-fogo-meteorologia>. Last visit on: May, 17, 2017.
[15]Programa Queimadas – Fire Monitoring Program, INPE. Available at: < https://prodwww-queimadas.dgi.inpe.br/aq1km/#geral>. Last visit on: May, 17, 2017.

	by 100% Amazon rainforest. **Extreme Weather** – the significance of extreme weather was determined using a search of the Brazilian National Institute of Meteorology[16]. Wind records during the available reference period (2013 – 2016) show that the categories of tropical storm or hurricane were never reached in the meteorological Station located in the municipality of Boca do Acre, Amazonas. In addition, Espirito-Santo et al. (2010)[17] found that blow-downs affect a relatively small proportion of overall forest area (~0.02%). Moreover, blow-down disturbance events do not make an important direct contribution to carbon dioxide emissions or even for the overall forest succession process in the tropics. Also, the project region is not affected by extreme drought events. For these reasons, this risk was considered to be insignificant. **Geological Risks**–no geological events damaging the project site were reported by the Agrocortex management team or in source searches. Furthermore, the Preliminary Seismic Hazard Model for South America prepared by a group of experts from the Regional Seismological Center for South America - *Centro Regional Sismological para América del Sur* (CERESIS), the U.S. GeologicalSurvey (USGS) and the Global Earthquake Model (GEM) place the project region in an area of low hazard[18]. Moreover, the project region is not affected by extreme landslide events. For these reasons, this risk was considered to be insignificant. **Other Natural Risk** –only one other risk was identified by Agrocortex management team. This risk refers to the synchronic mortality of the bamboo, which generally occurs once every 30 years. However, this risk is considered to be insignificant in terms of its impact on carbon stocks, as carbon stocks are expected to fully recover in less than 10 years from the event. No other sources of natural risk were identified in interview or literature sources.
Likelihood	**Fire** – INPE sources report that the project area is within a minimal-low fire risk region[19,20]. No large scale fire was detected from 2005 to 2016 within the Project

[16]INMET: <http://www.inmet.gov.br/portal/index.php?r=home/page&page=rede_estacoes_auto_graf>. Last visit on: June 17th, 2017.
[17]Espírito-Santo et al. (2010). Storm intensity and old-growth forest disturbances in the Amazon region, Geophysical Research Letter, Volume 37, L11403. Available at: <http://onlinelibrary.wiley.com/doi/10.1029/2010GL043146/pdf>. Last visit on: June 17th, 2017.
[18]. Preliminary Seismic Hazard Model for South America. Available at: <https://earthquake.usgs.gov/hazards/images/SAmer-Proceedings2010.pdf >. Please view Figure 6 on Page 10 of the publication. Last visit on: May, 17, 2017.
[19]Fire risk map. Available at: <https://queimadas.dgi.inpe.br/queimadas/risco-de-fogo-meteorologia>. Last visit on: May, 17, 2017.
[20]Programa Queimadas – Fire Monitoring Program, INPE. Available at: < https://prodwww-queimadas.dgi.inpe.br/aq1km/#geral>. Last visit on: May, 17, 2017.

	Area. Furthermore, no fire occurrence was reported by the project owner and the management team[21]. A conservative estimate of fire likelihood in a period of less than 10 years is being considered on this report, following the opinion of Agrocortex management team. **Pest And Disease Outbreaks** – There is no record of any pest and disease outbreak in the project areas of the Agrocortex REDD Project. The project area is covered by 100% Amazon rainforest. Therefore a likelihood of once every 50 to less than 100 years is being considered on this report, which is more conservative than the opinion of Agrocortex management team. **Extreme Weather** – No extreme weather events damaging the project area were reported in the interview with the project owner and his team[22]. The likelihood of blow-down winds was determined using a search of the Brazilian National Institute of Meteorology (Boca do Acre Station) wind records during the available period (2013 – 2014). During this period, the wind speed has never exceeded 10m/s, which is significantly below the wind speed for the categories of tropical storm or hurricane[23]. In addition, the map showing the average regime of winds in Brazil[24] displays the project region having an average wind speed below than 5m/s. In continental equatorial regions of the Amazon, hurricane damage does not occur. However, Espírito-Santo et al. (2010)[25] used Landsat images of the Brazilian Amazon to detect large natural gaps (>30 ha) with fan-shape forms (blow-downs), probably caused by high-velocity wet downburst winds. Blow-down occurrence frequency and the associated disturbance area are usually greater where severe storms occurred more frequently. Nevertheless, the conclusion of this study shows that the recurrence interval for blow-downs in the western Amazon region is around 27,000 years, based on the occurrence of new blow-downs and the assumption of a constant disturbance rate for the western region. Furthermore, the project region is not affected by extreme drought events, as indicated by neutral-positive values on the Palmer Drought Severity Index[26]. Therefore a likelihood of once every 50 to less than 100 years is being considered on this report, which is more conservative than the opinion of Agrocortex

[21]Interview: Mr. Marcos Preto (Agrocortex Executive Director) and Ms. Ana Beatriz (forestry Technician responsible for the forest management in the project area), which took place on 10-April-2017.
[22]Interview: Mr. Marcos Preto (Agrocortex Executive Director) and Ms. Ana Beatriz (forestry Technician responsible for the forest management in the project area), which took place on 10-April-2017.
[23]National Weather Service (USA): weather categories determined using Saffir-Simpson Hurricane Wind Scale: <http://www.nhc.noaa.gov/aboutsshws.php>. Last visit on: May 17, 2017.
[24] Available at: <http://www.cresesb.cepel.br/publicacoes/download/atlas_eolico/mapas_1a.pdf>. Last visit on: May 17, 2017.
[25]Espírito-Santo et al. (2010). Storm intensity and old-growth forest disturbances in the Amazon region, Geophysical Research Letter, Volume 37, L11403. Available at: <http://onlinelibrary.wiley.com/doi/10.1029/2010GL043146/pdf>. Last visit on: May 17, 2017.
[26] Dai, A., K. E. Trenberth, and T. Qian, 2004: A global data set of Palmer Drought Severity Index for 1870-2002: Relationship with soil moisture and effects of surface warming. J. Hydrometeorology, 5, 1117-1130. Available at: <http://www.cgd.ucar.edu/cas/adai/papers/Dai_pdsi_paper.pdf>. Last visit on: May 17, 2017.

	management team. **Geological Risk**– The project area is located in a stable geological area with no faults. No geological events damaging the project site were reported in the interview[27] or in source searches. In addition, the Project region is of low hazard to geological risks, as previously described on the significant component of this risk assessment. Moreover, the average altimetry is about 200m and the topography does not present large irregularities. Landslide risk may vary according to the type of soil, geology, slope, and/or according to human activities. Generally, landslide events may occur in areas with slopes above 20°-25°, when forested lands begin to be subject of landslides[28]. Therefore, there is a minimal risk of landslides within the project area. In addition, such event has never happened according to the project owner and his management team. Therefore a likelihood of once every 50 to less than 100 years is being considered on this report, which is more conservative than the opinion of Agrocortex management team. **Other Natural Risk** –The synchronic mortality of the bamboo is expected to occur once every 30 years, according to Agrocortex management team. This frequency is consistent with information on the Sustainable Forest Management Plan for the Project Area and also with peer reviewed literature[29]. Therefore a likelihood of once every 25 to less than 50 years is being considered on this report.
Score (LS)	Fire (F) – 2 Pest and Disease Outbreaks (PD) – 0 Extreme Weather (W) – 0 Geological Risk (G) – 0 Other natural risk (ON) – 1
Mitigation	The following measures are performed by Agrocortex to mitigate the risk of fire: forest fire prevention and fire fighting training with all management personnel (invites are also sent to request the presence of local communities), training of fire brigades, periodic maintenance of fire extinguishers, periodic maintenance of forest machinery, utilization of signs indicating the area of forest management, prohibition of fire, and periodic monitoring by satellite images of the entire project area.

[27] Interview: Mr. Marcos Preto (Agrocortex Executive Director) and Ms. Ana Beatriz (forestry Technician responsible for the forest management in the project area), which took place on 10-April-2017.

[28] Ministérios das Cidades. Capacitação em Mapeamento e Gerenciamento de Risco. Available at: <http://www.defesacivil.mg.gov.br/images/documentos/Defesa%20Civil/manuais/mapeamento/mapeamento-grafica.pdf>. Last visit on: May 17, 2017.

[29] CARVALHO, Anelena Lima de. Ciclo de vida de populações de bambu (Guadua spp.), no tempo e no espaço, no sudoeste da Amazônia, 2010. Available at: http://bdtd.inpa.gov.br/bitstream/tede/1801/5/Disserta%C3%A7%C3%A3o_Anelena%20Lima%20de%20Carvalho.pdf . Last visit on May 17, 2017.

Score for each natural risk applicable to the project (Determined by (LS × M)	
Fire (F)	(2 x 0.50) = 1
Pest and Disease Outbreaks (PD)	(0 x 1) = 0
Extreme Weather (W)	(0 x 1) = 0
Geological Risk (G)	(0 x 1) = 0
Other natural risk (ON)	(1 x 1) = 1
Total Natural Risk (as applicable, F + PD + W + G + ON)	**1 + 0 + 0 + 0 + 1 = 2**

4 OVERALL NON-PERMANENCE RISK RATING AND BUFFER DETERMINATION

4.1 Overall Risk Rating

Risk Category	Rating
a) Internal Risk	13
b) External Risk	0
c) Natural Risk	2
Overall Risk Rating (a + b + c)	**15**

4.2 Calculation of Total VCUs

Project year	*Ex ante* net anthropogenic GHG emission reductions (tCO_2e)		*Ex ante* buffer credits (tCO_2e)		*Ex ante* VCUs tradable (tCO_2e)	
	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
2014 (01/07/2014 to 31/12/2014)	64,187	64,187	10,712	10,712	53,475	53,475
2015	374,458	438,646	60,339	71,051	314,119	367,594
2016	384,017	822,662	61,805	132,856	322,211	689,805
2017	387,803	1,210,465	62,358	195,214	325,445	1,015,250
2018	510,302	1,720,768	81,706	276,920	428,596	1,443,846
2019	450,825	2,171,593	72,241	349,161	378,583	1,822,429
2020	401,086	2,572,679	64,319	413,480	336,767	2,159,196
2021	505,146	3,077,825	80,748	494,228	424,398	2,583,594
2022	456,053	3,533,878	72,927	567,155	383,126	2,966,720
2023	508,164	4,042,042	81,131	648,286	427,032	3,393,752
2024	339,960	4,382,002	54,451	702,737	285,508	3,679,260
2025	469,857	4,851,860	74,971	777,708	394,886	4,074,146
2026	476,922	5,328,782	76,042	853,750	400,879	4,475,025
2027	490,361	5,819,143	78,123	931,873	412,237	4,887,262
2028	520,345	6,339,488	82,823	1,014,696	437,522	5,324,784
2029	509,298	6,848,785	81,027	1,095,723	428,271	5,753,055
2030	521,141	7,369,926	82,854	1,178,577	438,286	6,191,341
2031	503,269	7,873,195	79,977	1,258,555	423,291	6,614,632
2032	509,475	8,382,670	80,913	1,339,467	428,561	7,043,193
2033	475,638	8,858,308	75,508	1,414,975	400,130	7,443,323
2034	568,473	9,426,781	90,168	1,505,144	478,304	7,921,627
2035	558,174	9,984,955	88,538	1,593,682	469,636	8,391,263
2036	483,130	10,468,085	76,656	1,670,337	406,473	8,797,736
2037	632,682	11,100,767	100,335	1,770,672	532,347	9,330,083
2038	597,918	11,698,685	94,831	1,865,503	503,087	9,833,170
2039	578,548	12,277,233	91,764	1,957,267	486,784	10,319,954
2040	560,885	12,838,117	88,967	2,046,234	471,917	10,791,871
2041	515,208	13,353,326	81,735	2,127,968	433,473	11,225,344
2042	525,116	13,878,442	83,304	2,211,272	441,812	11,667,156
2043	688,978	14,567,419	109,248	2,320,520	579,729	12,246,885
2044 (01/01/2044 to 30/06/2044)	268,509	14,835,928	42,594	2,363,115	225,914	12,472,799