NON-PERMANENCE RISK REPORT

REDD+ PROJECT

RESGUARDO INDÍGENA UNIFICADO – SELVA DE MATAVÉN (RIU-SM)

Document Prepared by

Asociación de Cabildos y Autoridades Tradicionales Indígenas de la Selva de Matavén – **ACATISEMA**

MEDIAMOS F&M S.A.S.

Project Title	*REDD+ PROJECT RESGUARDO INDÍGENA UNIFICADO – SELVA DE MATAVÉN (RIU-SM)*
Version	*02*
Date of Issue	*25-February-2020*
Project ID	*ID VCS PD 1566*
Monitoring Period	*01-01-2018 to 31-12-2019*
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The risk analysis has been conducted in accordance with the VCS AFOLU Non-permanence Risk Tool, v4.0, dated 19 September 2019. With this tool the procedures to evaluate and assign scores about different risk factors presented in the project and mitigation measures that are established are developed,

It is considered three risk types: internal, external and natural.

- Internal risk factors relate to: 1) Project management (class 1), 2) Financial viability (class 2), 3) Opportunity cost (Class 3), 4) Project longevity (class 4).
- External risk factors relate to: 1) Land tenure and resource access/impacts (Class 5), 2) Community engagement (class 6), 3) Political risk (Class 7).
- Natural risk factors relate to: 1) Fires (Class 8), 2) Pest and disease outbreaks (Class 9), 3) Extreme weather (class 10), 4) Geological (class 11).

Each of the 11 kinds of risk factors are broken down in turn in other aspects, which are evaluated, considering the specific conditions of the project. Evaluations and assigning scores are based mainly on evidence documents generated in the project and other externally generated that are applicable to the factor that has being analyzed.

With the assigned scores in the analysis of each unbundled factor, four internal risks are obtained (by the sum in each of the four kinds of internal risk factors, considering the score for mitigation measures); three totals for external risks (amount in each of the three kinds of external risk factors, also considering the score for mitigation measures), and four scores for each natural risk factor.

With these totals three values are obtained, one for each type of risk, also, by the scores sum, and the sum of these three values, the overall risk rating is achieved, indicates the non-permanence risk rating ("risk rating"), which is used to determine the number of buffer credits that the project will deposit in the AFOLU pooled buffer account (see Section 5.4.2 of Monitoring Report 2018 & 2019; buffer% = 10%; this value is obtained in table of Section "4.1 Overall Risk Rating" of this document).

This assessment is subject to periodic reconciliations, the review of the verification reports and the evaluation of the project´s performance, following the guidance of the VCS Program. In addition to these tool requirements, projects must comply with all applicable VCS rules and requests.

In this document, data, rationales, assumptions, justifications and documents are presented to support the non-permanence risk rating that is presented.

1 INTERNAL RISK

The documentary evidence presented in the tables corresponds to the PDD sections, some of its Annexes, some external documents and some Annexes of the Monitoring Report 2018 & 2019, particularly in the analysis of natural risks.

Table 1. Class 1: Project Management

Project Management		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	Not applicable. Tree planting of non-native species is not a project activity and it is not a common practice of indigenous communities. **Documentary evidence**: The coverage map of land use does not detect any plantation area of such species (PDD - Annex 10 BL-UP. VMD0007).	0
b)	The REDD+ Project RIU-SM has organized the forest patrols to prevent intrusions by outside actors into the Project Area. This activity is an ongoing enforcement and tends the protection of 100% of the carbon stock of the Project Area. The communities have organized the Indigenous Guard across all Sectors and Zones; they are responsible for making control patrols. It is an ancient practice in the Indigenous Reservation. The indigenous guard has been strengthened and the surveillance routes plan is maintained. The indigenous guard has training and personal endowment; There are information billboards, control stations, and floating fluvial "hangar" rafts, to strengthen the logistics and transportation in the surveillance and control of the territory. **Documentary evidence**: Illustration 4. Organizational structure of ACATISEMA and Table No. 439 in PDD; PDD - Annex 25; Annex 4.1 of Monitoring Report 2018 & 2019. (MA1. Monitoring Report 2018 & 2019, Table 26)	0
c)	Management team of project includes professionals with significant experience in all necessary skills to successfully undertake all Project Activities. There is a professional at least in every disciplinary area with more than 5 years of experience in its field. In addition, the Co-director and the ACATISEMA Group of Zonal Coordinators are also part of the project management team; all Zonal Coordinators and the Co-director have over 5 years of experience in the indigenous reserve.	0

	The Project has a stable team of professionals, in joint work, with more experience (individual and collective). Project has the administrative team of ACATISEMA, Coordinator Committee, *Cabildos* Board, Captains, and indigenous guard. **Documentary evidence**: PDD - Annex 24. CVs of: technical team of MEDIAMOS F&M S.A.S.; Co-director Indigenous and Zonal Coordinator of Project; General Coordinator, General Secretary and Finance Coordinator of ACATISEMA. (MA16. Monitoring Report 2018 & 2019, Table 26)	
d)	The administrative and technical offices of the REDD+ Project RIU-SM are located less than 3 hours traveling from the project area. ACATISEMA has two offices in the Project zone, one in Cumaribo and other in *Inírida*. MEDIAMOS has its office in Cali. MEDIAMOS technical team continually travels to the Project Area. The leader professional in the area of biodiversity, of MEDIAMOS, lives permanently in the Reservation. The Co-director and the zonal coordinators live in communities, in RIU-SM. ACATISEMA's own offices were improved (new construction of offices in Cumaribo and in *Inírida*. **Documentary evidence**: MEDIAMOS Office: *Alto del Rosario*, Km 12 *vía El Otoño*, *La Buitrera* – Cali. ACATISEMA offices in Cumaribo and in Central zone *Inírida*. The indigenous Co-director lives in the Zone 4 of the RIU-SM and Zonal Coordinators live each in their indigenous communities; Annexes 4.3.6 and 4.8.5 of Monitoring Report 2018 & 2019. (MA5. Monitoring Report 2018 & 2019, Table 26)	0
e)	Mitigation: The REDD+ Project RIU-SM is developed by an interdisciplinary team of MEDIAMOS professionals with relevant experience in the development and implementation of forestry projects and with indigenous personal of ACATISEMA with great knowledge of the forest and their communities. The Strategic Alliance between ACATISEMA and MEDIAMOS is the main element in managing the project because they are groups that complement the technical and scientific part and knowledge of the territory. ACATISEMA with its strengthened territorial organization is fully incorporated into the Project, with greater training of all its members, in particular the Board of Directors, the Board of Councils, the Zonal Coordinators and the Indigenous Guard (in permanently application).	0

	Documentary evidence: PDD - Annex 24. CVs of: technical team of MEDIAMOS F&M S.A.S.; Co-director Indigenous and Zonal Coordinator of Project; General Coordinator, General Secretary and Finance Coordinator of ACATISEMA; Illustration 3 of Monitoring Report 2018 & 2019: Organizational structure of the Strategic Alliance. (MA16. Monitoring Report 2018 & 2019, Table 26)	
f)	**Mitigation**: There is an Adaptive Management Plan in place. **Documentary evidence**: Monitoring Report 2018 & 2019, Table 26 Monitoring actions for Mitigation Measures according to identified Risks from Adaptive Management Plan" and Section "4.3.2 Monitoring and documentation of Mitigation Measures - Adaptive Management Plan".	-2
Total Project Management (PM) [as applicable, (a + b + c + d + e + f)] Total may be less than zero.		**-2**

Table 2. Class 2: Financial Viability

Financial Viability		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	Not applicable.	0
b)	Not applicable.	0
c)	The Project cash flow breakeven point is reached greater than 4 and up to 7 years from the project start The breakeven point was achieved in 5th year of Project implementation (2017), in the terms that was proposal. In PDD, Section 2.5.1.2 "Sub-step 2b – Option I. Apply simple cost analysis" (page 168), was established that the breakeven point would be achieved in the fifth year (2017). The registry of the Project, in July, 2017, let the start of marketing of VCUs, and, consequently, the implementation of investment plan for consecutive years. Financial documents are available for audit if required. **Documentary evidence**: PDD Section "2.5.1 Step 2 Investment analysis (VT0001)" sub-sections "2.5.1.1 Sub-step 2a Determine appropriate analysis method" and "2.5.1.2 Sub-step 2b – Option I. Apply simple cost analysis"; PDD - Annex 8. Projected Cash Flow and Project Schedule; PDD - Annex 2.1.11. Strategic Alliance Agreement	1

	ACATISEMA-MEDIAMOS; Annexes 1.9 and 4.7 of Monitoring Report 2018 & 2019. (MA14. Monitoring Report 2018 & 2019, Table 26)	
d)	Not applicable.	0
e)	Not applicable.	0
f)	Not applicable.	0
g)	Project has secured 40% to less than 80% of funding needed to cover the total cash out required before the project reaches breakeven point. This was fulfilled, which allowed to guarantee the execution of the activities of the Project until reaching the breakeven point. **Documentary evidence**: Details are provided in a cash flow analysis which can be found in the PDD, Section "2.5.1 Step 2 Investment analysis (VT0001)" sub-sections "2.5.1.1 Sub-step 2a Determine appropriate analysis method" and "2.5.1.2 Sub-step 2b – Option I. Apply simple cost analysis". PDD - Annex 8. Projected Cash Flow and Project Schedule. PDD - Annex 8.1. Sources of incomes in cash at REDD+ Project RIU-SM for the implementation of activities, with its respective documents of evidence. Annexes 1.9 and 4.7 of Monitoring Report 2018 & 2019 (MA14, MA16, MA18. Monitoring Report 2018 & 2019, Table 26)	1
h)	Not applicable.	0
i)	**Mitigation**: the project had available, as invocable financial resources, at least 50% of the cash needed before of reach the threshold of profitability (breakeven point) in year 5th (2017)	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.		**2**

Table 3. Class 3: Opportunity Cost

Opportunity Cost		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	Not applicable.	0
b)	NPV analysis is not required. **Documentary evidence**: PDD, Section 2.5.1 Investment analysis.	0
c)		0
d)	As the majority of baseline activities over the length of the project crediting period are subsistence – driven, net positive community impacts are demonstrated. **Documentary evidence**: PDD – Annex 4. Sustainable Management Plan for Land and Forest; Annexes 4.4, 4.5, 4.6 and 4.8 of Monitoring Report 2018 & 2019. (MA11, MA12, MA14. Monitoring Report 2018 & 2019, Table 26)	0
e)	Not applicable.	0
f)		0
g)	Mitigation: ACATISEMA is a traditional association of *Cabildos* and indigenous authorities, non-profit; MEDIAMOS is a simplified joint stock company, profit. Documentary evidence: PDD - Annex 2.1.2 Statutes of ACATISEMA, PDD - Annex 3.2 Statutes and PDD - Annex 3.1.1 Deed No.1555/1999 of MEDIAMOS. (MA9. Monitoring Report 2018 & 2019, Table 26)	0
h)	Mitigation: The project is protected by a "legally binding commitment": Agreement between ACATISEMA and MEDIAMOS which was ratified by Sentence of Tribunal of Villavicencio (Meta)" and by Decision of the Supreme Court of Justice, ensuring the continuity of management practices that protect carbon stocks credited to the entire length of the crediting period of the project. *Resguardo Indígena Unificado - Selva de Matavén* (RIU-SM) has resolution that guarantees land ownership indefinitely (Resolution 37/2003 INCORA), which was protocolized with Public Deed No. 3798/2008, *Notary* 19 of the Bogota Circle. ACATISEMA Association has public resolution that guarantees its operation indefinitely (Resolution 0177/2002 of the Ministry of	-2

	Interior) and MEDIAMOS has also Public Deed of Constitution No.1555/1999, Sixth *Notary* of Cali, registered at the Chamber of Commerce in May 26th, 1999 for an indefinite period. **Documentary evidence**: PDD - Annex 2.1.11 Strategic Alliance Agreement ACATISEMA-MEDIAMOS; PDD Section 1.3 Project proponent; PDD - Annex 1.11.8 Trib. Villavicencio; PDD - Annex 1.11.10 Judgment of the Supreme Court; PDD - Annex 2.2.1 Res. 037/2003 INCORA; PDD - Annex 2.2.3 Deed 3798/2008, Notary 19, Bogotá; PDD - Annex 2.1.1 Res. 0177/2002 *MinInterior*; PDD - Annex 3.2 Statutes and PDD - Annex 3.1.1 Deed.No.1555/1999 of MEDIAMOS. Annex 1 of Monitoring Report 2018 & 2019: Minutes of meetings of *Cabildos* Board, Coordinator Committee and other indigenous leader, in which the Agreement between ACATISEMA and MEDIAMOS to develop the REDD+ Project RIU-SM was ratified.	
i)	Mitigation: A legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years does not exist for the REDD+ Project RIU-SM, but ACATISEMA have its decision to continue with the Project during a second cycle (30 more years). **Documentary evidence**: Annex 1.1 of Monitoring Report 2018 & 2019.	0
Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g + h or i)] Total may be less than 0.		**-2**

Table 4. Class 4: Project Longevity

Project Longevity		
a)	Not applicable. See next Risk Factor b). (MA9. Monitoring Report 2018 & 2019, Table 26)	0
b)	There is a legal contractual agreement to maintain the management practice. According the Strategic Alliance Agreement ACATISEMA-MEDIAMOS, Clause 12, Paragraph 2, ACATISEMA decides to continue with the implementation of REDD+ Project RIU-SM activities for another cycle (30 additional years), after the end of the first project accreditation cycle (according to meeting of	0

Board of Councils, Coordinator Committee and Zonal Coordinators on November 8-9, 2017 -Annex 1.1 of Monitoring Report 2018 & 2019), to keep with the protection and maintenance of carbon deposits, based on which credits for reduction of GHG emissions are issued. So, Project longevity is 60 years and this decision will be applied from the year 2018.

This decision to continue the project another cycle (30 years) is taken backed by:

- Advances and results of the REDD+ Project RIU-SM on the 5 years (2013-2017).
- ACATISEMA was conformed by the people of the 6 ethnic groups of the RIU-SM based on the integral development, the cultural and social preservation of the communities living in the *Selva de Matavén*, as well as on the consolidation of the territory, own government of the associates, the defense, preservation and conservation of the environment and the diversity of the *Selva de Matavén*. (PDD - Annex 2.1.1: Resolution of ACATISEMA registration, considering 1)
- ACATISEMA´s mission: “promote the integral development, the cultural and social preservation of the indigenous communities settled in the *Selva de Matavén*, as well as the consolidation of the territory, the own government of the associates, the defense, conservation, preservation of the environment and the biodiversity of the *Selva de Matavén*” (PDD - Annex 2.1.2: ACATISEMA´s Statutes, Article 5).
- Plan of Action 2018 of the Vichada Department, in its "Strategic Axis 2", its Objective 9 refers to "Implementing technical actions that reduce vulnerability to the risks of climate change and that guarantee the conservation of Vichada's natural heritage" (Gobernación del Vichada, 2018).
- Regional Environmental Management Plan (PGAR in spanish) 2013-2025 of *Corporinoquía* (the Regional Environmental Authority of the Orinoquía Region,) in its Program "Promotion of clean environmental services (climate change-CO2 capture)" of the Programmatic Line "PROMOTION OF ENVIRONMENTAL SERVICES", mentions its knowledge about the REDD+ Project RIU-SM and says that "During the year 2012, a REDD project ... for the *Resguardo Unificado de la Selva de Matavén* (Vichada Department) was formulated, ... " (Corporinoquía, 2013).
- The National Constitution (1991), that in its Article 63 states that “The public goods, the natural parks, the communal lands of ethnic groups, the lands of indigenous reservations, the

archaeological patrimony of the Nation and the other goods that determine the law, are inalienable, imprescriptible and no-seizable".

- The Decree 2164 of 1995, in its Article 21 states that indigenous reservation is "a legal and socio - political institution of a special nature, consisting of one or more indigenous communities, with a deed of collective property enjoying the guarantees of private property, own their territory and governed to the management of this and their internal life by an autonomous organization protected by the indigenous jurisdiction and its own normative system" (Minagricultura, 1995).
- The Resolution 037 of 2003 issued by the INCORA, which unifies the old reservations (now sectors) and the central region in a single Unified Indigenous Reservation, creates the RIU-SM and grants, to these indigenous people, ownership and the right to use and protect their territory (land and its resources). This right of use is indefinite as a Reservation, exceeding even the two periods of project crediting (60 years), and includes an insured control of the management practice that sequesters carbon or avoids emissions indefinitely (PDD - Annex 2.2.1 Res. 037/2003 INCORA).
- The Joint Declaration of Intent (JDI) between the Government of the Republic of Colombia, the Government of the Kingdom of Norway, the Government of the Federal Republic of Germany and the Government of the United Kingdom of Great Britain and Northern Ireland on Cooperation on reducing greenhouse gas emissions from deforestation and forest degradation (REDD+) and promoting sustainable development in Colombia, in its section II. PURPOSE AND FOCUS OF THE PARTNERSHIP (page 3) proposed the achieving zero net deforestation in the Colombian Amazon by 2020.

  This JDI also says in section III. General Approach and Principles, "in their cooperation, the partners intend to: … c) Respect the rights and proposals of indigenous, forest dependent and local communities in accordance with Colombian legislation and international law, noting that Colombia has ratified ILO Convention 169 on the Rights of Indigenous Peoples" (JDI, 2015).
- Paris Agreement, in which Colombia acquired a commitment to reduce its GHG emissions (Law 1844, 2017 by which the "Paris Agreement" adopted on December 12, 2015 is approved by Colombian Congress (Congreso de Colombia, 2017)).

	• The Colombian Government approves the development of the "Visión Amazonía" Program, whose purpose is to promote a new model of development in the Colombian Amazon, which contains a vision of sustainable development, low in deforestation, that allows improving the living conditions of local populations while maintaining the natural base that sustains life and productivity in the region, and its goal is zero deforestation in the year 2020. The REDD+ Project RIU-SM is in the transition area of the Colombian "Orinoquía - Amazonía" (MADS, 2015). On the other hand, the Financial and Management Plan established in the PDD is maintained, which has been made public on the Project website and has been communicated among the Indigenous Reservation communities. The Project ensures its sustainability through the sales of VCUs, having already reached the breakeven point, according to its design and implementation. This information is available in the Project offices for the audit. **Documentary evidence:** PDD Section 2.5.1.2 “Sub-step 2b – Option I. Apply simple cost analysis” (page 168); PDD - Annex 2.1.11 Strategic Alliance Agreement ACATISEMA-MEDIAMOS; PDD - Annex 1.11.8 Tribunal of Villavicencio; PDD - Annex 1.11.10 Judgment of Supreme Court. Annex 1.1 of Monitoring Report 2018 & 2019: Minute of meeting of Coordinator Committee, Board of Councils and Zonal Coordinators on November 8-9, 2017	
Total Project Longevity (PL) May not be less than zero		**0**

Table 5. Total Internal Risk

Internal Risk	
Total Internal Risk (PM + FV + OC + PL) Total may not be less than zero.	**0**

2 EXTERNAL RISKS

Table 6. Class 5: Land Tenure and Resource Access/Impacts

Land Tenure and Resource Access/Impacts		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	Not applicable.	0
b)	Ownership of the land (RIU-SM's territory) and resources access/use rights is of Ethnic Groups of RIU-SM associated in ACATISEMA: Perpetual ownership: National Constitution 1991, Article 63; Decree 2164 / 1995 (Minagricultura, 1995), Article 21; Certification No. 263, 2013 of the Ministry of the Interior, by which the "*presence of the Resguardo Indígena Unificado - Selva de Matavén is identified, belonging to the ethnic groups Cubeo, Curripaco, Piaroa, Piapoco, Puinave, Sikuani, legally constituted by Resolution No. 37 of July 22, 2003, issued by the INCODER, in the area of influence for the REDD+ Project RIU-SM … located in the jurisdiction of the municipality of Cumaribo, department of Vichada* ...". ACATISEMA, in behalf of the communities of RIU-SM, as part of the Project proponents, according to the Strategic Alliance Agreement ACATISEMA-MEDIAMOS, maintains all of its rights over the ownership and resources access. The property was geo-referenced and officially registered in the Government office (*Instituto Geográfico Agustín Codazzi* -IGAC- and *Ministerio del Interior*); it was a process which involved the ground assessment of all boundaries of the territory, consultations with neighboring and resolution of any existing boundary dispute. **Documentary evidence:** PDD Section 1.12; PDD - Annex 2.2.1 Res. 037/2003 INCORA; PDD - Annex 2.2.3 Deed No. 3798 / 2008, Notary 19, Bogotá; PDD - Annex 2.1.1 Res. 0177/2002 *MinInterior*, PDD - Annex 1.2.2.2: Strategic Alliance Agreement ACATISEMA-MEDIAMOS, PDD - Annexes 1.11.5 and 1.11.8: decisions of Superior Court of the Judicial District of Villavicencio - Labor Chamber, PDD - Annexes 1.11.7 and 1.11.10: decisions of Supreme Court of Justice - Labor Chamber of Cassation, Decree 2164 / 1995 of Ministry of agriculture, Certification No. 263 / 2013 from *MinInterior*.	2

	(MA2, MA6. Monitoring Report 2018 & 2019, Table 26)	
c)	Not applicable.	0
d)	Not applicable.	0
e)	Not applicable.	0
f)	**Mitigation:** The Project Area is legally protected by the Constitution of Colombia (1991), ACATISEMA Statutes (because it is an Indigenous Reservation) and Strategic Alliance Agreement ACATISEMA-MEDIAMOS to continue management practices that protect carbon stocks over the length of the project crediting period, as was mentioned in the description of the "Risk Factor b)" of "Class 4: Project Longevity". **Documentary evidence:** PDD Section 1.12; PDD - Annex 2.1.2 Statute of ACATISEMA; PDD - Annex 2.2.1 Res. 037/2003 INCORA; PDD - Annex 2.2.3 Deed No.3798 / 2008, *Notary* 19, Bogotá; PDD - Annex 2.1.1 Res. 0177/2002 *MinInterior*, PDD - Annex 1.2.2.2: Strategic Alliance Agreement ACATISEMA-MEDIAMOS, PDD - Annexes 1.11.5 and 1.11.8: decisions of Superior Court of the Judicial District of Villavicencio - Labor Chamber, PDD - Annexes 1.11.7 and 1.11.10: decisions of Supreme Court of Justice - Labor Chamber of Cassation. (MA2. Monitoring Report 2018 & 2019, Table 26)	-2
g)	**Mitigation:** Not applicable. There is no dispute over land tenure or ownership. The indigenous reserve (RIU-SM) is the owner. **Documentary evidence:** PDD Section 1.12; PDD - Annex 2.2.1 Res. 037/2003 INCORA; PDD - Annex 2.2.3 Deed No.3798 / 2008, Notary 19, Bogotá; PDD - Annex 2.1.1 Res. 0177/2002 *MinInterior*.	0
Total Land Tenure (LT) [as applicable, ((a or b) + c + d + e + f + g)] Total may not be less than zero.		**0**

Table 7. Class 6: Community Engagement

Community Engagement		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	Practically 100% of households living within the Project Area who are reliant on the project area, were consulted and have knowledge of the Project, many communities have participated in socialization	0

	meetings and workshops and their leaders have expressed their agreement and commitment to continue with the Project Activities. In the last General Assembly of ACATISEMA (where the highest authorities and representatives of every indigenous communities of the RIU-SM meet, held in September, 2019), among others aspects, the following was decided "The indigenous authorities of the Reservation ratify their decision to continue carry out the REDD+ Project RIU-SM".. **Documentary evidence:** PDD - Annex 1. Socialization process, training and consultation and PDD Section 6. Stakeholder comments; Annex 1 of Monitoring Report 2018 & 2019 and Section 3.1.1 Operation of the Project Activities during this Monitoring Period / Task T1.3.2: Management of normative and regulatory aspects of ACATISEMA in Monitoring Report 2018 & 2019. (MA2, MA3. Monitoring Report 2018 & 2019, Table 26)	
b)	At least 50 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. These households living into Leakage Belt and belong to the RIU-SM. **Documentary evidence:** PDD - Annex 1. Socialization process, training and consultation and PDD Section 6. Stakeholder comments. (MA3. Monitoring Report 2018 & 2019, Table 26)	0
c)	**Mitigation:** Indeed, the Project generates total positive impacts on social and economic aspects of the communities, who derive their livelihood from the productive activities performed in the region around of Project Area and Leakage Belt. The several meetings with Cabildos Board, Coordinator Committee, Zonal Coordinators, Zonal meetings, and other authorities ratify the total positive impacts on social and economic aspects of the communities. An investment plan was approved and was implemented in 2018 and 2019, with economic resources from marketing of VCUs of REDD+ Project RIU-SM. **Documentary evidence:** PDD Section 1.8.1. Benefits and beneficiaries of project and Section 5. Environmental and socio-economic impact of Project; PDD - Annex 4 Plan of sustainable management; PDD - Annex 5 Family Agri-food Production Units System (FAPUS) and PDD - Annex 22 Socio-economic potential impacts; Annexes 1 - meetings with Cabildos Board, Coordinator	-5

	Committee, Zonal Coordinators, Zonal meetings, and other authorities (in particular Annex 1.9 investment plan), 4.4, 4.5 and 4.8 (special benefits) of Monitoring Report 2018 & 2019. (MA2. Monitoring Report 2018 & 2019, Table 26)	
Total Community Engagement (CE) [where applicable, (a + b + c)] Total may be less than zero.		**-5**

Table 8. Class 7: Political Risk

Political Risk		
Risk Factor	**Risk Factor and/or Mitigation Description**	**Risk Rating**
a)	Not applicable.	0
b)	Not applicable.	0
c)	From the 6 governance indicators scoring, Colombia has an average score of -0.18 for the years 2013-2018 Indicator | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 Voice and Accountability | -0.08 | -0.04 | 0.00 | 0.12 | 0.11 | 0.19 Political Stability and Absence of Violence/Terrorism | -1.29 | -1.11 | -1.07 | -0.88 | -0.79 | -0.81 Government Effectiveness | 0.07 | -0.10 | -0.04 | 0.02 | -0.07 | -0.09 Regulatory Quality | 0.40 | 0.50 | 0.47 | 0.40 | 0.34 | 0.33 Rule of Law | -0.41 | -0.29 | -0.27 | -0.28 | -0.36 | -0.41 Control of Corruption | -0.41 | -0.37 | -0.30 | -0.32 | -0.37 | -0.30 **Average** | **-0.29** | **-0.24** | **-0.20** | **-0.16** | **-0.19** | **-0.18** **General Average** | **-0.21** Documentary evidence: Worldwide Governance Indicator (*http://info.worldbank.org/governance/wgi/Home/Reports*)	2
d)	Not applicable.	0
e)	Not applicable.	0
f)	**Mitigation:** The Colombian government is an active member of the UNFCCC REDD+ and within the framework of the same had established a National REDD Strategy ENREDD+ which is a "roadmap", which indicates what activities can be perform, how they can be carried out and what economic resources will be necessary to carry out the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in the country (MADS, 2012). Now, this strategy is Estrategia Integral de Control	-2

	a la Deforestación y Gestión de los Bosques – EICDGB (Comprehensive Strategy of Deforestation Control and Forest Management) In addition, Colombia has established the MADS as the designated national authority, and has several Registered Projects in different Certification Programs or Standards, i.e. CDM, REDD+, VCS, CCB, among others. **Documentary evidence:** PDD Section 1.11. Compliance with laws, statutes and other regulatory frameworks of project, Paris Agreement: Colombia's commitment to its NDC (MADS); booklet EICDGB (MADS-IDEAM, 2017). (MA7. Monitoring Report 2018 & 2019, Table 26)	
Total Political (PC) [as applicable ((a, b, c, d or e) + f)] Total may not be less than zero.		**0**

Table 9. Total External Risk

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

3 NATURAL RISKS

Under this tool the natural risk is quantified by assessing both the significance (i.e. the damage that the project would sustain if the event occurred, expressed as an estimated percentage of average carbon stocks in the Project Area that would be lost in a single event) and likelihood (i.e., the historical average number of times the event has occurred in the Project Area over the last years) of the four primary types of natural risk: the risk of fire, pest and disease, extreme weather, and geologic hazards.

It is very unlikely that the appearance of a natural risk may affect 5% of the Project Area. There are not historical evidences in this indigenous reservation related to these four types of considered natural risks, have generated a damage of this magnitude, especially given the reference value presented by this tool. If a natural hazard were significant, would affect more than 5% of the Project Area in the last years. This 5% would represent 57,510 ha in the Project Area, 81,821 has adding Project Area and Leakage Belt. So, it is very unlikely that a natural hazard event affects this size of land.

Therefore, where a natural risk occurs, it is very unlikely to remove >5% of the carbon stocks in the Project Area.

Although it is possible that some trees die due to natural risks, the majority of carbon in alive biomass is going to be transferred as carbon in dead biomass.

In consequence, the significance of the risk of every natural disturbance in the Project has been assessed as “Insignificant”, knowing that none of the risks that should occur, would lead to a loss greater than 5% of the carbon pools in the Project Area in case of fire, pest and diseases, extreme weather and geologic risk.

It should be noted that it is difficult to quantify the likelihood of natural risks when these infrequently occur. By definition, the probability is the historical average number of times an event has occurred over the last 100 years.

Another term often used when referring to the likelihood of natural risk is the return interval.

The return interval is common in literature relating to fire and flooding (e.g., flood during 100 years).

While probability or return interval would also be useful for pest and disease evaluation as well as geologic risk, a key feature when calculating the likelihood or return interval is that an event has occurred enough times in enough places such that there is a sufficient data to calculate the return interval.

A review of the literature revealed that there is not data to support calculating a return interval in the Project Area.

Taking this consideration, a return interval of "once every 100 years or more" has been assigned for each risk of pests and diseases, extreme weather and geological risk. For fire, a likelihood "less than every 10 years" has been estimated conservatively, as follow.

NATURAL RISK: FIRE

ANALYSIS OF FOREST FIRES IN REGIONS AMAZONÍA – ORINOQUÍA

In a study of the Amazon fires[1], Cochrane and Laurance 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 trees of smaller diameter (<40 cm DBH), it is just with subsequent burns, that significant losses (mortality of up to 40% of trees) of forest biomass can be expected[2]. Despite fire induced tree mortality, tree mortality itself is unlikely to result in the loss of substantial biomass due to incomplete combustion of aboveground biomass.

Also, as is unlikely that fire affects the whole Project Area, the significance of any single fire event is likely insignificant, and result in a loss of less than 5% in carbon stocks in the Project Area.

IDEAM suggests that an approach to the fire general system of plant coverage in Colombia, is characterized by the occurrence of fire events during the annual dry seasons; ie the months from December to March. These additionally can be intensified or mitigated, both in number of events or in total affected area, depending on the regional impact of "El Niño" and "La Niña" phenomenon respectively, in varying intensities and are proportional to the magnitude of the mentioned weather phenomena.[3]

In particular, in the Orinoco region, the savannas are influenced by recurrent and widely spread fires, mainly in the dry season. Probably the big grass fires in Caquetá piedmont and San José del Guaviare-El Retorno, occurred in early 1979, it is due to the worsening drought seasons.

Weather records reminiscent extremes of drought, such as 0.0 and 10.7 millimeters for January and February, 1979, in Puerto Inírida; 0.0 mm in Mitú, during January of that year; 10.5 mm in San Vicente del Caguán also in January 1979. The Mitú Burning in February 1980, it is then remembered as the strongest in 25 years.[4]

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

[2] 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.

[3] http://www.ideam.gov.co/web/ecosistemas/incendios-cobertura-vegetal

[4] http://www.villegaseditores.com/colombia_amazonica_la_amazonia_colombiana_introduccion_a_su_historia

Therefore, drought works the best as a frequency indicator and severity of fires in the Amazon that the extension of forest cover or other vegetation present in the area. From data collected over a period of ten years with remote sensors and more than 700 interviews with local farmers, the authors suggest that the size and intensity of the fire is as important as the number of fires to determine their ecological impact, and perhaps more important.

That ability to predict, with knowledge of the aggravating factors in the intensity of the fire, prepare the ground for control measures better informed.

Although almost all recorded fires were caused by human activity, size and intensity were more indicative in a given year for its overall impact on the ecosystem, that for the number of ignition points.[5]

Moreover, there are some data records on fires in Vichada and the RIU-SM, where Project Area is located, which help to estimate the frequency or range of return and the proportion of affected forest area.

ANALYSIS OF FOREST FIRES IN VICHADA DEPARTMENT

Number of fires in the department of Vichada:

The number of reported fires in Vichada from 2002 to 2018 (2019 fire report not yet available) is presented below. The data about fires are according to those observed in graphical statistics of IDEAM and reported by *Dirección Nacional de Bomberos de Colombia* – DNBC (National Fire Department of Colombia):

Year	2007	2008	2009	2010	2012	2013	2014	2015	2016	2017	2018
Number of fires	10	1	0	4	6	3	3	3	60	32	8
Accumulated number of fires	10	11	11	15	21	24	27	30	90	122	130

Source: Based on fire statistics graphics by:
IDEAM for 2002-2016[6]
DNBC for 2017[7] and 2018[8]

According the data of fires (by IDEAM and DNBC), between 2018 and 2018 (las 10 years in the study), 120 fires occurred, with an average of 12 fires per year

[5] http://blog.cifor.org/28847/la-sequia-predice-incendios-graves-en-la-amazonia-occidental?fnl=es

[6] Based on fire statistics graphics by department issued by IDEAM

http://www.ideam.gov.co/ web/ecosistemas/ estadisticas-incendios

[7] https://bomberos.mininterior.gov.co/sites/default/files/informe_de_gestion_dnbc_2017.pdf

[8] https://drive.google.com/drive/folders/1GGyNBDow9HhmGaaCZZ-ObHTgtnU5cLeR

On the other hand, according to other source, ASOCARS, in the department of Vichada a maximum of 82 forest fires from 2002 to 2012 (10 years) occurred, with an average of 8 fires per year.[9]

Below data can be concluded that forest fires occur in Vichada with a likelihood "*Less than every 10 years*" (according to VCS TOOL T-BAR: AFOLU Non-Permanence Risk Tool, VCS Version 4).

Affected area by fire in the department of Vichada

The approximate affected area reported in Vichada from 2002 to 2018 is presented below, according to those observed in graphical statistics of IDEAM and DNBC:

	2007	2008	2009	2010
Vichada forest (Cabrera, Galindo, & Vargas, 2011)	4,084,512			
Fire affected area (has)	60,000	50	0	4,000
Percentage of Vichada forest	1.47%	0.00%	0.00%	0.10%
Affected accumulated area (has)	86,600	86,650	86,650	90,650
Accumulated percentage on Vichada forest	1.47%	1.47%	1.47%	1.57%

	2012	2013	2014	2015	2016	2017
Vichada forest *(IDEAM*)*	4,148,804	4,134,378	4,133,363	4,121,851	4,122,417	4,118,336
Fire affected area (has)	100	5,800	500	700	6,500	42,304
Percentage of Vichada forest	0.00%	0.14%	0.01%	0.02%	0.16%	1.03%
Affected accumulated area (has)	90,750	96,550	97,050	97,750	104,250	146,554
Accumulated percentage on Vichada forest	1.57%	1.71%	1.72%	1.74%	1.90%	2.93%

Source: Based on fire statistics graphics by department issued by IDEAM and DNBC for 2017[7]

** http://smbyc.ideam.gov.co/MonitoreoBC-WEB/pub/consultarReporteGeoproceso.jsp?tipoReporte=1*

According to the information presented above [based on 2007 – 2010 (Cabrera, Galindo, & Vargas, 2011), IDEAM 2016, and DNBC 2017], from 2007 to 2017 the loss of forest coverage in Vichada department is in a proportion of **2.93%** accumulated in that 10 reported years.

Approximately, a total of 146,554 ha of forest affected by forest fires since 2007 until 2017 has reported (10 years, considering the lack of data in 2011), which indicates an average of 14,655 ha. of forest annually, and considering the 130 fires reported in that period, it has an average of 112.7 ha affected by each fire in Vichada Department.

According to other source, the area affected by forest fires (in hectares) in Vichada department in a report about the *Orinoquía* region (among other regions), in period 2002 – 2012, was 14,119.8 ha, equivalent to 0.35% of the forest area of Vichada (4,084,512.12)

[9] ASOCARS "Causes of forest fires in the Caribbean, Andean and Orinoquia region of Colombia" PPD / 153 Rev.1 (F) based on MADS, 2012. Made with UNGRD data and tabulated (Mondragón Leonel, Melo Ardila, & Gelvez Pinzón, 2013), page 36

So, from different sources that provide data, there is a range from 0.4% to 2.9% of affected areas in the department of Vichada caused by forest fires.

This information lets concluded that the significance of damage due to forest fires in Vichada is "Insignificant (less than 5% loss of carbon stocks)" (according to VCS TOOL T-BAR: AFOLU Non-Permanence Risk Tool, VCS Version 4).

ANALYSIS OF FOREST FIRES IN CUMARIBO AND IN RESGUARDO INDÍGENA UNIFICADO – SELVA DE MATAVÉN

In the municipality of Cumaribo, according to the reports of fires that were known[10], there were fires, some foresters that affect, especially, El Tuparro National Natural Park, but most conflagrations occur in savanna areas.

According to the reports of the indigenous guard of the RIU-SM, in 2018 & 2019 there have been small fires that were controlled in an effort made by inhabitants of the affected communities (e.g. community Tonina, Sector 4 Atana Pirariami, where 5 hectares were affected). These fires were attended and measures to suppress and/or prevent its spread and further damage were implemented (Annex 4.3 of Monitoring Report 2018 & 2019).

Moreover, forecasts and early warnings about the occurrence of fires in vegetation coverage that is daily issued by IDEAM are made through a developed model specifically for this purpose. This model, called SIGPI (Geographic Information System for Fire Prevention) incorporates the threat that exists related to climatic aspects (daily accumulated rainfall and daily maximum temperature), biological (susceptibility of vegetation coverage to fires) and anthropic (proximity to populated centers) to identify risk areas for the occurrence of these phenomena.

The following table shows the daily forecasts distribution of the probability of fire events during the years 2018 & 2019, based on a sufficiently large and consistent systematic sample. It is observed that around 75% of the predicted days in these two years have no chance of fire events, 12.5% of days in 2018 and 5.6% of days in 2019 present low and very low probability, 4.2% of days in 2019 present moderate probability, 15.3% of days in 2018 present very high probability, and 11.3% of days in 2019 are with high and very high chance of fires. Keep in mind that they are forecasts that do not necessarily have to be met, but rather they are a tool that allows to take special preventive measures, especially on intense summer days.

[10] https://www.elespectador.com/noticias/medio-ambiente/autoridades-buscan-controlar-incendio-en-parque-nacional-el-tuparro-vichada-articulo-738430
https://www.elespectador.com/noticias/medio-ambiente/alerta-roja-por-incendios-en-guaviare-articulo-834527

Probability for 5 days:

Sample: days 5, 10, 15, 20, 25 and 30 of each month, according to available information in source for years 2018 & 2019.

Probability ranges	*% alerts 2013 and 2014-2015*	*% alerts 2016-2017*	*% alerts 2018*	*% alerts 2019*
None	*64.7%*	*66.7%*	*72.2%*	*78.9%*
Very Low	*15.6%*	*11.8%*	*4.2%*	*2.8%*
Low	*9.2%*	*5.6%*	*8.3%*	*2.8%*
Moderate	*5.5%*	*1.4%*	*0.0%*	*4.2%*
High	*2.3%*	*2.8%*	*0.0%*	*2.8%*
Very high	*2.8%*	*11.8%*	*15.3%*	*8.5%*
	100%	***100%***	***100%***	***100%***

Source: IDEAM, Fire Daily Report. Geographic Information System for Fire Prevention. Institute of Hydrology, Meteorology and Environmental Studies - IDEAM. Group of Vigilance and Monitoring of fires of vegetation coverage / Bogotá D.C. Colombia.[11] (Annex 4.1.10 of Monitoring Report 2018 & 2019).

There was an increase in the forecast of the probability of occurrence of forest fires for the "very high" range for 2016-2017 and 2018 (but remains higher than the value of 2013 & 2014-2015), which leads to an improvement in the vigilance and disposition to prevent and attend this phenomenon by the authorities of the Indigenous Reservation and by the official mechanisms for disaster response.

Final considerations about the natural risk of forest fires in the Project Area

- Most forest fires that occur in the region are anthropogenic origin (non natural), and therefore, sources of outbreaks of natural fire in the Project Area are limited, since historically indigenous communities have made control and monitoring throughout its territory, as it demonstrated by the integrity that is currently observed in the Indigenous Reservation forests.
- The detailed review of available information about the region where is the *Selva de Mataven*, where the Project Area (PA) of REDD+ Project RIU-SM is located, and inquiry with shamans, elders, indigenous authorities and their predecessors indicate that in recent 60 years not fires have occurred as a natural risk in the jungle of the indigenous reservation. Fires that are made to create “conucos” are controlled.
- Keep in mind that the *Selva de Mataven* is a tropical rainforest and that part of year presents rivers flood in the middle of Vichada and Guaviare and their multiple creeks. The creeks and rivers are natural firebreaks. The location of the communities around the forest is an advantage with respect to surveillance and control activities by patrols.
- According to historical data found in different sources and discussed above, which can be estimated, conservatively, in the department of Vichada (including the Cumaribo municipality),

[11] http://www.ideam.gov.co/web/pronosticos-y-alertas/informe-diario-de-incendios

where the Project Area is located, the probability of occurrence of forest fires is less than 10 years (Likelihood: less than every 10 years, According to VCS TOOL T-BAR: AFOLU Non-Permanence Risk Tool, VCS Version 4), affecting a maximum of 2.93% of the total forest area, i.e. it has a insignificant loss of forest mass, and thus the carbon stored in it, (significance: Insignificant -less than 5% loss of carbon stocks-, According to VCS TOOL T-BAR: AFOLU Non-Permanence Risk Tool, VCS Version 4).

- Now, considering forecasts (no historical data), the degree of susceptibility to suffer forest fires in RIU-SM is very low, with few and small areas with high risk to the Orinoco River in some epochs of the years; the greatest threat in the department of Vichada focuses on grasslands and savannas, not in areas of tropical rainforest.
- According to the study of the historical reference period (2001-2011) to estimate deforestation in the project area, made under the REDD+ Project RIU-SM, and the monitoring report 2018 & 2019, it can also be inferred that inside the area of the RIU-SM project there has been no significant carbon losses due to forest fires in the last 10 years.

Documentary evidence:

Satellite Images of 30x30m: (a) Landsat images of the years 2001, 2005, 2011, and (b) Landsat and Sentinel images of the years 2018 & 2019; which will be available to the auditors in offices; Annex 6 of Monitoring Report 2018 & 2019.

[1] *Cochrane M.A. & Laurance W.F., 2002. Fire as a large-scale edge effect in Amazonian forests, Journal of Tropical Ecology*.

[2] *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.*

[3] *http://www.ideam.gov.co/web/ecosistemas/incendios-cobertura-vegetal*

[4] *http://www.villegaseditores.com/colombia_amazonica_la_amazonia_colombiana_introduccion_a_su_historia*

[5] *http://blog.cifor.org/28847/la-sequia-predice-incendios-graves-en-la-amazonia-occidental?fnl=es*

[6] *Based on fire statistics graphics by department issued by IDEAM. http://www.ideam.gov.co/ web/ecosistemas/ estadisticas-incendios*

[7] *https://bomberos.mininterior.gov.co/sites/default/files/informe_de_gestion_dnbc_2017.pdf*

[8] *https://drive.google.com/drive/folders/1GGyNBDow9HhmGaaCZZ-ObHTgtnU5cLeR*

Table 10. Class 8: Natural Risk – Fire

Natural Risk – Fire	
Significance	Insignificant (less than 5% loss of carbon stocks)
Likelihood	Less than every 10 years
Score (LS)	Risk Rating = 1
Mitigation	1. Permanent control and surveillance schedules through the indigenous reservation, according with the relevant plan in each sector and zone. 2. Within the control system planned for the REDD+ Project RIU-SM, the monitoring of fires and burns is contemplated. 3. The organization at community level will be also essential to prevent the impacts of these burnings. In the framework of the REDD+ project RIU-SM activities, the strengthening of the community capacities in management of controlled burnings is included, as well as the implementation of awareness and environmental education programs in schools within the scope of the project. (MA1, MA2, MA4. Monitoring Report 2018 & 2019, Table 26)

NATURAL RISK: PEST AND DISEASE OUTBREAKS

The forests of the Project Area have a high diversity with 688 species, 183 genres and 72 families and with over 157 tree species with DBH≥10 cm and like other diverse tropical forests, are not known to be affected for catastrophic disturbance by insect pests or forest diseases.

Forest pests and diseases as a source of risk are more relevant in temperate forests or plantations, with low species diversity and consequently susceptible to extensive damage due to pest and disease outbreaks, which tend to be concentrated on a single species. The processes of tree mortality in this ecosystem are part of its natural dynamic and these areas are quickly covered by the natural regeneration.

Further, there is no history of catastrophic forest disturbance due to forest pests or diseases in the region.

Documentary evidence:

Satellite Images of 30x30m: (a) Landsat images of the years 2001, 2005, 2011, and (b) Landsat and Sentinel images of the years 2018 & 2019; which will be available to the auditors in offices; Annex 6 of Monitoring Report 2018 & 2019.

PDD Section 1.10.3, “Floristic composition”; PDD - Annex 13. CP-AB, VMD0001.

According to the study of the historical reference period (2001-2011) to estimate deforestation in the Project Area and the 2013-2015 monitoring report, it can also be inferred that the area of the RIU-SM project there has been no carbon losses due to forest fires in the last 15 years.

Table 11. Class 9: Natural Risk – Pest and Disease outbreaks

Natural Risk – Pest and Disease outbreaks	
Significance	Insignificant, less than 5% of carbon stock losses
Likelihood	Once every 100 years or more. Risk is not applicable to the Project Area
Score (LS)	Risk Rating = 0
Mitigation	Not applicable.

NATURAL RISK: EXTREME WEATHER

While extreme weather events in the region include drought, flooding and disruption by wind, this analysis is limited to disturbance by wind as this is the only disorder which can have a direct effect on carbon stocks.

As flooding within the project region is common, high water levels in the forest do not lead to a reduction in the forest carbon stocks. Drought does not have a direct effect on existing forest carbon stocks, but instead can increase the severity of forest fires and therefore is covered in the section on fire risk.

Usually winds are weak in the Colombian Amazon, with values less than one meter per second, however, in situations storms may occur gusts with speeds of consideration, even harmful (example: 15.3 m / sec in Leticia in November 1980, equal to 55 km / hour).

The daily cycle of the wind speed is directly linked to the sunshine, in such a way that no situation of calm from dusk until the early hours of the morning; winds are weak during the day, reaching the highest values around noon (2 to 5 m / sec).[12]

In Section "*3.1.1 Operation of the Project Activities during this Monitoring Period*" of Monitoring Report 2018 & 2019 that the winter wave is an event that occurs, according to ancestral knowledge in the RIU-SM, each more or less 10 years, what has happened precisely in 2017 and 2018. Also, in Section "*5. Quantification of GHG emission reductions and removals*" of Monitoring Report 2018 & 2019, an affectation on 830 ha of forest was determined, which represents 0.05% of the forest of

[12] http://www.villegaseditores.com/colombia_amazonica_la_amazonia_colombiana_introduccion_a_su_historia

the Project Area and the Leakage Belt at the beginning of 2018, 1,628,238 ha (*see File "monitoring.xlsx" Sheet "Defor2018", in Folder "calculation_tables"*)

In relation to disturbance by wind, the recurrent intervals for large disorders in the western Amazon have been estimated at 27,000 years

Documentary evidence:

Satellite Images of 30x30m: (a) Landsat images of the years 2001, 2005, 2011, and (b) Landsat and Sentinel images of the years 2018 & 2019; which will be available to the auditors in offices; Annex 6 of Monitoring Report 2018 & 2019.

Espírito-Santo, F.D.B.; Keller, M.; Braswell, B.; Nelson, B.W.; Frolking, S.; Vicente, G. 2010. Storm intensity and old-growth forest disturbances in the Amazon region. Geophysical Research Letters.

According to the study of the historical reference period (2001-2011) to estimate deforestation in the Project Area and the monitoring report 2013-2015, it can also be inferred that the area of the RIU-SM project there has been no carbon losses due to forest fires in the last 15 years.

Deforestation results for 2018 in file "monitoring.xlsx", sheet "Defor2018", in folder "calculation_tables".

Table 12. Class 10: Natural Risk – Extreme Weather

Natural Risk – Extreme Weather	
Significance	Insignificant, less than 5% of carbon stock losses
Likelihood	Less than every 10 years
Score (LS)	Risk Rating = 2
Mitigation	None

NATURAL RISK: GEOLOGICAL RISK

There are not volcanoes, nor active tectonic fault lines within the Project Area. Landslides are not likely to occur inside the Project Area because ground is relatively flat (less than 5% slope).

The hypsographic map (contour lines) shows that the Project Area is characterized by the low hills. The not-so-steep slopes of the hills, as well as the permanent presence of forests, can control any risk of major landslide.

PDD - Annex 10. BL-UP. VMD0007.

So, it can be considered that the area is geologically stable

Table 13. Class 11: Natural Risk – Geological risk

Natural Risk – Geological risk	
Significance	Minor, 5% to less than 25% loss of carbon stocks
Likelihood	Once every 100 years or more
Score (LS)	Risk Rating = 0
Mitigation	None

Table 14. Score for each natural risk

Score for each natural risk applicable to the project (Determined by (LS × M)	
Fire (F)	1.0
Pest and Disease Outbreaks (PD)	0.0
Extreme Weather (W)	2.0
Geological Risk (G)	0.0
Other natural risk (ON)	0.0
Total Natural Risk (as applicable, F + PD + W + G + ON)	3.0

4 OVERALL NON-PERMANENCE RISK RATING AND BUFFER DETERMINATION

4.1 Overall Risk Rating

Table 15. Overall Risk Rating

Risk Category	Rating
Internal Risk	0.0
External Risk	0.0
Natural Risk	3.0
Overall Risk Rating (a + b + c)	**10.0**

4.2 Calculation of Total VCUs

The number of buffer credits to be deposited in the AFOLU pooled buffer account based on the change in carbon stock, and the number of credits eligible as VCUs are presented below:

Table 16. Calculation of credits to be deposited in the AFOLU pooled buffer account and VCUs

Description	2018	2019	TOTAL
Net change in the project's carbon stocks	4,023,937	6,169,239	**10,193,176**
Total Risk Assessment	10%	10%	-
Total number of credits to be deposited in the AFOLU pooled buffer account	402,394	616,924	**1,019,318**

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