

MONITORING REPORT JARI/AMAPÁ REDD+ PROJECT



Bugio-vermelho-das-guianas
(*Alouatta macconnelli*)



Contact Information	
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Project Title	JARI/AMAPÁ REDD+ PROJECT
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Project Location	Brazil, State of Amapá, Municipalities of Laranjal and Vitória do Jari
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Verification Body	RINA Services S.p.A. – Geisa Maria Principe Branco Saettoni geisa.principe@rina.org +55 11 9 8189-9904
GHG Accounting/ Crediting Period	The (CCB) GHG accounting and (VCS) crediting period is: 14 February 2011 – 14 February 2041; 30-year total period
Monitoring Period of this Report	VCS: 15 February 2014 – 15 October 2019 CCB: 17 April 2016 – 16 April 2020
History of CCB Status	Validation CCB – 16 April 2016
Gold Level Criteria	Attendance to the criteria of “Exceptional Benefits to Biodiversity”: The REDD+ Jari/Amapá Project Zone has a very important role in biodiversity conservation as well as being the integrand of the Shield Endemic Area of the Guianas fulfills the vulnerability criteria described by CCBS. The Project area has occurrence of globally endangered species according to the Red List of Endangered Species of IUCN. To monitor the Exceptional Benefits to Biodiversity three trigger species were selected: <i>Voucupa Americana</i> Aubl. (CE), <i>Bertholletia excelsa</i> Bonpl. (VU) and <i>Aratinga solstitialis</i> (EN). During this monitoring period, eight species recorded in the field are listed on the IUCN Red List of endangered species. Seven was classified as “Vulnerable (VU)” by the IUCN Red List, they are: the mutum-poranga (<i>Crax alector</i>), the pomba-botafofo (<i>Patagioenas subvinacea</i>), the tucano-de-papo-branco (<i>Ramphastos tucanus</i>), the tucano-de-bico-preto (<i>Ramphastos vitellinus</i>), the onça-pintada (<i>Panthera onca</i>), the tatu-canastra (<i>Priodontes maximus</i>) and the macaco-aranha (<i>Ateles paniscus</i>). The veado-mateiro (<i>Mazama americana</i>) was classified as “Data Deficient (DD)” by the IUCN Red List.

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1 SUMMARY OF PROJECT BENEFITS

1.1 Unique Project Benefits

Table 1 - Summary of expected benefits in the Jari/Amapá REDD+ Project

Outcome or Impact	Achievements during the Monitoring Period	Section Reference	Achievements during the Project Lifetime
1) Climate: Climate Change Mitigation	Total emissions avoided during the monitoring period: 1,734,045 tCO ₂ e Total avoided deforestation within the project area: 3,749 hectares	3	Total emissions avoided during the project lifetime: 2,377,110 tCO ₂ e Total avoided deforestation within the project area: 5,223 hectares
2) Community: investment in the improvement of the living conditions of communities through the encouragement of family agriculture, providing quality technical assistance, training workshops in the improvement of agroextractivist techniques and improving communication channels	Communities affected by the project: 8 Number of families affected by the project: 61 Number of assistances performed with the technical assistance and rural extension (TARE) activity with the communities in the Project Zone: 4,854	4	Communities affected by the project: 8 Number of families affected by the project: 61 Number of assistances performed with the technical assistance and rural extension (TARE) activity with the communities in the Project Zone: 4,854
3) Biodiversity: maintenance and monitoring of forest cover in the Project area, ensuring the protection and conservation of habitats and local biodiversity, including species with some degree of threat	Number of biodiversity monitoring expeditions during the monitoring period: 1 Number of species monitored during the monitoring period: 215 Number of species with some degree of threat monitored during the monitored period: 8	5	Number of biodiversity monitoring expeditions during the project lifetime: 1 Number of species monitored during the project lifetime: 215 Number of species with some degree of threat monitored during the project lifetime: 8

1.2 Standardized Benefit Metrics

Table 2 - Estimates of the net benefit for different metrics during the lifecycle of the Jari/Amapá REDD+ Project

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
GHG emission reductions & removals	Net estimated emission removals in the project area, measured against the without-project scenario	Not applied	-	Not applied
	Net estimated emission reductions in the project area, measured against the without-project scenario	1,734,045	Table 31	2,377,110
Forest cover	For REDD projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	3,749	3.2.2.6 (Table 22)	5,223
	For ARR projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario	Not applied	-	Not applied
Improved land management	Number of hectares of existing production forest land in which IFM practices have occurred as a result of the project's activities, measured against the without-project scenario	Not applied	-	Not applied
	Number of hectares of non-forest land in which improved land management has occurred as a result of the project's activities, measured against the without-project scenario	Not applied	-	Not applied
Training	Total number of community members who have improved skills and/or knowledge resulting from training provided as part of project activities	644	4.3.1 (Topic: Workshops and training in agro-	644

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
			extractivist techniques)	
	Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities of project activities	223	4.3.1 (Topic: Workshops and training in agro-extractivist techniques)	223
Employment	Total number of people employed in of project activities, expressed as number of full time employees	9 people on average employed to work directly on the Project	2.3.14	9 people on average employed to work directly on the Project
	Number of women employed in project activities, expressed as number of full time employees	2 women on average employed to work directly on the Project	2.3.14	2 women on average employed to work directly on the Project
Livelihoods	Total number of people with improved livelihoods or income generated as a result of project activities	33	4.3.1 (Topic: Development of the Plan for Use of Properties)	61
	Number of women with improved livelihoods or income generated as a result of project activities	9	4.3.1 (Topic: Development of the Plan for Use of Properties)	14
Health	Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario	Not applied	-	Not applied

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario	Not applied	-	Not applied
Education	Total number of people for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	Not applied	-	Not applied
	Number of women and girls for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	Not applied	-	Not applied
Water	Total number of people who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Not applied	-	Not applied
	Number of women who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Not applied	-	Not applied
Well-being	Total number of community members whose well-being was improved as a result of project activities	1,759	4.3.1 (Topic: Technical Assistance and Rural Extension)	1,759

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	Number of women whose well-being was improved as a result of project activities	664	4.3.1 (Topic: Technical Assistance and Rural Extension)	664
Biodiversity conservation	Change in the number of hectares significantly better managed by the project for biodiversity conservation, measured against the without-project scenario	65,980	5.1.1 (Table Biodiversity Conservation)	65,980
	Number of globally Critically Endangered or Endangered species benefiting from reduced threats as a result of project activities, measured against the without-project scenario	8 endangered species detected in biodiversity monitoring (4 avifauna and 4 mammals)	5.1.1 (Table Biodiversity Conservation) and 5.3.1	8 endangered species detected in biodiversity monitoring (4 avifauna and 4 mammals)

2 GENERAL

2.1 Project Description

2.1.1. Implementation Description

The project activities are under the responsibility of Biofílica Investimentos Ambientais and Fundação Jari. Among the main activities implemented during the monitoring period, we highlight: 1. The Patrolling carried out by the Security team to prevent deforestation and invasions; 2. The work of Technical Assistance and Rural Extension (TARE) and the Training offered by Fundação Jari; 3. The Technical Chambers; 4. The implementation of Priority Projects; 5. Monitoring of Biodiversity; 6. The distribution seedlings and implementing community nurseries. The activities foreseen by the Project are characterized by its continuous implementation, with a large part being initiated in this monitoring period. Certain predicted actions have not been completed implemented or implemented at the expected frequency as justified in sections 2.2.3 and 2.2.4. For more details on the implementation of each project activity, see sections 2.2.; 4.; and 5. In this monitoring period, the only project activity that resulted in GHG emissions was the Timber Forest Management operation, such impacts were duly accounted (3.2.2. Project Emissions).

The Jari Amapá REDD+ Project works with the purpose of promoting the development of activities aimed at mitigating climate change by reducing GHG emissions from deforestation and forest degradation, promoting social welfare, and conserving biodiversity. With this, the total reductions in GHG emissions generated in this monitoring period (02/15/2014 to 10/15/2019) were 1,734,045tCO₂e.

Actions were taken to prevent events that may impact GHG emission reductions, resulting in leakage and non-permanence of emission reductions. These actions include the property surveillance, in the entire Project Zone, the Timber Forest Management, the procedures for communication with stakeholders, and the social action of the Fundação Jari. Such actions aims to establish broad and transparent management of the territory, reducing social tensions and avoiding the occurrence of invasions, disputes, and illegal practices. The risks identified by the project are monitored and mitigated as described in section 2.2.6.

In 2018, the proponent Jari Florestal was discontinued by the Grupo Jari, and since then, Forest Management in the REDD+ Project area has been carried out by third parties. As a result, Jari Florestal withdrew from the project activities and in this way, the Fundação Jari started to act directly in the REDD+ Jari/Amapá Project in the role of project proponent and manager.

During this monitoring period, the limits of the Project Zone were changed, since the proposal of the REDD+ Project is that the Project Zone be delimited by the Forest Management area. During this period, a new forest management plan was built and approved, which started operations in 2018, so the Project Zone boundary was reformulated to fit the new area of the management plan and now corresponds to 246,327.53 hectares, as shown in Figure 1. This adjustment had no impact on the activities initially proposed and carried out during the monitoring period. There were no changes in the other project boundaries in this monitoring period.

2.1.2. Project Category and Activity Type

- **Sectoral Scope:** 14 – Agriculture, Forestry and Other Land Uses (AFOLU)
- **Project Category:** Reducing Emissions from Deforestation and Degradation (REDD)
- **Type of Activity:** Avoided Unplanned Deforestation (AUD)
- **Grouped Project:** No

2.1.3. Project Proponent(s)

Organization name	Biofílica Investimentos Ambientais S.A.
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Organization name	Fundação Jari
Contact person	Jorge Rafael Almeida
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Email	jorge.almeida@fundacaojari.org.br

2.1.4. Other Entities Involved in the Project

Organization name	Agregue Industria, Comércio e Transportes de madeiras Eireli – ME
Role in the project	Conducted the low-impact forest management in the Annual Production Unit 1, inserted in the project area, and raised the impacts caused in the community near the management area.
Contact person	Marcos Antonio Tiecher
Title	Managing Partner
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Organization name	Empresa Brasileira de Pesquisa Agropecuária - EMBRAPA/AP (Brazilian Agricultural Research Corporation)
Role in the project	Diffusion of new production technologies to small and medium rural producers in the region
Contact person	Walter Pixão de Sousa
Title	Supervisor of Communication and Business Area for Technology Transfer (TT)
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Email	walter.sousa@embrapa.br
Organization name	Instituto de Extensão, Assistência e Desenvolvimento Rural do Amapá (RURAP) – Vitória do Jari & Laranjal do Jari
Role in the project	Provision of technical assistance and rural extension services to beneficiaries of the REDD+ Jari/Amapá Project; Implementation of the Food Acquisition Program (Programa de Aquisição de Alimentos – PAA, in Portuguese) in Vitória do Jari and Laranjal do Jari, in partnership with the municipality; Implementation of the National School Feeding Program (Programa Nacional de Alimentação Escolar – PNAE, in Portuguese), in partnership with CONAB (Portuguese acronym for National Supply Company); and Credit Rural Project Preparation.
Contact person	Vitória do Jari: Linaldo Dário Loureiro Ferreira Laranjal do Jari: Dalberto Moraes da Silva

Title	Vitória do Jari: Technical Advisor (ASTEC) Laranjal do Jari: Technical Assistant (ASTEC) - Jari Valley Regional
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Organization name	Ambiens Serviços de Assessoria e Licenciamento Ambiental Ltda
Role in the project	Biodiversity Monitoring
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2.1.5. Project Start Date (G1.9)

The REDD+ Jari/Amapá Project starting date is February 14th of 2011, which is the date when the first socioeconomic and environmental assessment planning meeting was held.

2.1.6. Project Crediting Period (G1.9)

The crediting period of the REDD+ Jari/Amapá Project is 14 February 2011 – 14 February 2041, 30-year total period.

2.1.7. Project Location

The Jari/Amapá REDD+ Project is in the Jari Valley, in the municipalities of Laranjal do Jari and Vitória do Jari, south of the state of Amapá, between the parallels 0° 20" 00" S & 1° 40" 00" S, meridians 51° 50" 00" W & 53° 20" 00" W, on the left margin of the Jari River on the border of the state of Pará, north

of Brazil. The surrounding area is characterized by the presence of several Conservation Units (Comprehensive Protection and Sustainable Use), as well as Agrarian Reform Settlements of the National Institute of Colonization and Agrarian Reform (INCRA). The Project Area (65,980 hectares) is localized within the Amapá property Jari II (Project Zone), which totaling an area of 246,327.53 hectares (registration at the Ministry of Finance under Nirf nº 3,210,476-6 (Real Estate Number at the Federal Revenue – “Número do Imóvel na Receita Federal” in Portuguese) demonstrated in Figure 1, and the Table 3 are the vertices and coordinates of the Project Area polygons.

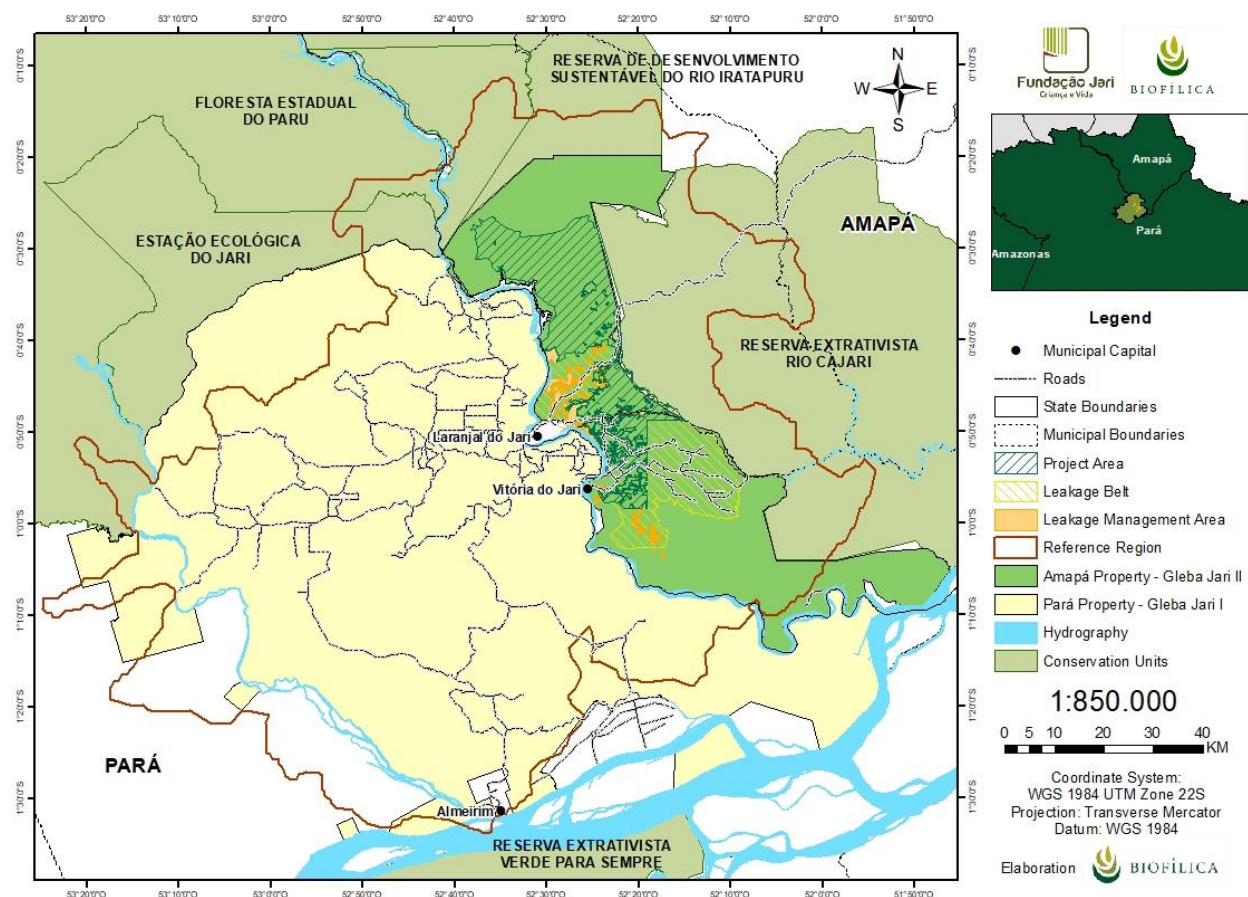


Figure 1 - Location of the REDD+ Jari/Amapá Project

Table 3 - Vertices and coordinates of the Project Area polygons. Coordinates System: UTM – Zone 22S. Datum SIRGAS 2000

Vertex	X	Y	Vertex	X	Y
1	353318.346	9892531.538	105	339596.602	9923065.960
2	353336.113	9910260.460	106	339475.564	9923799.740
3	360870.617	9910259.451	107	340462.795	9923665.194
4	359417.669	9912349.040	108	340870.336	9924033.825
5	357852.884	9913054.482	109	341143.524	9924600.506
6	356294.972	9913169.482	110	341525.351	9924920.826
7	355299.062	9913689.483	111	341930.177	9924991.188

8	354586.717	9914819.488	112	342419.515	9925097.153
9	353570.587	9915231.489	113	343244.124	9924897.886
10	353296.461	9916088.491	114	343687.614	9924883.407
11	352283.676	9916545.493	115	344145.175	9925107.274
12	351308.111	9916912.495	116	344194.189	9926158.253
13	350719.453	9917246.496	117	345502.883	9926348.572
14	350341.671	9917793.698	118	345368.237	9925218.406
15	350329.890	9918350.699	119	346552.360	9925110.689
16	350203.014	9918780.701	120	346702.000	9924676.794
17	350224.576	9919679.704	121	346703.198	9923923.271
18	350066.670	9919961.705	122	346393.931	9923039.196
19	349744.698	9920030.706	123	345964.310	9922212.547
20	349337.604	9920413.707	124	345938.249	9921271.239
21	348669.650	9921222.085	125	344153.339	9921455.849
22	347014.250	9920519.281	126	343481.655	9920713.422
23	346766.749	9921072.021	127	343617.986	9920686.579
24	348258.152	9921652.266	128	343602.285	9920254.515
25	348144.379	9922295.714	129	343520.614	9919908.443
26	348282.589	9922931.135	130	342720.838	9919958.040
27	348146.958	9926621.449	131	342606.773	9919214.392
28	347967.687	9931499.155	132	342620.515	9918450.870
29	347840.497	9931818.174	133	343697.367	9918256.384
30	347740.949	9932340.758	134	343647.591	9918054.243
31	343283.238	9948867.336	135	342432.822	9918315.459
32	342667.996	9948770.192	136	342348.095	9918027.466
33	342801.992	9949038.183	137	343674.215	9917589.276
34	342444.670	9949395.504	138	343754.312	9916972.600
35	342578.666	9949976.152	139	343008.062	9916218.237
36	342266.010	9949931.487	140	341689.300	9916366.909
37	341417.371	9950556.799	141	341554.617	9915983.724
38	341596.032	9951182.111	142	342755.406	9915843.328
39	341149.380	9951271.442	143	341460.097	9914071.522
40	340613.398	9951003.451	144	339913.558	9914404.581
41	339347.653	9950792.464	145	339737.131	9914070.387
42	339078.933	9950839.198	146	338089.335	9914565.082
43	338335.474	9950467.469	147	337559.221	9913911.048
44	336593.532	9948680.862	148	340225.155	9912907.132
45	335566.233	9948100.214	149	340033.254	9912756.827
46	333958.287	9947653.563	150	338171.279	9913453.671
47	332439.671	9947519.567	151	337846.052	9913150.365
48	331367.707	9947296.241	152	337635.576	9913162.625
49	329904.017	9947332.892	153	337485.731	9912859.531

50	328119.910	9946817.686	154	337025.073	9912643.677
51	327615.832	9947385.572	155	336901.834	9912410.233
52	327857.107	9947944.930	156	338104.836	9911551.538
53	326722.528	9948189.545	157	338811.103	9911294.017
54	324399.939	9949216.844	158	339735.239	9911001.178
55	323774.627	9949752.826	159	340651.015	9910720.361
56	322881.323	9950333.473	160	340470.683	9910192.328
57	322768.026	9950758.337	161	340419.345	9909881.556
58	322227.195	9950963.108	162	340873.095	9909849.248
59	321362.707	9950824.790	163	340359.377	9909271.239
60	320514.069	9950110.147	164	343945.347	9905214.935
61	319486.770	9950601.464	165	343531.941	9904836.025
62	320067.417	9949440.170	166	343752.726	9904456.897
63	319397.440	9948993.518	167	344012.343	9904175.930
64	318950.788	9949350.839	168	344549.594	9903587.730
65	318191.480	9949574.165	169	344644.891	9902903.254
66	318325.475	9949082.848	170	344898.951	9902452.764
67	317867.095	9948400.067	171	344975.178	9902012.209
68	318459.471	9948502.201	172	344923.228	9900941.451
69	318950.788	9947787.558	173	344751.916	9900329.278
70	318816.792	9947385.572	174	344668.743	9899594.837
71	318816.792	9946581.598	175	344414.048	9899023.057
72	319068.165	9945031.464	176	345801.282	9899019.432
73	319084.783	9943991.018	177	345999.783	9898625.431
74	318772.127	9942427.737	178	346136.190	9898224.429
75	319799.426	9942427.737	179	346338.909	9897882.428
76	320853.240	9942826.725	180	346847.976	9897774.646
77	322211.346	9941847.090	181	346834.692	9897221.426
78	322211.346	9940864.456	182	346660.285	9897074.425
79	322984.920	9939987.285	183	346476.597	9896725.424
80	324640.727	9940279.249	184	346110.908	9896568.424
81	324898.723	9938816.081	185	345547.500	9896532.423
82	329492.914	9938050.226	186	345189.686	9896685.424
83	329524.612	9937608.832	187	344702.622	9896468.423
84	330320.777	9937519.605	188	344701.082	9896111.424
85	330883.536	9935625.399	189	344082.681	9896156.279
86	333506.600	9933301.314	190	343836.526	9896354.423
87	334751.755	9932988.134	191	343743.916	9896180.851
88	334811.662	9931119.822	192	343390.963	9896206.158
89	333816.452	9930342.615	193	343612.527	9895309.802
90	333289.669	9926902.878	194	344756.541	9893615.066
91	332514.829	9926238.314	195	347028.553	9893815.130

92	331440.601	9925815.477	196	348461.901	9892776.789
93	331755.752	9924409.195	197	348607.373	9892538.285
94	332312.196	9923792.870	198	352549.856	9892532.633
95	332969.036	9922655.581	199	352502.984	9893355.653
96	333397.250	9922007.437	200	352584.239	9893551.415
97	334096.984	9922453.755	201	353064.858	9893684.107
98	334439.882	9921810.482	202	344506.672	9921877.821
99	334735.647	9921733.236	203	342797.827	9921958.351
100	335581.970	9922059.710	204	342619.200	9920849.127
101	336938.741	9922802.367	205	343082.969	9920773.651
102	336624.371	9923460.015	206	343454.408	9920958.316
103	338926.382	9923861.224	207	344069.488	9921651.212
104	339153.314	9922955.272			

2.1.8. Title and Reference of Methodology

Was applied the approved VCS Methodology VM0015 for Avoided Unplanned Deforestation, version 1.1 and Third Edition of the Climate, Community & Biodiversity Standards.

The additionality of the Project has been analyzed in accordance with VCS-approved “VT0001 – Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities”, version 3.0.

Through the “AFOLU Non-Permanence Risk Tool v3.2” tool, it was verified the probable natural and man-induced risks to the climatic benefits.

2.1.9. Other Programs (G5.9)

The Jari/Amapá REDD+ Project does not hold or wishes to generate any kind of environmental credit related to GHG emissions reduction or removals claimed beyond the VCS Program.

2.1.10. Sustainable Development

The Jari/Amapá REDD+ Project has as one of its objectives to promote sustainable development in the region, and the Fundação Jari is considered a facilitating and encouraging agent for this sustainable development. The Fundação works in the Jari Valley region on the integral formation of young people in the areas of education, health and rights assurance and aims to develop sustainable business and community-enterprise partnership to make feasible and integrate public policies, social mobilization and sustainable business reflected in the strengthening of local community enterprises.

All this work has already been recognized through several awards throughout its existence and its model of action is organized into three integrated areas of action: social, business, and environmental management, detailed in the document “*Plano de Desenvolvimento Humano e Sustentável do Vale do Jari*”, in Portuguese, available to verifiers. Based on this support and in accordance with expected impacts, the project contributes to the following UN sustainable development goals:

Table 4 - Contribution to the UN Sustainable Development Goals

Sustainable Development Goals	Application in Project
 2 ZERO HUNGER	The project intends help in the fight hunger through the implementation and monitoring of sustainable food production systems and resilient agricultural practices through strengthening family agriculture low carbon in the area, increasing productivity in family production units, recovering areas degraded previously by implantation of Agroforestry Systems, diversifying the agricultural production with the implantation of nurseries to supply seedlings of varied species and generating guarantee of food security for the families, actions applied mainly through the Technical Assistance and Rural Extension (TARE).
 4 QUALITY EDUCATION	The project aims to provides access and encourages education through technical and professional courses enabling better employment conditions and income, especially for women and youth. In addition, activities related to education and incentives to sustainable management practices of forest resources, reduce the spread of illegal activities, promote the appreciation of cultural diversity and contribute to the sustainable development culture. To achieve these objectives, the project is focused on intensifying Technical Assistance and Rural Extension (TARE) services, as well as offering training aimed at production bias, social organization, cooperativism, leadership and financial management, developing technical and professional skills.
 5 GENDER EQUALITY	All project activities are open and stimulated for the participation of all the residents of the acting communities, especially women, youth and marginalized people. The Fundação Jari technicians are mainly oriented to include women in the activities to increase their participation in the decision-making processes. The project carries out activities aimed at the inclusion of gender and vulnerable populations with part of its resources from the Socioenvironmental Fund, respecting and fulfilling international agreements. In addition, the Grupo Jari promotes in the project region the

	inclusion of vulnerable groups in training and qualification programs seeking to offer knowledge and techniques so that these disadvantaged groups can compete in an egalitarian way in their selective hiring processes.
 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Through actions that encourage the responsible exploitation of natural resources, low carbon agriculture and the recovery of degraded areas, the project promotes the conservation of natural resources, coupled with socioeconomic development for this, some of the main components of the Project activities are related to the promotion of scientific research focused on the efficient use of natural resources, seeking greater integration among the parties involved in the project and focusing on sustainable business chains, generating income and well-being for local communities and making the use of natural resources available more responsible and conscious.
 13 CLIMATE ACTION	All activities undertaken by the project aim to take action to combat climate change and its impacts through the reduction of deforestation in the project area and consequently reducing the emission of greenhouse gases, the project has the potential to reduce 3,450,278.3 tCO ₂ e of GHG emissions in 30 years. And, in the monitoring period of this report the project reached the reduction of 1,460,281 tCO ₂ e.
 15 LIFE ON LAND	In addition to promoting the conservation of biodiversity, ensuring the maintenance of ecosystem services such as pest and diseases, pollination, water quality, climate regulation, the area serves as an ecological corridor for conservation areas in the region, this connectivity between fragments form a large and resilient conservation system to mitigate future global changes, make significant improvements in the living standards of local populations, and serve as a buffer zone for risks and threats to the mosaic of protected areas in the Jari Valley. Also, the project protects High Conservation Value Areas (HCVA) by stimulating and enhancing knowledge about local biodiversity through scientific studies such as long-term monitoring of flora and fauna.

2.2 Project Implementation Status

2.2.1. Implementation Schedule (G1.9)

Below are listed the main dates and milestones in the development and implementation of the Jari Amapá REDD+ Project. More details about these and other actions developed by the project can be found on the next items of the report.

Table 5 - Summary of milestone(s) in the project's development and implementation

Date	Milestone(s) in the project's development and implementation	References
Management and conception design activities		
October/2010	Signature of the Partnership Contract for the development of the Jari Amapá REDD+ Project	See the document: <i>"Instrumento Particular de Prestação de Serviço, Comissão, Investimentos e Outras Avenças"</i>
Concluded in 2012	Carrying out a workshop to plan and design the project.	See the document: <i>"Ata II Workshop do Projeto Jari/Amapá"</i>
Concluded in 2012	Preparation of the Project description document according to the criteria established by the VCS	See the document: VCS Project Description – Jari/Amapá REDD+ Project
Concluded in 2012	Selection and contracting of validation agency (with selection of SCS – Scientific Certification Systems) and registration platform	See the document: Scientific Certification Systems (SCS) Work Order
Concluded in 2013	Conduction of the auditing process for validation and first verification VCS	See the documents: VCS Validation and Verification Reports for the Jari/Amapá REDD+ Project
Concluded in 2016	Conduction of the auditing process for validation CCB and second verification VCS	See the documents: VCS Verification Report, CCB Project Description – Jari/Amapá REDD+ Project and CCB Validation Report for the Jari/Amapá REDD+ Project
Concluded in 2018	Signing of the second Contractual Addendum promoting the Fundação Jari as a REDD+ Project Proponent	See the document: <i>"Terceiro Aditivo ao Instrumento Particular de Prestação de Serviço, Comissão, Investimentos e Outras Avenças"</i>
Management and Monitoring Activities		
Between 2013 and 2014	The Participative Organizational Diagnosis at community level and the socioeconomic familiar diagnosis	Section 2.3.3 and 4.3.1

Between 2014 and 2020	5 Technical Chamber meetings were conducted	Section 2.3.3
Concluded in 2019	First biodiversity monitoring campaign	Section 5
Between 2018 and 2020	Beginning of low-impact forest management activities by the company Agregue	See the documents: Approval of Forest Management Plan, Authorization for Exploration, Shapefiles, Maps and Examples of field sheets.
Between 2014 and 2020	Besides regular security and surveillance activities and patrols, the monitoring of deforestation ex post dynamics was monitored through satellite images, GIS analysis, field inspections and annual deforestation reports	Section 6.1
Started in 2019	Hiring of the new Socioeconomic and Environmental Diagnostic to update the community characterization and registration, together with a reassessment of the social and environmental impacts on Jari Valley	See the document: “ <i>Contrato de Prestação de Serviços Técnicos Díciero</i> ”
Started in January/2020	Meetings of the first community council of the REDD+ Project, with the community affected by forest management (Ramal do Retiro)	Sections 4.1.2 and 4.2
July - August/2020	Public Consultation for CCB Verification and disclosure of the expansion of the Jari Amapá REDD+ Project	Section 2.3.5
Project's Financial Management		
Started in 2011 and to be continued throughout the Project duration	Prospection of potential buyers of the Project's VCUs	See the document: Commercial folder of the Jari Valley REDD+ Project
September/2013	First sale of carbon credits	See the document: “ <i>Relatório Comercial Projeto REDD+ Jari Amapá</i> ”
Started in 2011 and to be continued throughout the Project duration	Project's budget follow-up	See the document: Financial Report Jari/Amapá REDD+ Project

2.2.2. Methodology Deviations

Not applicable.

2.2.3. Minor Changes to Project Description (*Rules 3.5.6*)

Communities engaged in the Project

Initially, 8 communities were selected for the development of activities, reaching 61 families interested in participating in the project in the first years, as can be seen in the timeline and first reports of the Fundação Jari, where the first Technical Chambers and DOP Workshops are described, all documentation was made available to VVB.

Since the beginning, appropriate and relevant information about costs, risks and potential benefits to the communities has been presented to the participants, as well as the fact that participation in the project has always been voluntary and the decision to participate, or not, has never been final or would result in any kind of restriction to the interested parties, directly or indirectly impacted. In this way, throughout the monitored period, some communities and families decided to stop participating in the project.

The withdrawal of community members from the project during this period had an impact only on the planned and executed social activities, which were targeted only to those who were truly interested. The evolution of the impact of the participation of these community members is shown in the documentation cited above, which was made available to VVB, and in the results table presented in the Appendix. The main justifications for the withdrawal of these individuals are explained below.

Regarding the Sombra da Mata community, only one producer was participating in the project, but as this one died in 2017 and did not develop the project on his property. The communities of Ramal do Valdomiro and Barbudo, on the other hand, only gave up participating, still in 2013 (fact cited in the PDD).

The reasons for giving up other families were diverse, in the Jari Valley the dynamics of the communities is instantaneous, for some land squatters known as "adventurers" the possibility of selling the lots of land at the sign of a better financial opportunity, was enough. While other participants just lost interest in the project proposal.

In the beginning, the involvement was very enthusiastic among the community members themselves, the producers talked with each other and influenced one another to participate, but when they realized that the return would not be immediate and that in order to benefit the engagement in the process was important, they lost interest.

However, in the same way that there were withdrawals, two new producers from the Nova Conquista and Tira Couro communities were engaged. Thus, the project concluded this monitoring period with 6 communities directly impacted, where 33 priority projects were developed.

The results of the indicators presented in this report cover all project participants since the beginning of the monitored period, but the focus was on the communities that integrated the project and

actively participated in the activities. Table 6 shows the number of community members involved in the project during the monitored period for each year, and Figure 2 their location.

It is important to point out that no specific event occurred that culminated in the exit or entry of community members into the project, the logistics of the events always remained the same throughout the monitored period, having as a focal point the Fundação Jari, which worked with the communities, and communication among the communities themselves to publicize the project. Furthermore, during the monitored period, the entry of new community members to participate in the project had no impact on the quantification of reduced emissions in the monitored period, the assessments of significance relating to this were made available to VBB.

Finally, the decision by a family to withdraw from the project does not result in the loss of land within the Project Area, as this is property of by Jari Celulose, which holds the rights of use and economic exploitation of the properties, which, due to a complex context of disordered land occupation in the region, only recognizes the peaceful occupation of lots of land by communities of small squatters. Therefore, none of the families present in the Project Zone have legal land documentation. When the process of "sale" of lots of land is referred to as the "sale" of possession, not of a legal title of property, this context is further detailed in section 2.5.1.

Table 6 - Number of community members participating annually during the monitored period

Community	2014	2015	2016	2017	2018	2019	2020
Água Azul	9	9	5	5	5	5	5
França Rocha	5	5	4	4	2	2	2
Igarapé das Pacas	14	14	8	8	6	6	6
Nova Conquista	16	16	10	10	10	10	10
Ramal do Valdomiro	2	2					
Ramal Fé em Deus	6	6	4	4	4	4	4
Sombra da Mata	1	1	1	1			
Tira Couro	8	8	4	5	5	6	6
Total	61	61	36	37	32	33	33

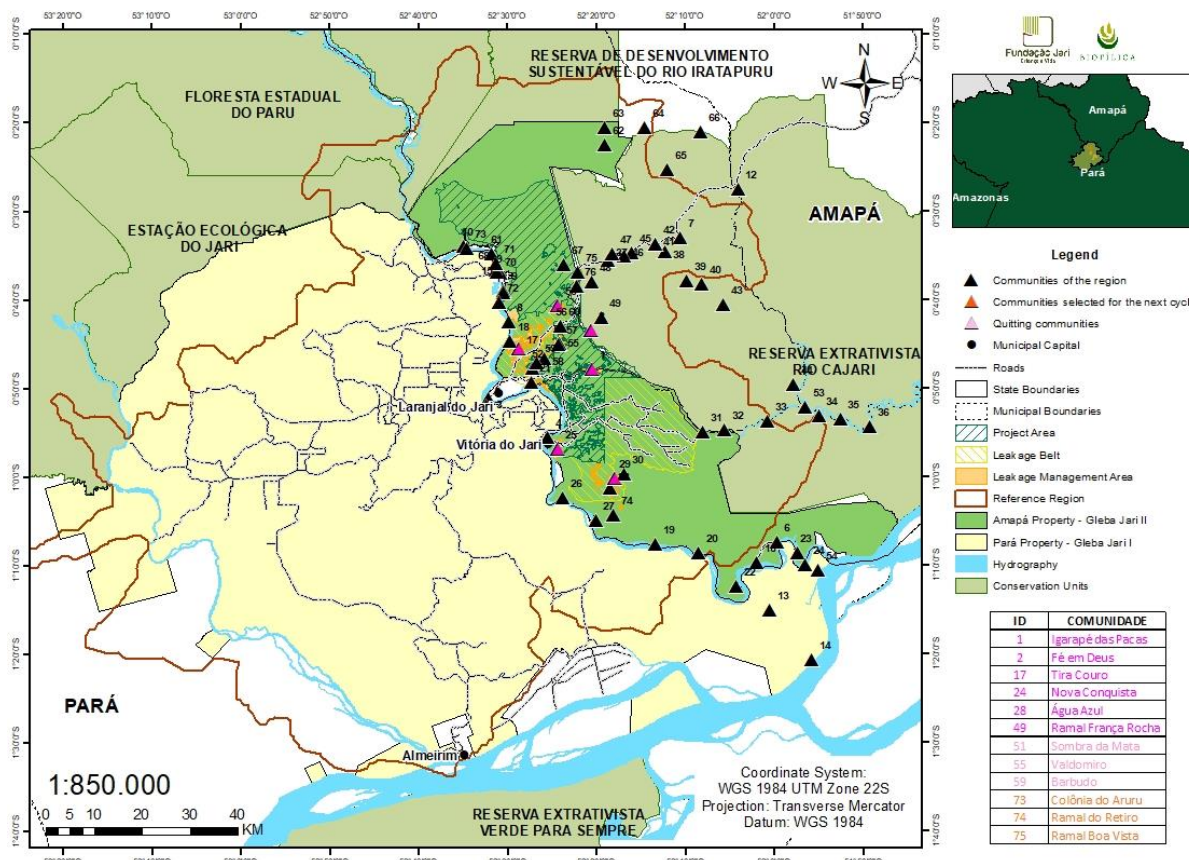


Figure 2 - Location of participating, dropout, and selected communities for the next project cycle

Biodiversity Monitoring

The PD states that biodiversity monitoring would be done by assessing the diversity and richness of flora and groups of mammals, birds and beetles. However, some changes have been made.

The monitoring of fauna biodiversity involved groups of birds and medium and large mammals. For the analysis of flora, the assessment was made using data obtained from the pre-harvest inventory carried out at the Annual Production Unit number 01.

Despite the changes that were made, the methods that have been applied to monitor fauna and flora are widely used and recognized by the scientific community and environmental agencies. These methods allow the collection of information over large areas in less time and with reliable results, and fully meet the requirements and guidelines of forest certification standards.

2.2.4. Project Description Deviations (Rules 3.5.7 – 3.5.10)

a. Project Description Deviations presented in Monitoring Report 2012 – 2013

According with the AFOLU Requirement 3.4, Section 3.13, proponents shall identify potential negative environmental and socio-economic impacts and shall take steps to mitigate them. Additional

standards such as the Climate, Community & Biodiversity Standards (CCBS) or Forest Stewardship Council (FSC) certification may be applied to demonstrate social and environmental benefits beyond GHG emissions reductions or removals.

Initially the negative impacts identified were related directly with the harvesting operations (e.g. smoke, noise and residues), population migration due to the employment opportunities, and possible negative impacts from Fundação Jari activities, such as time invested by the producers to attend Project's meetings and workshops.

After the validation of the Jari/Amapá REDD+ Project, through an FSC demand, Grupo Jari carried out an assessment of impacts from all its forestry operations. Regarding the Sustainable Forest Management of the Native Forest the activities evaluated as potential source of impacts are:

- Forestry inventory: disturb to the communities through the opening of new roads; better access for the communities through the opening of new roads; disturb to the communities due to the coming of illegal hunters
- Felling and sawing trees: accidents with trees falling on the road; Disturb due to the chainsaw noise; changing on the natural resources supply (hunting meat)
- Dragging and transporting the timber: accidents due to the equipment's traffic; disturb due to the equipment's noise; improvement of the road network; Access difficulty in communities far from the forest management
- Roads maintenance: better access for the traditional communities; better access to outsiders and illegal activities
- All forestry operations: employment opportunities; qualification of labor force; contribution to the rural exodus; improvement of living conditions; improvement of communication channels close to the field operation; insufficient communication with regions far from the field operation;
- Fundação Jari activities: better access to public policies and rights guarantee; improvement of living and hygienic conditions of the families; income generation; improvement on the communications channels with the communities; maintenance of producers in the communities; increasing dependence of the producers on the Fundação Jari; conflicts between projects participants; better community organization; use of degraded lands; improvement and continuous formations and training of communities leaderships.

For each of this identified impacts that is the identification of impact class (A – The impact harms someone or some community; B – It is a positive impact and need to be maintained or improved), probability (R - Real; P – Potential), the level of influence (D – direct; I – Indirect), the action to be taken (minimize, mitigate, improve, monitor), preventive and mitigation actions that could be done by the forestry sector and/or by Fundação Jari. The impacts spreadsheet was made available.

Recently, through new discussions with Fundação Jari, Jari Florestal and Quality and Environmental Department team additional impacts have been identified, especially:

- Possible damage in the Brazil Nut trees

- Access restriction to the Brazil Nut trees and other non-timber forest products

The Brazil Nut tree, along with other non timber forest products, such as copaiba and andiroba, are important resource source for the local traditional communities. For this reason any tree specie valuable to the communities livelihood are harvested. The Brazil Nut is even protected by a Brazilian Federal Law (Federal Decree nº 5.975 from November 30th 2006).

On it management plan Grupo Jari commits no to explore none of the species with especial interest from the communities and not to restrict their access to this resources. As a mitigation, the main important “castanhais” (areas with high concentration of Brazil Nut trees were identified with Fundação Jari support, so they were not harvested and during the planning and forest inventory to support every annual operation (POAs – Annual Production Unit), when a census is made previously to the harvesting every “social interesting tree” is mapped, especially the Brazil Nut tree, copaiba and andiroba. Thus, they can plan the harvesting without damaging the trees, and during the harvesting signs and warnings are distributes in the operation site, and the surround communities are warned. The ground mapping of each tree has not happened so far in the Project Area because the forest management hasn’t started yet.

Workshops with the communities close to each POA are planned to happen once the forest management plan is approved to explain the harvesting process and possible impacts and risks for them.

It is important to state that the project proponent has also the commitment of promoting workshops with each community participating with the end to identify potential risks and negative impacts, until the next verification period, in order to address possible new impacts identified.

Regarding AFOLU Requirements 3.4, Section 3.3.1, projects shall have a credible and robust plan for managing and implementing the project over the project’s crediting period.

The SFMP proposed activities are to be hold during the entire crediting period, considering that there are 25 planned UPAs (Annual Production Unit), one UPA is to be harvested per year once the SFMP is approved.

To manage this UPAs, every year the activities mentioned on VCS PDD, Table 6 (summary of Jari/Amapá REDD+ Project main activities in the FSC-certified Management component), page 16, should be implemented. The SFM is expected to start in 2016, these activities should happen every year until 2041, which contemplates the whole crediting period.

In regard of the VCS and CCB proposed activities, they are mainly to be continuous over the years, and expected to happen every year during the Project lifetime. For instance, all the activities described on CCB PDD, Table 6 (casual relationships that explain how each project activity will delivery expected climate, community and biodiversity benefits), page 33, are expected to happen every year during the project lifetime.

The exceptions are to the following activities:

- *Organizational Participatory Assessment and Community Development Plans* – To be implemented every time a new community is engaged and with already engaged communities every 5 years;

- *Family Assessment* – Every two years with engaged communities only;
- *Structuring of the Jari Socio-environmental Fund* – To be developed during 2015 and 2016.

A more detailed schedule of activities (containing items 4 and 5 of Table 7 in the CCB PDD) was made available to the auditor through a finance plan to implement activities proposed. It is important to highlight following:

- Since this schedule has the goal of supporting the financing estimative some activities were aggregated. For instance some of the social activities described in Table 6 of the CCB PDD, that will be regularly implemented by Fundação Jari, are considering all together;
- In order to be more accurate the investment plan were based in a shorter term, until 2021 (when the Project completes 10 years). This decision was made taking into account more clarity of the investments needed to implement each activities;
- All the proposed activities are revised every year and the Project aims to adopt adaptive management practices. In this manner a few adjustments may be done regularly considering communities demands and resources availability. According with the proposed governance flow to the Socio-environmental Fund, every year the Management Committee will get together to discuss investments priorities, and the same discussion will be made through the technical board.

Thus, this is a robust and sustainable implementation plan because it considers year by year priority and resources availability, being therefore adaptable, and already considering the minimum amount of investment and strategic activities to be implemented.

b. Project Description Deviations presented in Monitoring Report 2014 – 2020

Project Proponents & Financial Management Mechanism

Recently, Proponents decided to make an internal change in the management process of the Jari Amapá REDD+ Project. The applied change was to bring Fundação Jari from the position of the developer of social activities to the position of co-manager and Proponent. In addition, Jari Florestal S.A. (Released Representor), Project Proponent together with Jari Celulose S.A., and Biofílica Investimentos Ambientais S.A., chose not to be a Proponent anymore, giving way to Fundação Jari (Acceding Representor). This change refers to sections G1.1 and G4.2 of the PD-CCB and 1.3 of the PD-VCS.

This change does not interfere in any way with the Project's management and governance process, as it only aims to reflect and formalize the process that has already been implemented in practice since the Fundação Jari has already taken on more responsibilities in recent years. This process also aims to give the Fundação Jari greater autonomy and independence, in addition to strengthening the institution in its mission to promote sustainable socio-economic development in the Jari Valley.

Another minor change related to the Project Management occurred in relation to the financial management mechanism. During this period, the project underwent some transformations, and the management model previously envisaged was also reformulated. As previously described, Fundação Jari became a proponent, manager, and catalyst of the project's resources and some procedures initially

planned needed to be updated. It was then understood that this mechanism should be adapted to fit the currently consolidated management model, but at the same time it would not lose the main pillars of the mechanism, which are participatory management, transparency, and the guarantee of allocation of resources solely for socio-environmental actions.

The change of project proponents, with the release of Jari Florestal and the accession of Fundação Jari, added to the adjustment of financial management procedures do not affect the additionality or applicability of the project. Such changes were made aiming solely at improving management and governance procedures, and all investment guidelines initially foresaw as well as procedures for communicating with stakeholders remain maintained. In other words, the changes made did not exempt or reduce in this period the scope of additional socio-environmental actions and investments initially foreseen in the PD, as demonstrated by the activity "Structuring the Socio-Environmental Fund REDD+ Jari".

FSC certified Forest Management

During the validation period of the Project, it was foreseen that an FSC certified Forest Management would be conducted. Forestry Management aims to exploit forest resources in a rational way, using reduced-impact harvesting systems, associating the longevity of the forest, maintaining ecological balance, socio-environmental responsibility and economic-financial efficiency. For this reason, it has always been sought to certify this type of operation, so that the best exploration practices can be demonstrated.

The Forest Management carried out by Grupo Jari was first operated in the state of Pará, with FSC certification. Because of this, it was planned that Forest Management in Amapá would also have the same certification. However, the operation in Amapá had its start postponed due to the group's financial difficulties. Subsequently, still due to the financial crisis, and because the operation was not economically feasible, Forest Management was paralyzed in Pará and the certification label was lost. More recently, the Grupo Jari decided to outsource the operation to a company with greater expertise in the activity (Agregue), which started operations in Amapá, and Jari Florestal, a Group company responsible for Forest Management (Jari Florestal), was discontinued. This change refers to sections G1.8, G1.9 and G1.12 of the PD-CCB.

The Forest Management operation started in Amapá in 2018, without FSC certification, however, Agreue already has the FSC certification label for other areas of its operations, which demonstrates its intention to certify Amapá's operation in the coming years and demonstrates that the company operates in line with the certification guidelines.

Additionally, the project proponents understand that the REDD+ Project certifications, especially the CCB, give support to the accomplishment of essential procedures such as effective communication with stakeholders, the prevention and mitigation of socio-environmental impacts, the monitoring of biodiversity, the maintenance of carbon stocks, that is, the effective management of forest assets.

This context makes the REDD+ Project even more additional, since a large part of the actions carried out, essential for FSC certification, were financed thanks to the contribution of conservation

additional resources, part of which came from proponent investments and part from carbon credits. Investments that certainly would not have been made in the scenario without a project. The investments and additional actions foreseen in the project scenario did not stop being realized due to the absence of FSC certification, by contrast, Agregue operates the timber forest management in line with the certification guidelines. In addition, as described by the analysis of alternative land-use scenarios in the PD, obtaining FSC certification is not an additional action to contain deforestation in the project scenario. Therefore, it does not constitute a deviation or non-appropriateness in relation to the with-project scenario.

Family Assessment

The first Family Assessment was carried out in 2014, when it involved 43 families from 8 different communities. As provided for in the PD, this assessment would be carried out every 2 years, that is, from 2014 new assessments would be made in 2016, 2018 and 2020. However, the implementation of Priority Projects was hampered by financial problems that impacted the proponents especially in the years 2016 and 2017, and the activities planned for the participating families were effectively resumed only in 2018.

In this context, it would not make sense to carry out the Family Assessment activity in 2016 and 2018 once the effective implementation of the Priority Projects has been postponed. In 2020 this activity would be resumed, since it would be possible to identify the results of the work done after the resumption of Priority Projects in 2018. However, with the events related to the Corona Virus pandemic, unfortunately it was not possible to apply the questionnaire one more time.

We believe that the effective implementation of this activity would be essential to highlight the results achieved by the implementation of the Priority Projects in this monitoring period. However, this failure of the project does not affect the additionality or the criteria of applicability of the Project since additional investments were effectively made aiming at the implementation of the Priority Projects. The Family Assessment activity will resume as soon as the situation related to the pandemic is resolved. This change refers to sections G1.8, G1.11, G3.5 and CM4 of the PD-CCB.

Community monitoring indicators

Throughout the monitored period, it was noticed that some indicators, initially established in the PD-CCB, had difficulties in being collected. This occurred mainly because of a failure to record this information. Therefore, for the next verification of the project, the proponents committed themselves to elaborate, align and update procedures to carry out the organization and record this data for subsequent presentation of results. Below are listed all the activities with the indicators that were not quantified during the monitored period and their respective justifications:

- **Monitoring of Deforestation:** indicator “Area deforested per family attended” was only monitored once, as it depended on the completion of microzoning process. As described in section 4.3.1, this process was divided in two moments during the monitored period. The first was in 2014 with some community members, where the memorials describing their properties were prepared. The second, covered

a larger number of community members, and focused on those involved in priority projects in their most robust phase in 2018. As microzoning was completed in 2018, it was only from this year that it was possible to monitor these communities involved in priority projects.

- **Property Surveillance:** the indicator “Number of complaints/demands regarding the surveillance action” was not collected because there was no registered procedure to stimulate the collection of this data. The collection procedure has been updated and made available to VVB, including that complaints, denunciations and demands must be registered and forwarded to the Infrastructure Management, preserving the confidentiality of the source.

Indicator “Number of fire control and prevention workshops implemented per communities engaged” was collected just in 2018 and 2019, reaching just one community, because there was a greater focus of these actions in Pará due to required certifications by FSC and Serflor. In addition, other actions of the project were prioritized. However, exist the commitment to increase the reach with other engaged communities until the next verification. In addition, it was possible to identify that there was a positive impact because other communities present in the project area participated in fire control and prevention workshops. Considering 2020, due to the pandemic situation, it was necessary to adapt the communication with communities to ensure health and safety of all. Thus, information's on fire control and prevention were carried out through the distribution of posters and by radios.

- **Technical Board Meetings:** Indicators, except for “Public Policies communities are accessing” that should be monitored every 2 years, were not included every 6 months with data, as the technical board meetings were not carried out as planned in the PD. However, for the semesters in which activities took place, there were results for community members as can be analyzed by available evidence.

The indicator “Number of institutions invited” was not recorded for the years 2014 and 2015, because in the beginning of the monitored period these actions were carried out in a more “informal” way, not being made an official record of the institutions contacted to participate in the technical chambers. However, it is possible to know that the institutions were invited, since, when analyzing the indicator “Number of Institutions that attended” there are numbers for all the years monitored. Still, as the contact/invitation was not registered, there was no evidence, so these indicators were reset to zero for the respective years.

Similarly, for the indicator “Number of communities invited”, in 2015 and 2019 this process was also carried out informally. The communities were contacted directly by technicians of the Fundação Jari through visits, which were not recorded for these two years. However, it is also possible to know that these invitations were made when checking the indicator “Number of communities that attended”, which shows the participation of community members in the technical chambers in both years. Therefore, it was not possible to find evidence of these actions and, consequently, for these years the values were reset to zero.

- **Technical Assistance and Rural Extension (TARE):** A failure occurred in the process of managing, collecting, and writing the monitoring forms that would serve as evidence for the indicators: “Number of families attended”, “Number of communities engaged”, “Frequency of visits” and “Gender and

age of the producers attended”, which directly influenced the presentation of results in the frequency required by the PD-CCB. The information presented in the TARE monitoring table was collected with the Fundação Jari, based on several documents that referred to actions that fit "TARE", however, much of this information was not complete in the forms and records, and relied, mainly, on the field knowledge of the Fundação's team to collect this information and identify actors and the years in which they were carried out. For this reason, the data were presented only annually. The presentation of "example sheets" to VVB was to illustrate how this monitoring would be carried out, but unfortunately not all documents on file have complete information. In any case, for this monitored period, the accounting of information at a frequency different from that established did not generate problems in verifying the results of the activities, especially when combined with other information presented on the effectiveness of TARE's actions in the communities. However, to improve the survey of this information, for the next verifications, the project proponents are committed to adjusting the tools needed for the field survey of these indicators, making them clearer and answering all the PD's directions.

The indicators “Familiar Income” and “Final market achieved” were not considered because the main source of this information is the Family Assessment, which during the monitored period was not carried out. As explained above, this activity was directly impacted by the delay in the effective implementation of the Priority Projects due to budget problems and the Covid-19 pandemic in 2020.

The indicator "Percentage of families with access to loans" was not met in all years expected in the monitoring. In 2014, no actions were taken on this topic, because the project was focused mainly on choosing and starting the development of activities with community members, while 2016 was the year that the Grupo Jari went through a crisis that affected all sectors of the company, so between 2014 and 2016 this activity was not carried out, being started only in 2017. Between 2019 and 2020, the focus was on monitoring the 2017 and 2018 beneficiaries, verifying the effectiveness of the investments made. In addition, this activity was also impacted by the delay in the effective implementation of the Priority Projects, due to budgetary problems, and by the Covid-19 pandemic in 2020, thus having no new community members with access to credit in these years. Therefore, for 2014, 2016 and 2020 the values of families that had access to loans were zero.

The indicator “Time invested by the communities’ members” was also not considered, as no proper way of recording this data to be accounted for was found. Although the Fundação Jari prepared a new field sheet in 2020 that presents the time data, the filling out of this information was not effective. For the next verification, the proponents committed themselves to improving this methodology.

- **Workshops and trainings in agro-extractive techniques:** regarding indicator “Gender and age of farmers attended”, information about age of farmers was not considered, as an adequate way of recording this data to be accounted for was not found either. For the next verification, the proponents committed themselves to improving this methodology.

- **Development of Property Use Plans:** the indicator “Time invested by the communities’ members” was not considered, as an adequate way of recording this data to be accounted for was not found either. For the next verification, the proponents committed themselves to improving this methodology.

- **Community Level Workshops (Participatory Organizational Workshops, Community Development Plans and Risks and Impacts Assessment):** the indicators were not collected to 2014 as an adequate way of recording this data to be accounted for was not found. For the next verification, the proponents committed themselves to improving this methodology.

- **Family Assessment:** the indicator “Time invested by the communities’ members” was not considered, as an adequate way of recording this data to be accounted for was not found either. For the next verification, the proponents committed themselves to improving this methodology.

- **Biodiversity Monitoring and Scientific Research:** none of the indicators of this activity were collected, they are qualitative analyses, covering the communities’ perception of the availability of natural resources and the importance of the forest, and during the monitoring of the biodiversity carried out in the monitored period this scope was not registered, as well as in any activity carried out with the communities. For the next verification, the proponents committed themselves to improve the methodology of collection and storage of this information, mainly joining the survey conducted for the Family Assessment.

The table with the results of the activities carried out during the monitored period, and their respective indicators, is presented in Appendix. Its structure is like what had been established in the PD-CCB, however, for the indicators mentioned above no results or evidence were added. The lack of presentation of these indicators did not prevent the demonstration of the impacts of the project on communities, which were illustrated by the other indicators filled in.

Biodiversity Monitoring and Scientific Research

There are three main fronts associated with the monitoring of biodiversity: i) fauna monitoring, in which data are obtained by field expeditions; ii) monitoring of flora through data obtained from the inventory of permanent plots of sustainable forest management areas (based, in this case, on the Post-exploratory Report); and iii) the non-realization of the “Validation workshops/knowledge return events”.

Fauna monitoring:

As stated in the PD (Section B4. Biodiversity Impacts Monitoring - p.194, as well as briefly in Section B2.3. Mitigation of Negative Impacts - p.187), the indicators for monitoring fauna biodiversity and scientific research were constructed considering the existing partnership between the Grupo Jari and the Universities of Lancaster and Lavras. The proposal was that the studies that universities carried out for at least 10 years in the areas of sustainable forest management in Pará would be expanded to the areas of sustainable forest management (Project Area) in Amapá. Thus, the frequency of the indicators was established using the methodologies recommended by the Universities. With the end of this partnership, however, it was not possible to comply with this biannual monitoring.

With the end of the partnership and the economic crisis that the Grupo Jari faced, it was not possible to hire an outsourced company to monitor fauna biodiversity before 2019. In this period, as previously explained, activities aimed at communities were prioritized.

As for activities associated with biodiversity, priority was given to actions to curb deforestation, aiming not to impact the biodiversity of the Project Area due to the loss of forest cover and fragmentation of habitats. The positive results of containing deforestation in this monitoring period, associated with the excellent results found by the company Ambiens (contracted for the monitoring of biodiversity), validate the efforts made during this period of financial instability and readjustment of the project's priorities.

Therefore, it was not possible to comply with the frequency of fauna monitoring and the indicators associated with this monitoring, including those related to production and scientific dissemination.

There is a clear need to rethink the frequency of these indicators in the revalidation of the PD, considering the costs and other difficulties associated with such frequent monitoring of biodiversity.

Flora monitoring:

The monitoring of flora is based on the Post-exploratory Report of the Permanent Plots of sustainable forest management. Thus, the indicator is linked to the occurrence of sustainable forest management operations in the Project Area.

Unlike planned (and already explained in this Section 2.2.4), forest management operations only started in 2018 and have not yet been completed. Thus, there is still no explored Post-Exploratory Report for UPA01 and, consequently, the response of the indicators.

Therefore, there was no monitoring of these indicators ("Diversity of plant community in Permanent Plots" and "Richness of the plant community in Permanent Plots") using the data from the Post-Exploratory Report in this period of monitoring.

It is noteworthy, however, that analysis of pre-exploratory data (using the census carried out on the permanent plots of UPA01 in operation) was performed by Ambiens and can serve as a basis for comparison with the data to be generated in the PP forest census to be carried out at the end of the exploration of UPA01.

As forest management activities are subject to change, it is understood that the frequency of this indicator should also be rethought for the revalidation of the PD, making it clear that monitoring (and frequency) is dependent on the execution of forest management and that changes may occur.

Finally, the REDD + Project Expansion Plan proposed by Fundação Jari for the coming years foresees the carrying out of biodiversity monitoring every two years, that is, the next campaign will be carried out in 2021 and another one in 2023. The financial evidence presented in the plan shows that the Project has cash available to implement the new monitoring campaign as early as 2021.

Validation workshops/knowledge return events:

In addition to the items explained above, the "Validation Workshops/knowledge return events" were not held during the monitored period (after the monitoring conducted by Ambiens) because of the Covid-19 pandemic. The data analysis and delivery of the monitoring report by Ambiens was finalized in March 2020, a period in which the Covid-19 pandemic was already occurring in Brazil. For stakeholder protection measures, it was decided to postpone the presentation workshops only with the end of the pandemic.

Other results obtained in scientific research and/or published in scientific papers were also not directly shared with the community. The idea is that in the coming years, the events of workshops become spaces and moments of return not only from the results found in the monitoring carried out by the Project, but also from the results found in other scientific studies and that apply to the community context.

2.2.5. Grouped Projects

Does not apply, because this is not a grouped project.

2.2.6. Risks to the Project (G1.10)

The risk assessment was carried through the application of the VCS approved tool "AFLOU Non-Permanence Risk Tool, v. 3.2". The result of this risk tool presented as an annex to the PDD was updated in this monitored period, this update was presented to the VVB through the Risk Report and the Risk Calculation Tool. Additionally, other risks for the benefits of the project were identified, as well as its respective mitigating measures. These risks are listed below.

Risk: Lack of interest from stakeholders, specially communities and government agencies to participate in the activities of the Project.

Risk from the community's perspective: Great part of the expected improvement in the family wellbeing depends on the political will. The project has created dialogue and articulation spaces to mediate communities' demands with the government responsible agencies for each sector. The lack of interest on participating on the proposed spaces is consider a potential risk for project's expected benefits.

Mitigating measures: The Project has been integrating some measures during Project's implementation and decision-making process concerning activities of communities interest, for example, Workshops DOP and Technical Board on REDD+ as a strategy to empower them and instigate a sense of belonging. During the implementation period it was also promoted the already existing reporting mechanisms among proponents and other stakeholders, such as Internal Ombudsman, Information Channels and Feedback and Grievance Procedure, it is also extremely important (more information on Section 2.3).

Risk: Difficulties commercializing the verified carbon credits.

Risk from the community's perspective: No success on selling the emissions reductions generated would affect the availability of cash flow to boost project's activities with the communities.

Mitigating measures: Biofíllica has a commercial sector responsible exclusive for the development of promotional materials of the Project, attendance to national and international events related to REDD+ and carbon credits in order to promote the Project, establish and amplify the networking of commercial contacts with possible interest in buying carbon credits. Biofíllica is always searching for financing alternatives, such as donations and partnership for direct implementation of Project activities (not necessarily linked with the sale of credits).

Risk: New land invasions by squatters compromise through the infrastructure built for the sustainable forest management operation, causing new unplanned deforestation and competing with local communities for resources (land, hunting and non-timber forest products).

Risk from the community's perspective: In general, the opening of infrastructure to the SFM activities has a positive impact on the communities, giving them better access their properties. However, it may also be favorable to the coming of outsiders that could compete with them for land and natural resources, such as hunting and non-timber forest products.

Mitigating measures: The SFM started just in 2018, so for the bigger forest monitoring period, this potential risk was not considered. The property surveillance and land security have been increased year by year due to the REDD+ resources in order to reduce and avoid invasion events and deforestation, and the SFM operator has been involved in these actions. In addition, it is valued a good relationship with communities that were in the area before the Project in a way that they are allies on the defense of the forest alerting the surveillance against the coming of outsiders. Therefore, looking at this strategy, the Project choose to include in the 2020 expansion plan, one community that is near to the recently SFM exploitation.

Risk: Reduced supply of natural resources (hunting and non-forest timber products) due to the SFM (logging) activities.

Risk from the community's perspective: With the SFM activities main risk may arise for the communities in regard of natural resources supply: coming of outsiders due to the better access that may compete for the resources (hunting and general non-forest timber products); and possible damage to species important for their livelihood, such as the Brazil Nut tree, copaiba and andiroba.

Mitigating measures: As a mitigation measure for the first risk there is the already mentioned property surveillance program in place, to avoid new invasions. And in relation to the risk of tree species important to communities, in its management plan, Agregue is committed to not explore any of the species of special interest to the communities and not to restrict their access to these resources. The main *castanheiras* (brazil nut trees) accessed by the nearest community and directly impacted by the SFM operation in 2019 (Ramal do Retiro) were mapped. In addition, meetings were held with the community,

and a community council was established to report on potential SFM impacts for the community. The community received compensation in cases where the impact of SFM was identified and was able to enjoy some benefits provided by the operation, such as the reform of roads and bridges. SFM does not harvest *castanheiras* and during planning and forest inventory to support all annual operations (POAs - Annual Production Unit), a census is made prior to harvest, and all “trees of social interest” are mapped, especially *castanheira*, *copaiba*, and *andiroba*. Thus, they can plan the harvest without damaging these trees, and during the harvest, signs, and warnings are distributed at the site of the operation, and the surrounding communities are warned.

Risk: Restriction on land use and land use conversion.

Risk from the community’s perspective: Some communities’ members may be concern about restrictions in the land use and land use conversion that the REDD+ Project may impose to them, even if that is no land use restriction requirement to engage and participate with the Project.

Mitigating measures: Fundação Jari staff has direct contact with the communities is constantly trained and oriented to clarify that the Project cannot impose any land use and land use conservation restriction to them. Project’s approach is to offer alternatives productions technics, more productive and efficient, so little by little the communities won’t need clear forest areas to grow crops any more. Along with alternative production technics (provided by TARE), the project also implements the Property use Plan Methodology, as a mediation approach to strategic think the property land use. With the Property use plan the producer will be encouraged to think on their “future use” of the land considering not just productive aspects but social and environmental function of the land. And even though the producer is free to do whatever he/she desires. The restrictions that exist are towards new invasions, as previously commented but even the land surveillance team doesn’t open charges against families already established, being them engaged with the REDD+ project or not.

Risk: Non-inclusion of vulnerable groups such as youth and women.

Risk from the community’s perspective: Non-inclusion of vulnerable groups such as youth and women causing conflicts and uneven benefits distribution.

Mitigating measures: The technicians from Fundação Jari are constantly trained and oriented to not discriminate women and young people during the mobilizations for the Project activities. It must be noted that due to historical and cultural issues, in most cases men lead productivity issues of the Family and the women take care of the issues linked to welfare. Since the project aims to bring both economic and welfare benefits, it is essential to involve women and Young people in discussions. These groups have been represented in the Technical Boards, but the most representatives remain male. This is one of the actions that the project aims to strengthen in the coming years. An activity already initiated by the Project on this theme is the promotion of the *Agulhas Versáteis* (Versatile Needles) initiative, with a female entrepreneurship bias, better described in section 2.3.

Risk: Risks connected to the management of the Socio-Environmental Fund of the Project.

Risk from the community's perspective: From the communities' perspective this could rise high expectation regarding what the project can finance or its governance structure

Mitigating measures: During the consultations of the fund structuring, the Technical Board was elected as the official space of consultations and accountability of the fund, specially regarding social activities. In this way the project proponents took some time to formalize the agreement related to the financial management of the REDD+ Project due to the complexity and importance of this instrument. However, during the project's implementation period, all guidelines related to transparency and stakeholder participation were implemented, including the presentation of the results and planning in the Technical Chamber. This Financial Management Agreement was formalized between the Proponents in 2020 and aims to guarantee the maintenance of the good financial management practices of the project throughout its duration.

Natural Risk: Regarding natural risks, as identified through the application of the AFLOU Non-Permanence Risk Tool, v. 3.2", the Amazon Biome is a quite balanced ecosystem and in the Project Zone the main natural risk is related with forest fire. No occurrence of natural fire (i.e., caused by lightening) was registered in the project area. Scientific research suggests that the occurrence of natural fires is rare in the Amazon (Schroeder et al, 2009), and the large majority of forest fires in the Amazon Biome are caused by human action (Goldammer, 1990). And even considering human caused fires, fire focuses hardly affect more than a couple hectares due to tropical forest humidity. However, human activities close the project area, especially those associated with community agricultural practices, using fire to preparation of their crops, when poorly managed may cause small fire focus.

From the biodiversity and climate point of view this small fire focus with the goal of cleaning land to grow crops have similar risks to the expected benefits as deforestation and fragmentation themselves. In general, according to Neto & Cianciaruso (2012), fire occurring in tropical forests can modify the structure and composition of the vegetation, consecutively affecting the diversity and abundance of native fauna. In their study, however, due to the high species diversity and ecological similarity among different species the functional diversity wasn't affected by the fire occurrence. Cochrane & Laurance (2008) say the fire used for cleaning lands turn the micro-climate conditions warmer and potentially drier into the forest remnants, making forests more susceptible to future burning.

In regard of the risks to climate benefits, besides risks of changings in the hydrological cycle due to the land use change, there are the emissions of greenhouse gases, especially carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) (Fearnside, 2005). However, the VCS approved methodology VM0015 CO₂ emissions are already counted as carbon stock change and non-CO₂ emissions from fires used to clear forests in the baseline scenario can conservatively be omitted.

Risk from the communities' perspective: Although they use the fire and an agricultural technique to clear the “*caoeiras*” (forested areas) most of them don't have appropriated training and may lose the fire control.

Mitigating measures: Grupo Jari has a plan of emergency response to forest fires since 2009. This plan is ready to be implemented in case of forest fire occurrence, caused by natural causes or human action (criminal fire, slash-and-burn practices, forest management operation, among others), and includes stationary and mobile surveillance, as well as prevention and fire control procedures (see document “*Plano de Atendimento a Emergência a Incêndios Florestais*”, in English “Emergence Attendance Plan for Forest Fires”).

Additionally, another procedure called “*PA – Prevenção e controle de Incêndios Florestais*” (in English “Prevention and Controlling of Forest Fires”) that aims to set prevention measures based on two mean strategies: Surveillance and Prevention Techniques. Regarding Surveillance the prevention happens through fixed observation towers spread over the operation sites and the surveillance field patrolling. Through the monitoring of satellite images, annual bulletins are also prepared that report the occurrence of deforestation and fires in the project area. These bulletins are delivered to the security area of the Grupo Jari and to the Fundação Jari, which use this data to define actions implemented in the field, either with a view to punishing perpetrators and expelling invaders, as well as to establish dialogue and provide training for local communities that eventually are responsible for the fires.

The Prevention Techniques are based on eliminating or reducing the human factor on the fire risk, through implementing and maintaining firebreaks, maintenance of roads and preventive environmental education. This preventive environmental education is a set of activities, mostly informative workshops, aiming to deliver information and necessary instructions to general local population regarding basic knowledge on protecting the forest and avoiding forest fires. Along with the informative workshops there are also written material and audiovisual resources elaborated with this end. Besides all of this the procedures also indicates essential points regarding fire controlling and fighting, such as, necessary equipment, fighting methods, and safety measures.

2.2.7. Benefit Permanence (G1.11)

To maintain and improve the benefits for the climate, community and biodiversity, beyond the project lifetime, the following mechanisms are listed in order of what has already implemented to what is being planned:

Technical Chamber of REDD+: Official space implemented since 2012, to communication and decision making of the Project regarding social activities with the communities and different stakeholders during the monitored period. The Technical Chambers are organized to discuss, together with the community members and partner institutions, schedules, strategies, evaluations, complaints and new proposals for project activities (see section 2.3.3). Besides the monitoring of project activities, the

approximation of public and non-governmental entities to communities facilitates the communication and access to these policies and projects that affects them. The engagement of communities also generates empowerment and knowledge of their rights and where to claim them. These relationships should remain beyond the project duration.

Family Assessment and monitoring of the socioeconomic development: This tool was implemented as the first step in the development of the property use plan for community members (see section 2.2.4), enabling the understanding of the socioeconomic reality, needs, and challenges of each family participating in the project, and allowing the understanding of how the benefits of the project could be measured and adaptive measures established, adjusting the activities according to the needs and reality of each family. As pointed out in section 2.2.4, after 2014 this diagnosis was not performed again, and the survey of the results for the current monitored period, for this activity was scheduled to be carried out with the end of the Corona virus pandemic. Consequently, the inclusion of new community members in the project was also dependent on the improvement of the global pandemic to happen. In any case, the expected plan is that with each inclusion of community members in the project a new assessment will be implemented. With the conclusion of the respective property use plans that will be developed, a new diagnostic will be generated comparing the initial situation of the families with the situation after participation in the REDD+ project, in the hope that at the end of the project the most appropriate configuration will be established for each family directly impacted.

Technical Assistance and Rural Extension Service (TARE), workshops and trainings in agroforestry and farming techniques: The main activity carried out with community members since the start of the project through the actions of the Fundação Jari, the assistance, training and direct capacity building for farmers was based on joint building up of knowledge and the most appropriate techniques for each family and community, enhancing the knowledge already mastered by the communities through the integration of complementary information, thus making farmers more autonomous (see sections 4.1.3, 4.2.2 and 4.3.1). Through technical training and capacitation in rural production, appropriate farming, and forestry according to the familiar interest, the project expects to make producers able to implement appropriate agricultural and forestry techniques, enabling constant production and revenue generation. It is expected that by the end of this project the communities will be able to manage their crops effectively and efficiently, producing food and generating income without the need to open new areas, perpetuating the benefits to themselves, the climate, and biodiversity.

Nursery of native forest seedlings and planting in degraded areas: From the beginning, the project has supported the maintenance of the native species nursery managed by the Grupo Jari. The main purpose of these seedlings is to restore degraded areas in the region, donating species to local communities for restoration of their properties (see sections 5.1.2, 5.1.3 and 5.3.1). In addition, the project also encourages the implementation of Seedling Production Units in the communities, which occurs associated with training and workshops that stimulate these communities to manage these areas autonomously, generating knowledge and improving their skills (see sections 2.3.13 and 5.3.1). The

knowledge acquired through these activities can be used even after the end of the project, generating permanent benefits to the communities and, consequently, to the climate and biodiversity. The conservation areas (recovery of degraded areas) and the production areas occur together in the properties of the families involved in the project, mainly through the Agroforestry Systems, which will also result in the perpetuation of these benefits.

Greater scientific knowledge on Biodiversity and Maintenance of High Conservation Value

Attributes: The first study conducted on biodiversity was in 2011, during project design, serving as a foundation for the implementation of the long-term monitoring plan for Biodiversity and HCVAs, which began in 2019. In the monitoring conducted in 2019, it was shown that the forests in the Project Area have a high degree of conservation and balance, even in areas where Sustainable Forest Management has occurred, demonstrating their conserved forest status. In this survey not all species found in the biodiversity study conducted in 2011 were found, due to the different areas sampled and the dynamics and ecology of the species. However, this does not mean that the species no longer occur on site, only that they were not found in the survey (see sections 5.1.1 and 5.1.4). Focusing on covering these differences between studies, the continuous monitoring of biodiversity, proposed since the project design and included in the Expansion Plan, establishes that biodiversity monitoring will be carried out every two years, that is, the next campaign will take place in 2021 and another in 2023. In this way it is expected that the monitoring of the benefits caused directly to biodiversity will be followed up.

Forest Management: The forest management activities began in 2018, within the current monitored period, enabling its constant improvement, aiming to be perpetuated low impact techniques applied beyond the limits of the project, because there will always be the intention to certify or maintain the management certifications. In addition, the project is responsible for encouraging and overseeing the monitoring processes of impacts in community Brazil nut areas that may be affected by management activities. In this way it is hoped to generate lasting benefits for the climate, the community and biodiversity (see sections 4.1.4 and 4.3.1).

Improvement in patrimonial surveillance procedures: The actions of patrimonial surveillance, mainly associated to the monitoring of the areas through satellite images, have been carried out since the validation of the project. This long period of activities has generated the need to improve these actions. This will be done, in the coming years, through the implementation of the project's expansion plan, which aims to provide additional tools, such as remote monitoring by high-resolution satellite images, the acquisition of support equipment, and the provision of training for the asset surveillance team, to increase the efficiency and reduce the costs of patrimonial surveillance operations. In this way the surveillance operations will receive an increase in the intelligence process related to territorial monitoring and management, which will directly reflect on maintenance of long-term climatic benefits.

Strengthening of the Fundação Jari: Since validation, the Fundação Jari has been a key player in the development of activities of a social scope within the project, which resulted in it changing its position during the monitoring period, becoming a proponent (see section 2.2.4). In this way, with the application of

the actions established by the project's expansion plan in the next few years, it is intended to consolidate and improve the activities already carried out by the Fundação in the Project Zone. This process will be a planned expansion of the activities carried out, covering more and more communities, so that in the long term the objective of building a well-structured institution capable of serving all the communities present in the Jari Valley is achieved. The expansion potential of the Fundação Jari will depend directly on the capacity of generating resources by the REDD+ Project, which is expected to advance with the development of the project. It is expected that by the end of the Project, the Fundação Jari will consolidate itself as a business promoting institution based on sustainable production chains, with a qualified technical team that is sufficient to serve the communities and to apply in partnerships, with action lines that aim at its financial sustainability, resulting in the generation of consistent and continuous impacts over the long term.

2.3 Stakeholder Engagement

2.3.1. Stakeholder Access to Project Documents (G3.1)

During this period of implementation, the Jari/Amapá REDD+ Project has implemented three methods of communication with the parties involved, aiming to guarantee access to documents and all other information of the Project through oral, written and virtual form, as described below.

Written: a printed version of each document related to the Project, such as the Project design document, the summary, as well as, project news and disclosure material, were made available for consultation at the Fundação Jari office. Additionally, until 2016, information and news about the Project were disclosed in two Grupo Jari newspapers: Circular Fundação Jari and Circular of the Grupo Jari. After that, it was decided to published news in the local newspaper. These publications, among others news, are available for consultation at the reception of the Fundação Jari office. The Figure 3 below shows some examples of these materials.

Virtual: documents related to the Project were available through virtual means on the [Verra](#) and [Biofíllica](#) websites. News and novelties about the Project have been published in the Biofíllica Newsletter through social media and can be accessed on this [link](#).

Oral: information and news about the Project were also conveyed orally at REDD+ Technical Chambers (CT), events through meetings between the community council of agricultural communities and technicians, during the Technical Assistance and Rural Extension (TARE) process, as well as other opportunities for contact between stakeholders and project proponents.

The communities that were not directly involved in this phase of the project, but which are part of the Project Area, had the opportunity to access information about the Project from similar dissemination tools.

Additionally, Jari Amapá REDD+ Project has hired a specialist consultant to support and increase the dissemination of information and communication with stakeholders both in the aspect of quality and quantity. This new strategy will be implemented from 2020.



Figure 3 - Examples of publications and others news available for consultation in the Fundação Jari office reception

2.3.2. Dissemination of Summary Project Documents (G3.1)

Documents related to the Project were available by virtual means on Verra and Bioflica websites. The circulars of the Fundação and Grupo Jari are also digitally accessible. News and novelties about the project have been published in the Bioflica Newsletter through social media Facebook and LinkedIn. In addition, all information and news about REDD+ were reported orally in the Technical Chambers and other meetings among communities, Project proponents and other stakeholders.

All the relevant information and evidence about the project dissemination of the Project documents were made available for VVB analysis.

2.3.3. Informational Meetings with Stakeholders (G3.1)

Organizational Diagnosis Workshops (from Portuguese “*Oficinas de Diagnóstico Organizacional Participativo – DOP*”) were conducted by project proponents and partner Fundação Jari, through which

information about the Project have been linked with appropriate language and teaching methodologies of mediation.

The DOP workshops were an instrument of collaborative construction between proponents and communities. Individually applied in each community or groups of small communities, smallholder members and technicians discussed the theme REDD+ identifying opportunities and project risks, strengths, opportunities, weakness and threats within their communities. They have also established goals and means, period, representatives and partners to address identified problems and, at last, evaluated the workshop and Project actions. The content of each workshop with discussions, opinions and conclusions was documented and used on the conception of project activities, as well as the forwarding of actions as decided during the workshop.

Relevant and appropriate information on potential costs, risks and benefits to the communities were provided during meetings of presentation and consultation, during meetings of the Technical Chamber on REDD+ and in the DOP workshops. In addition, participation in the project was voluntary and the decision to participate or not in the project is not definitive or results in any kind of restriction.

During the first meetings (those hold in 2012) the main risks discussed were about the high complexity of REDD+ initiatives, lack of official regulation (nationally and jurisdictionally), difficulties of articulation with local communities, difficulties of articulation with state and local governmental agencies, high development costs (to be cover by the project proponents) and uncertainty of return, and high flotation on carbon prices.

After that, others costs and risks to communities started to came out more explicitly with project's building-up and were clarified verbally, especially during the Technical Chamber, DOP workshops and TARE visits. The main concerned passed to the project proponents by the communities is in regard of restriction on the land use and deforesting and about maintenance of roads so they can have better access to their lands. Every time these topics were brought up they were clarified, especially that the project doesn't impose any restriction on the land use.

In total, the project has carried out 10 Technical Chamber Meetings to date, and in this monitored period, 5 were carried out involving the communities participants of the project and in parallel Fundação Jari offered more than 20 workshops and trainings with producers and community associations of the project region. These meetings represent the main place for debating schedule, strategies, evaluation, complaints and new proposals for the project activities.

Following the schedule proposed by the Project during the Validation process, Fundação Jari has prepared a work plan that includes the evaluation of the work performed with the involved communities and, additionally, an expansion of the action by including three new communities in 2020. Same as done in 2012, this expansion plan includes the realization of DOP workshops and Technical Chamber meetings, aiming to define the communities and families participants and institutional partners involved. The performing of meetings with these stakeholders includes clarifying all the risks, opportunities, and impacts of the involvement with the REDD+ Project. During this process the Project Proponents reinforce that the

participation is voluntary and the decision to participate or not in the Project activities is not definitive or results in any kind of restriction for any stakeholder, ensuring this way, the Free, Prior, and Informed Consent.

A Technical Chamber was held with the Project partners in order to present and evaluate the results achieved by the consultation and to validate the Project's expansion planning. At this moment, three new communities have been chosen, where direct investments will be proposed to be made in the next cycle of the Project.

The three new communities initially selected were, Ramal do Retiro, Ramal Boa Vista, and Aruru. The criteria for selecting these communities were, the potential impact generated by the Forest Management operation, the degree of deforestation that occurred in the surroundings, and previous work already carried out with these communities by the Fundação Jari or local partners. As soon as possible, Technical Chambers will be held with these communities in order to validate and refine the proposal and capture other demands.



Figure 4 - Some of the Technical Chamber meetings performed by the Project

Sustainable Forest Management

Regarding risks of the Sustainable Forest Management to be carried out in the Project Area some consultation has been done in 2013 as part of the SFM Plan preparation, during these meetings the goal was to present basic concepts of the SFM operations. The main concern raised by the communities' members was in regard of possible damage to the Brazil Nut tree, new roads for them to have better access to the area and the risk of access restrictions. There were explained the Brazil Nut is protected by law and

no damaged is expected, as well as no restriction to the area will be imposed and that they will be able to use de SFM roads net.

It was also performed in 2014 two meetings with stakeholders aiming to disseminate, inform and integrate the members of the communities that are located within the Grupo Jari area and surroundings about the activities developed by the Forest Management and encourage communication by interested parties together with the company in order to foster the integrality and social control of socio-environmental management. However, the operational activities of the SFM have begun only in 2018, four years after it was initially planned.

Since the beginning of the SFM activities, the forest management operators have been implementing a series of mitigating measures in order to reduce the impacts previously forecast and listed by communities as a concern, especially related to Brazil-nut trees impacts. A Community Council was created to serve as the main means of communication and dialogue between the interested parties. This Community Council was firstly performed with the community named Ramal do Retiro, that initially does not participate in the project but has been directly impacted by the management activity. Forest management operators also recently presented an Action Plan containing work proposal to be developed with the communities. The intention is that these proposals are soon presented and duly approved via Community Council. All evidence related to these actions was made available for VVB assessment.



Figure 5 - Some of the compensation actions performed by the Forest Management Operator for the Ramal do Retiro community

2.3.4. Community Costs, Risks, and Benefits (G3.2)

As described above, the Jari Amapá REDD+ Project has been conducting certain strategies to address potential risks, costs, and benefits to communities and other stakeholders, ensuring effective

involvement in the process and free, prior, and informed consent. These strategies are supported by three main pillars, the DOPs, the Technical Chambers, and the other communication strategies listed before.

The DOPs ensured the involvement of stakeholders, especially communities, in the construction of work proposals from the beginning of the process, offering the opportunity for these actors to give their opinion on the proposed actions, participate in the construction of certain work proposals and choose to participate or not from the project. The Technical Chambers were held during the course of the work, in order to present and evaluate results, make adjustments in planning, and maintain engagement and communication with stakeholders. The communication strategies aimed, like the Technical Chambers, to maintain open channels for consultation, involvement, complaints, and suggestions for all interested parties. The evidence collected from acting in several communication channels demonstrates that the project is able to access all the public profile and has participative and transparent communication spaces.

2.3.5. Information to Stakeholder on Verification Process (G3.3)

The Jari Amapá REDD+ Project adopted different strategies for communicating the CCB Standard verification process. These strategies were aimed at partners and local institutions, communities involved and society in general. Due to the restrictions related to the COVID-19 pandemic, it was not possible to hold meetings and face-to-face Technical Chambers with the direct involvement of all stakeholders, so certain adaptations were made as described below.

- Communication with partners and local institutions: official letters were sent along with Project folders in order to communicate the process and schedule meetings via video conference. At these meetings, a presentation of the REDD+ Project was made, with a focus on expansion planning actions in the project zone and contextualizing the verification process.
- Communities of the Project Zone: all communities were communicated by different communication channels. By telephone and radio (when applicable), and through direct contact by the Fundação Jari communication campaign. The campaign was performed through a home visit action to the largest possible number of residents of the communities located within the project zone. The entire process was conducted ensuring compliance with the rules of social distance), aiming to giving everyone the opportunity to express about the project. The following items were delivered at each visit:
 - ✓ Consultation Letter informing project objectives, guidelines, benefits and communication channels;
 - ✓ Informative folder containing images and didactic and detailed information, in addition to the project's communication channels;
 - ✓ Envelope for written comments to community members who cannot or do not want to speak by phone, and can deposit their suggestions, questions and complaints in the suggestion box;

- ✓ Brochure related to combating COVID-19, informing hygiene and protection care aimed at encouraging social distance in communities during this pandemic period;
- In this same process, were collected the signature of receipt of the consultation letter and other items, photographic record of the delivery, and collection of geographic coordinates at the place of delivery.
- In order to ensure that everyone had the opportunity to make comments, it was informed that the suggestion boxes would remain in place for 15 days. Even so, all communication channels with Project proponents were shared, in case anyone wished to make comments after the boxes were removed.
- Communication with society in general: extensive communication was carried out via social media and other virtual channels (Biofilica's newsletter and site) explaining the entire context of the verification process and the importance of this stage and for the actors impacted by the project. In addition, e-mail communication was carried out through a wide list of relevant institutions, governmental and non-governmental.

Even considering the necessary adaptations in the communication of the verification process, the Proponents sought to guarantee the proper participation and the consent of all the affected parties and other stakeholders. Other actions necessary to complement this process were foreseen in the work plan that will be put in place as soon as the limitations generated by the pandemic are overcome. All evidence and other relevant information were shared with the VVB.

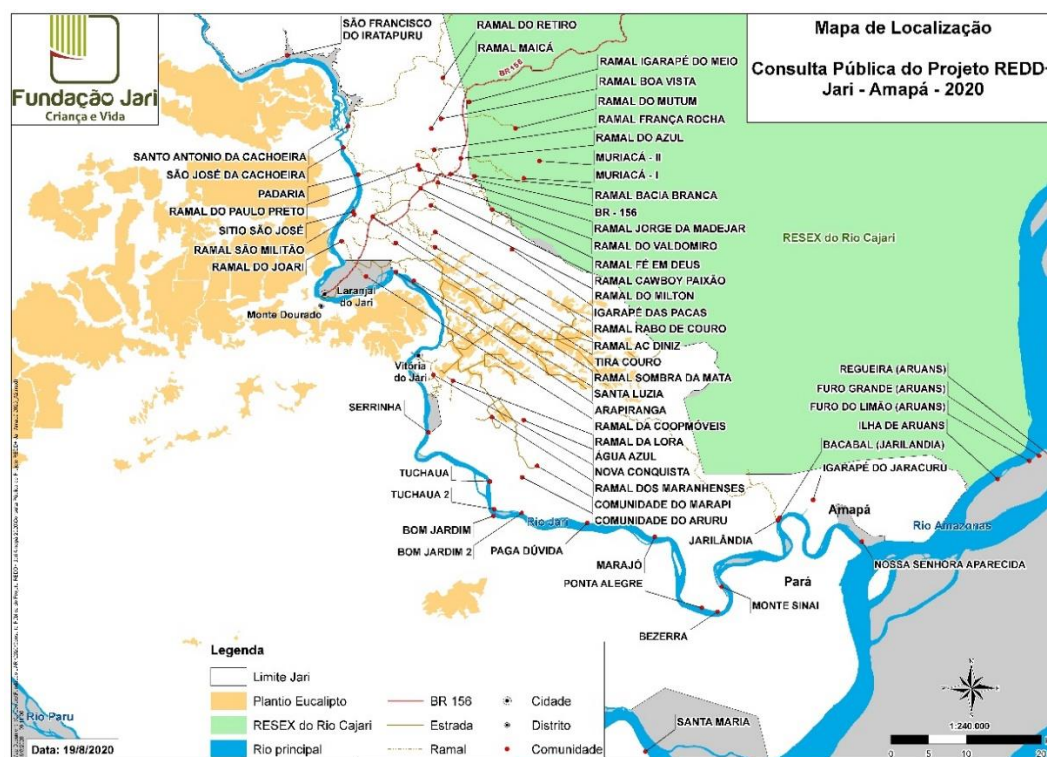


Figure 6 - Location of communities communicated about the verification process

2.3.6. Site Visit Information and Opportunities to Communicate with Auditor (G3.3)

Due to the restrictions imposed by the COVID-19 pandemic, was necessary to perform the verification event without a field visit. During the verification process, remote interviews will be conducted by the VVB with community members, project proponents, and other stakeholders. Communities and other stakeholders were informed about the project verification process, in addition to the results achieved by the Project and planning for the coming years. More information on these communication strategies is described in the other items in this section.

2.3.7. Stakeholder Consultation (G3.4)

The processes related to decision-making and implementation, as well as the various activities related to the Project, were open to community participation. As already mentioned, involvement in the design, implementation, monitoring and evaluation of the Project takes place through the presentation and consultation meetings, Technical Assistance and Rural Extension Service (TARE), DOP Workshops, REDD+ Technical Chambers, Information Channels and Feedback and Complaint Repair Procedures and Internal Ombudsman, in which all interested communities have the opportunity to participate.

The main communication tool and Project's official space of dialogue and articulation between communities and other stakeholders is the Technical Chambers. All information and demands regarding projects activities and impacts can be discussed during the meetings and a resolution should be collectively made. The results of all other project activities are also divulged and discussed through this space, facilitating the collection of feedbacks and comments that should also be addressed. In that manner the Technical Chamber is the more direct tool of adaptive management proposed by the Project. Besides the Technical Chamber other important channel of communication, where Fundação Jari and stakeholders have the opportunity to discuss ideas and proposals for the activities are the workshops and trainings offered by the Fundação Jari.

In the Project Description, it was used the terms Technical Board and Technical Chamber, however, it has no difference in the practical application of this tool. So, for this report, it's considered the same institution and was decided to standardize the term Technical Chamber.

In addition to these initiatives, the mechanisms already implemented by the Grupo Jari and, mainly, by the Fundação Jari, have been incorporated into the communication strategies with stakeholders. These are the Conflict Management Procedures, "*Gestão de Conflitos*" in Portuguese, and Stakeholder Communication Procedures, "*Procedimentos de Comunicação com Partes Interessadas*" in Portuguese. The first one includes actions required in case of complaints, dissatisfaction, disagreement or confrontation of opinions regarding land, environmental or social issues of communities within or around the property. The second describes the communication channels used, the suggestion boxes distributed at strategic

points and the feedback channel called "*Fale Conosco*" (Contact Us), which works by email or telephone - virtual and verbal channels - and by the comment form available with the boxes and are carried out by the Fundação Jari professionals during the technical assistance processes. The description of these procedures and the evidences with follow ups of these feedback channels during the monitoring period has been made available to the VVB.

All communities of the project that wish to engage on the activities have the opportunity to get involved in the conception, implementation, monitoring and evaluation of the Project through the meetings of presentation and consultation, DOP workshops, Plan of the Use of the Property, Technical Assistance and Rural Extension Services (TARE), Technical Chamber on REDD+, Informative Channels and Feedback and Grievance Redress Procedure.

2.3.8. Continued Consultation and Adaptive Management (G3.4)

The main channel of continued consultation and adaptive management is through the Technical Chambers, the Technical Chamber is the Project official dialogue space and articulation between the communities and other stakeholders. As described before, it was conducted 10 Technical Chamber meetings involving the communities participants and other stakeholders since it was created, and all the results, demands and considerations about the progress are taken to this space.

The Technical Assistance and Rural Extension Services (TARE) is an important channel of continued consultation for communities and other stakeholders directly and indirectly involved with the project. Through TARE the stakeholders have direct and permanent contact with the Fundação Jari team, and by this means, both parts have the opportunity to discuss the planning, strategies, and propose changes and adaptations. Besides that, as part of the TARE process and another important channel of continued consultation, more than 20 workshops and trainings with producers and community associations of the project region were performed.

The work plan that includes the evaluation of the work performed with the involved communities and, additionally, an expansion of the action by including three new communities in 2020 foreseen the perform of new DOP workshops. These workshops aiming to define the community and families participants and institutional partners involved besides clarifying all the risks, opportunities, and impacts of the involvement with the REDD+ Project and design the necessary actions and investments together with these stakeholders.

In addition to these, the mechanisms of Conflict Management Procedures, "*Gestão de Conflitos*" in Portuguese, and Stakeholder Communication Procedures, "*Procedimentos de Comunicação com Partes Interessadas*" in Portuguese are permanent tools of consultation that, together with the Technical Chamber and TARE process, aim to ensure the continued involvement of stakeholders and guarantee dynamic management of the project.



Figure 7 - Technical assistance records (TARE) related to agroforestry value chains, environmental education, and training conducted in partnership with local institutions. In clockwise direction: community cultivate gardens; Training to apply brazil nut management techniques and good practices; Implementation of banana multiplication units; Environmental education actions; Course on banana cultivation

2.3.9. Stakeholder Consultation Channels (G3.5)

The activities of the Project are delineated and implemented considering the wishes, characteristics and limitations of each community as defined and verified during the DOP Workshops, the events of the REDD+ Technical Chamber and the Technical Assistance and Rural Extension Service (TARE).

This communication and accessibility for discussion on the progress of Project activities between stakeholders and proponents has occurred continuously throughout the implementation of the Project activities through various channels: Technical Chamber on REDD, visits of agricultural technicians through Technical Assistance and Rural Extension (TARE), Information Channels and Feedback and Procedures for Complaints Repairing and Internal Ombudsman.

2.3.10. Stakeholder Participation in Decision-Making and Implementation (G3.6)

The processes related to decision-making and implementation, as well as the various activities related to the Project, is open to community participation. As already mentioned, involvement in the design, implementation, monitoring and evaluation of the Project takes place through the presentation and consultation meetings, Technical Assistance and Rural Extension Service (TARE), DOP Workshops, REDD+ Technical Chambers, Information Channels and Feedback and Complaint Repair Procedures and Internal Ombudsman, in which all interested communities have the opportunity to participate.

Due to historical and cultural issues, it is noted that in relation to productive decisions of the family, women and young people have a small participation. Rural technicians are always advised to include men and women, when this is the family configuration, in all activities in order to increase the participation of women in these decisions. For the inclusion of young people, the main initiative led by Fundação Jari is the project called "*Geração Aprendiz*" in Portuguese (Apprentice Generation), that aims the qualification of teens and young people for the labor market. Some of the projects led and composed by women is the project named "*Agulhas Versáteis*" in Portuguese (Versatile Needles), focused on the production of professional uniforms for companies sold to Grupo Jari and to other companies of the region.

2.3.11. Anti-Discrimination Assurance (G3.7)

The Grupo Jari has a solid culture about policy of human rights and social responsibility, being a group that respects, protects and supporting human rights. The description of this position is found in its internal norms such as the "*Política Integrada do Grupo Jari*" and the "*Código de Conduta - Princípios e Normas de Gerais de Conduta*".

The "*Código de Conduta - Princípios e Normas de Gerais de Conduta*" is intended to guide and direct the attitude of all employees of the Grupo Jari in relation to contact with internal, external and community audiences. This document is based on principles protected by transparency and ethics, by local, state and federal laws, by international treaties and conventions, such as the Universal Declaration of Human Rights, the International Labor Organization and United Nations Conventions. There are a number of issues addressed in this document, such as ethical values and law, conflicts of interest, human rights, the environment, practices in the work environment, external audiences, among others, being addressed, among others, issues such as discrimination of any kind and sexual and moral harassment.

Commitment to the life, health and safety of workers is paramount, and any discrimination of race, color, nationality, age, religion, sexual orientation, mental or physical disability, moral or sexual harassment is not permitted. This document also does not allow the exploitation and use of child labor, consumption or possession of illegal drugs or alcoholic beverages in the working environment and carrying of weapons of any kind in the premises of the company.

The Grupo Jari provides an internal communication channel, where complaints and manifestations on issues related to this document and working relationships can be made. In this way, it is sought to ensure that the norms described as well as the "*Política Integrada do Grupo Jari*" are employed and that human rights are respected. Communication with employees is done through suggestion boxes made available at strategic points in service providers. The Environmental Quality and Management team collects these boxes monthly, records and analyzes, sending the operation managers a report containing the demands of the service providers for decision making as needed.

2.3.12. Grievances (G3.8)

Grupo Jari has a methodology to manage opposite interests related to the existing rural communities on the outskirts or surrounding areas of Grupo Jari, described in the document called Conflict Management Procedure (*“Procedimento de Gestão de Conflitos”* in Portuguese). In it are described the procedures in case of complaints, dissatisfaction, disagreement and confrontation of opinions regarding land, environmental or social issues.

Complaints are dealt by a committee of representatives from Fundação Jari and from the sections of institutional relations, land management and legal department of the Grupo Jari, and include determining the accuracy of the information, classification of the conflict, check on recurrence of the complaint and raising the possible or future impacts to the operations of the Grupo or communities. The case is analyzed by the committee, that makes a decision on referrals and strategy definition for solving the occurrence. The search for a consensus is always the main goal. If no agreement is achieved between the parties, the demanded will be recorded for later verification of new negotiation opportunities. If the case is still not settled, the conflict is redirected to the court or arbitration.

Conflicts and demands from other stakeholders are treated as described on the Procedure of Communication with Stakeholders (*“Procedimento de Comunicação com Partes Interessadas”*, in Portuguese), created in the Quality and Environmental Management Department of the Grupo Jari, and registered on the form "Communication with the Community" (*“Comunicação com a comunidade”*, in Portuguese). The forms are analyzed and redirected to the appropriate actions, and then return to the communities.

The Feedback and Grievance Redress Procedure (“Conflict Management Procedure”) is available on the Quality and Environmental Management Department, upon request. Also, at the end of every Technical Chamber meeting, workshop, trainings, and TARE, Fundação Jari and Biofilica Members review verbally the Conflict Management Procedure and explain how any community member and stakeholder may submit comments, suggestions and complains, through communications channels described above and through the feedback channel called *“Fale Conosco”* (in English would be “Speak With Us”), that works through email or telephone – verbal and virtual channels –, and through the “Stakeholders Comment Form”, available at Fundação Jari headquarters and carried with every TARE Staff during their field activities – written channel.

The forms were reviewed and forwarded to the appropriate arrangements, and then returned to the communities. Communication with employees was done through suggestion boxes made available at strategic points in the enterprises providing services.

In this monitoring period, thanks to the Feedback and Grievance Redress Procedure, 522 demands or complaints were registered by different stakeholders, of which 510 were addressed in some way, a 97.7% conversion. Most of these demands are requests for resources or equipment by the communities, however, in many cases, it is explained that Grupo Jari is unable to provide resources to families without consideration or in some cases assuming the role that belongs to the State. In some cases, it was possible

to make donations viable or form partnerships with local institutions and the government to meet the demand. The details of these records can be found in the “Improvement of communication channels” activity, described in table attached to the PD. All records of complaints were shared with VVB.



FOLLOW-UP DE COMUNICAÇÃO COM PARTES INTERESSADAS - ISO 14001 e FSC

Comunicação de Partes Interessadas										Resposta				Envio			
Ano	Nº	Data	Origem	Descrição do Assunto	Município	Comunidade	TIPO	Comentário	Significância	Solicitante	Resp.	Prazo	Realizado	Status	Prazo	Realizado	Status
2015	003	18/02/2015	Externa	A Sr. Marcel Rodrigues solicitou madeira para construção de casa em seu terreno.			Outros	Foi informado em 04/03/2015 ao Sr. Marcel que quando da desmobilização da base operacional Algaúvel a empresa iria doar a madeira ao mesmo. Doado madeira da desmobilização da base operacional Algaúvel em 24/09/2015.	Não	Comunidade	Augusto Praedres Neto	30 dias	04/03/2015	Concluído	30 dias	24/09/2015	Concluído
2015	005	09/03/2015	Externa	A comunidade solicitou apoio na melhoria da distribuição de energia.			Outros	O Gilberto informou ao Sr. José Paulo pessoalmente no dia 06/03/2015 que a empresa estava programando a instalação de postes de concreto até o final de maio de março. Foram instalados 42 postes de concreto na via nos dias 25, 26 e 27/03/2015.	Não	Comunidade	Augusto Praedres Neto	10 dias	06/03/2015	Concluído	30 dias	25, 26 e 27/03/2015	Concluído
2015	009	10/04/2015	Externa	A Sr. José Maria solicitou apoio na manutenção do campo de futebol da comunidade.			Outros	Foi efetuado limpeza com roça manual (moto-roçadeira) bem como instalação de 2 travess de madeira no campo da comunidade no dia 14/04/2015.	Não	Comunidade	Augusto Praedres Neto	30 dias	14/04/2015	Concluído	30 dias	14/04/2015	Concluído
2015	010	06/05/2015	Externa	O Sr. Gerál solicitou possibilidade da empresa fornecer bateria para funcionamento do motor que gera energia para mesma.			Outros	O Sr. Gilberto falou pessoalmente com o Sr. Gerál em 20/05/2015 que a empresa estaria providenciando a compra da bateria e que até o final do mês estaria entregando a mesma. Comprado bateria de 60 ampéres e doado para a comunidade em 10/06/2015.	Não	Comunidade	Augusto Praedres Neto	30 dias	20/05/2015	Concluído	30 dias	10/06/2015	Concluído
2015	012	23/05/2015	Externa	Solicita doação de 15 bombonas de 1.000 litros para depósito de combustível, além de ser disponibilizado pelo Governo do Estado/AP para geração de energia e de brita para atender a construção da Igreja Evangélica no Distrito de Jarilandia.	Vitoria do Jari	Jarilandia	Solicitação	Foi fornecidos 15 bombonas de 1.000 litros de acordo com a disponibilidade e informado a Vendedora Maria da Nazareth que o Grupo não dispõe de estoque de brita e que o seu batido atualmente é descontinuado.	Não	Outros	Augusto Praedres Neto	30 dias	10/06/2015	Concluído	30 dias	10/06/2015	Concluído
2015	013	11/06/2015	Externa	O Sr. José Maria solicitou possibilidade de melhorias no acesso ao seu castanhal.			Outros	O Sr. Gilberto informou que iria verificar a disponibilidade e dar uma resposta breve. Foram feitas melhorias no ramal de acesso ao castanhal Brastage e construção de 01 ponte no dia 02/07/2015.	Não	Comunidade	Augusto Praedres Neto	30 dias	11/06/2015	Concluído	30 dias	02/07/2015	Concluído

Figure 8 - Example of how demands and complaints are recorded

2.3.13. Worker Training (G3.9)

The Technical Chamber on REDD+ and the DOP workshops has as goals to educate the stakeholders about the theme REDD+ and to stimulate the participation in the decision making of the Project. The rural technical assistance, technical workshops and training in agroforestry and agricultural, the development of a use plan for the family property, the micro-zoning of the property and the maintenance of a nursery of native forest seedlings generate knowledge and local useful abilities.

With exception to the Technical Chamber on REDD+, where the community is represented by one (or more) member nominated, all other activities are open to participation of all residents of the communities where the project is, still every person that goes to the Technical Chamber is welcome. As already commented, the technical personnel of Fundação Jari are oriented to incentivize the participation of youth, women and marginalized people in the activities.

As described before, during this period Fundação Jari performed more than 20 workshops and trainings with producers and community associations of the project region were performed covering various topics such as: planting and management techniques for açai fruit, cassava, corn and bananas; Agricultural fertilization techniques; Production of seedlings of fruit and forest species; Fish farming course; among others.

Fundação Jari has other programs and projects aimed at the professional qualification of young people, women and vulnerable people, making them able to compete equitably to selective hiring process of Grupo Jari. Among them, the following projects are highlighted:

- Project “Geração Aprendiz”: aims the qualification of teens and young people for the labor market. The young people selected for the program participate in training in the areas of computer, administrative assistant, electrical, mechanical and agricultural technician. Many of the participants are hired by Grupo Jari and its services providers at the end of the program.
- Project “Magia de Tupã”: Leverages talent in the area of culture and art, strengthening the artistic productions and general cultural skills for the work world and artistic professionalism.

With the support from Fundação Jari, some projects are led and composed by women, such as “*Agulhas Versáteis*”, a cooperative focused on the production of professional uniforms for companies sold to Grupo Jari and to other companies of the region.

In addition, during this monitoring period, a series of training and qualifications were offered to the technical team of Fundação Jari. These trainings involved technical courses on various topics, from agroecological and agroextractive techniques to social media management. All the evidences related to these trainings are available to the VVB analysis.

2.3.14. Community Employment Opportunities (G3.10)

The employment opportunities offered by the Project are equal to those of the surrounding communities, encompassing all the positions, including management positions, if the requirements for the vacancy are fulfilled. All work positions generated locally by the Project follow the parameters and guidelines of a procedure called “Recruitment and Selection System” (“*Sistemática de Recrutamento e Seleção*” in Portuguese), belonging to the Grupo Jari, which has the main objective of establishing criteria for the recruitment and selection process, allowing transparency and effectiveness for all involved.

Criteria of race, gender, sexual orientation, color, religion, age, ethnic origin, physical or mental disability or social class are not adopted. All steps of selection processes, as well as the hiring of the professional, are based on the criteria established in the description of positions offered and a minimum qualification is desirable. It should be noted that the Project proponents already have teams composed mainly of people from the Jari Valley region, which highlights that the project only reinforce the actions already taken in this regard.

Therefore, every selection process that takes place has as its default starting with the internal recruitment program, which seeks candidates suitable for open positions among employees already hired. If the vacancy does not fill internally, the recruitment and selection will be returned to the external process, where selection processes are developed, applying the necessary and appropriate assessment tools to each vacancy. **During this monitoring period, as well as throughout its lifetime, the Project employed an average of 9 people per year. Regarding women, between 2 and 3 women a year were employed in the same period.**

Beyond these processes, proponents have a culture that aims to standardize and balance the selection of employees, including young people, new employees and former employees who will take on

new positions. This program has four distinct procedures such as internship program (youth), admission and integration procedure (new employees), internal recruitment program (for new positions) and systematic training.

The selection process is conducted by the human resources area, where candidates are submitted to specific evaluations of the position in question, and the results obtained from these steps are referred to the sectors responsible for request of hiring and the definitive selection of candidates identified as suitable to fill the vacancy are realized.

An important project led by the Fundação Jari, which aims to generate job opportunities for young people in the region is the “Geração Aprendiz” Project. The Project aims to create an integrated training and organization system, based on the foundations of Amazonian society and economy, structured from the perspective of human and sustainable development, promoting opportunities for a professional qualification, considering the potential of young people from Jari Valley, the natural and technological potentiality of the region. The project has already had more than 120 young participants entered in the job market.



Figure 9 - Images related to the Geração Aprendiz Project.

Besides that, after the beginning of Sustainable Forest Management activities, direct and third-party hires took place to work in forestry operations, these jobs were offered both for urban and rural populations (including the impacted communities). The table below presents a list of employees hired to work in forestry operations.

Table 7 - List of employees hired to work in forestry operations

 DADOS DO COLABORADOR AGREGUE AMBIENTAL MANEJO						
ITEM	MAT	NOME	FUNÇÃO	SETOR	ENDEREÇO	Ano Contratação
27	408	ADERNILSON FARIAS ALVES	AUX. DE CAMPO	PLANEJ. TRILHA	ARANJAL DO JARI	2020
81	252	ADONIAS MOREIRA DA SILVA	VIGIA	PÁTIO CENTRAL	COMUNIDADE RETIRO	2018
77	292	ADRIANO XISTO DOS SANTOS	ASSIST. TEC. FLORESTAL	PÁTIO CENTRAL	VITÓRIA DO JARI	2019
70	474	ADRIELSON ALVES DA MATA	OP. DE MOTOSERRA	TRAÇAMENTO	ARANJAL DO JARI	2020
17	470	ALAN CLEBER DOS SANTOS DO ESPRITO SANTO	AUX. DE MECÂNICO	OFICINA MANUT.	COMUNIDADE RETIRO	2019
80	294	ALEXANDRE NUNES DE SOUSA	AUX. DE CAMPO	ARRASTE	ARANJAL DO JARI	2019
38	457	AMERIVALDO SERRÃO	PLANEJADOR	PLANEJ. TRILHA	ARANJAL DO JARI	2020
61	443	ANADSON LUCAS CAMPOS RIBEIRO	AUX. DE CAMPO	TRAÇAMENTO	ARANJAL DO JARI	2020
60	442	ANTONIO CARLOS NUNES DE SOUSA	AUX. DE CAMPO	ARRASTE	ARANJAL DO JARI	2020
66	441	BALB CASTELO CARDOSO	AUX. DE CAMPO	PÁTIO PORTO	ARANJAL DO JARI	2020
92	479	BENEDITO ALVES DA MATA	OP. DE MOTOSERRA	DERRUBA	ARANJAL DO JARI	2020
72	323	BENJAMIM CASTELO CARDOSO	VIGIA	PÁTIO PORTO	ARANJAL DO JARI	2019
22	445	CHARLISON OLIVEIRA DE LIMA	AUX. DE CAMPO	PLANEJ. TRILHA	ARANJAL DO JARI	2020
32	446	CLAUDINEY PINTO DE AQUINO	AUX. DE CAMPO	INFRA.	COMUNIDADE RETIRO	2020
69	458	DENILDO ALVES DE MORAES	OP. DE MOTOSERRA	DERRUBA	ARANJAL DO JARI	2020
24	444	DEVY S PACHECO DA COSTA	AUX. DE CAMPO	DERRUBA	ARANJAL DO JARI	2020
88	331	DIEGO PACHECO DA COSTA	FATURISTA	PÁTIO CENTRAL	ARANJAL DO JARI	2019
89	324	DIEGO RODRIGUES DOS SANTOS	FATURISTA	PÁTIO CENTRAL	ARANJAL DO JARI	2019
29	476	DIOGO DA SILVA LEÃO	AUX. DE CAMPO	ARRASTE	ARANJAL DO JARI	2020
43	416	DOMINGOS FREIRE DE SOUSA	OP. DE MOTOSERRA	ARRASTE	ARANJAL DO JARI	2020
59	424	DORIVALDO BENICIO MOURA	AUX. DE CAMPO	ARRASTE	ARANJAL DO JARI	2020
18	410	EDILSON SOUZA DA SILVA	OP. DE MOTOSERRA	ARRASTE	ARANJAL DO JARI	2020
4	409	EDMILSON CARDOSO DA SILVA	OP. DE TRATOR DE ESTEIRA	ARRASTE	ARANJAL DO JARI	2020
11	454	ELDIRLEY SANTOS GOMES	AUX. DE CAMPO	DERRUBA	ARANJAL DO JARI	2020
33	426	ELIABE MOREIRA DE SOUZA	AUX. DE CAMPO	PLANEJ. TRILHA	COMUNIDADE RETIRO	2019
93	487	ELIAS PAULO FURTADO	MECÂNICO III	OFICINA MANUT.	ARANJAL DO JARI	2020
94	486	EMERSON SOUZA SILVA	MECÂNICO III	OFICINA MANUT.	ARANJAL DO JARI	2020
75	460	FABIO ROIVAN SERRÃO DE SOUZA	OP. DE MOTOSERRA	TRAÇAMENTO	ARANJAL DO JARI	2020
49	421	FABIO RODRIGO BRONI NUNES	ENCARREGADO DE CAMPO	ARRASTE	ARANJAL DO JARI	2020
37	411	FELIX BRITO FERRERA	PLANEJADOR	PLANEJ. TRILHA	ARANJAL DO JARI	2020
46	461	FRANCINEY NUNES DE SOUSA	PLANEJADOR	PLANEJ. TRILHA	ARANJAL DO JARI	2020
78	298	FRANK WILAMIS SALES PEREIRA	ASSIST. TEC. FLORESTAL	PÁTIO PORTO	ARANJAL DO JARI	2019
50	420	GILSON LOBATO GAMA FILHO	ENCARREGADO DE CAMPO	TRAC/DERRUBA	ARANJAL DO JARI	2020
26	435	GILSON MELO GAMA NETO	AUX. DE CAMPO	TRAÇAMENTO	ARANJAL DO JARI	2020
14	453	GILVAN PEREIRA DE SENA	AUX. DE CAMPO	PLANEJ. TRILHA	ARANJAL DO JARI	2020
62	452	HALTON DIAS DO EGITO	AUX. DE CAMPO	DERRUBA	ARANJAL DO JARI	2020
28	451	IDANEI ALBUQUERQUE DOS SANTOS	AUX. DE CAMPO	TRAÇAMENTO	ARANJAL DO JARI	2020
71	422	IGO MIRANDA DO ESPRITO SANTO	VIGIA	PÁTIO CENTRAL	COMUNIDADE RETIRO	2020
57	450	IZOMAR FERREIRA BARBOSA	AUX. DE CAMPO	TRAÇAMENTO	ARANJAL DO JARI	2020
13	449	JANDERSSON ROCHA DA COSTA LOBATO	AUX. DE CAMPO	TRAÇAMENTO	ARANJAL DO JARI	2020
67	473	JERVANE SALVANO SILVA	OP. DE MOTOSERRA	TRAÇAMENTO	ARANJAL DO JARI	2020
6	376	JOÃO CARLOS VIANA DOS SANTOS	VIGIA	PÁTIO PORTO	ARANJAL DO JARI	2019
52	447	JOÃO FRANCISCO BARROS NUNES	OP. DE MOTOSERRA	DERRUBA	ARANJAL DO JARI	2020
42	471	JOÃO SIMÃO GOMES COSTA	OP. DE MOTOSERRA	ARRASTE	ARANJAL DO JARI	2020
51	419	JOSE ALIPIO FONSECA DOS SANTOS FILHO	ENCARREGADO DE CAMPO	PLANEJ. TRILHA	ARANJAL DO JARI	2020
44	431	JOSE ALVES FERREIRA FILHO	MEC. DE MOTOSERRA	TRAÇAMENTO	ARANJAL DO JARI	2020
53	467	JOSE ANTONIO DA SILVA GOMES	OP. DE MOTOSERRA	TRAÇAMENTO	ARANJAL DO JARI	2020
15	456	JOSE ANTONIO DOS SANTOS SANTANA	PLANEJADOR	PLANEJ. TRILHA	ARANJAL DO JARI	2020
35	432	JOSE FRANCISCO TRINDADE	AUX. DE SERV. GERAIS	COZINHA	COMUNIDADE RETIRO	2020
63	429	JOSE MIRANDA FILHO	AUX. DE COZINHA	COZINHA	COMUNIDADE RETIRO	2020
30	440	JOSE NILDO DA SILVA CARDOSO	AUX. DE CAMPO	INFRA.	ARANJAL DO JARI	2019
39	414	JOSE PEDRO PEREIRA SOARES FILHO	OP. DE TRATOR DE ESTEIRA	MANUT. ESTR.	ARANJAL DO JARI	2020
90	481	JOSE RAIMUNDO COSTA PINHEIRO	MOTORISTA DE ÔNIBUS	TRANSPORTE P.	ARANJAL DO JARI	2020
56	448	JOSE RAIMUNDO DOS SANTOS DOURADO	AUX. DE CAMPO	INFRA.	ARANJAL DO JARI	2020
68	433	JOSE RIBAMAR FRANÇA	OP. DE MOTOSERRA	TRAÇAMENTO	ARANJAL DO JARI	2020
40	475	JOSE NILSON VASCONCELOS CANTANHEDE	APONTADOR	PÁTIO CENTRAL	ARANJAL DO JARI	2020
58	425	KELVISON MENDES SILVA	AUX. DE CAMPO	ARRASTE	ARANJAL DO JARI	2020
54	439	KLEBSON ARAÚJO DA SILVA	AUX. DE CAMPO	ARRASTE	ARANJAL DO JARI	2020
55	437	MACIEL MELO SILVA	AUX. DE CAMPO	TRAÇAMENTO	ARANJAL DO JARI	2020
20	472	MANOEL DE JESUS OLIVEIRA DOS SANTOS	OP. DE MOTOSERRA	ARRASTE	ARANJAL DO JARI	2020
19	466	MANOEL KELTON MARQUES SILVA	OP. DE MOTOSERRA	ARRASTE	ARANJAL DO JARI	2020
31	438	MARCEL CESAR VIANA GUIMARÃES	AUX. DE CAMPO	DERRUBA	ARANJAL DO JARI	2020
41	459	MARCOS FERREIRA DA COSTA	OP. DE MOTOSERRA	ARRASTE	COMUNIDADE RETIRO	2020
83	295	MARCOS SIQUEIRA DA SILVA	AUX. DE CAMPO	INFRA.	ARANJAL DO JARI	2019
74	345	MARIA ALDA DOS SANTOS MARTINS	ASSIST. ADMINISTRATIVO		ARANJAL DO JARI	2019
8	378	MATEUS CASTELO CARDOSO	VIGIA	PÁTIO PORTO	ARANJAL DO JARI	2019
84	235	MAURICIO RODRIGUES	OP. DE MOTOSERRA	PÁTIO CENTRAL	ARANJAL DO JARI	2019
79	253	MICHAEL COSTA DA SILVA	VIGIA	PÁTIO CENTRAL	COMUNIDADE RETIRO	2018
1	334	MIKAEL COSTA DA SILVA	AUX. DE CAMPO	PÁTIO CENTRAL	COMUNIDADE RETIRO	2019
36	430	NILDO CASTRO DE SOUSA	AUX. DE COZINHA	COZINHA	COMUNIDADE RETIRO	2020
12	436	OCEIAS MOREIRA DA SILVA	AUX. DE CAMPO	PLANEJ. TRILHA	ARANJAL DO JARI	2020
7	377	OSÉIAS MOREIRA DA SILVA	VIGIA	PÁTIO PORTO	COMUNIDADE RETIRO	2019
25	434	PAULO ALHO RAMOS	AUX. DE CAMPO	PÁTIO PORTO	ARANJAL DO JARI	2020
21	469	RONERIO BRITO SERRÃO	OP. DE MOTOSERRA	DERRUBA	ARANJAL DO JARI	2020
64	428	ROSI DA SILVA SOUZA	COZINHEIRA	COZINHA	COMUNIDADE RETIRO	2019
73	336	ROSINEI SILVA DE SOUZA	VIGIA	PÁTIO CENTRAL	COMUNIDADE RETIRO	2019
16	462	WILSON DE OLIVEIRA GOMES	ALMOXARIFE	OFICINA MANUT.	ARANJAL DO JARI	2020

2.3.15. Relevant Laws and Regulations Related to Worker's Rights (G3.11)

It is ensured that all employees belonging to Grupo Jari, Biofíllica, and service providers are legally hired in compliance with Brazilian labor legislation. In addition, international agreements ratified by Brazil and issues related to worker well-being are respected.

Annually, it is verified the compliance with the norms and labor laws applied by Biofíllica by an audit, this is due to the fact of being a limited liability company. Its financial statements are published on the Jus Brasil website, the largest open and legal community in Latin America.

After hiring and before the beginning of the worker's activities, there are training and qualification on technical procedures and the promotion of empowerment regarding their rights and applicable laws. In addition, employees are directed to join the institution responsible for their rights, the respective unions to the area of work.

The pertinent laws and regulations that protect workers' rights in Brazil, as well as the international agreements ratified by Brazil on labor issues, are listed below.

Federal Legislation and Regulations

- Decree-Law No. 5,452, of May 1st, 1943: Approves the Consolidation of Labor Laws.
- Law No. 6,514, of December 22nd, 1977: Amendments to Chapter V of Title II of Consolidation of Labor Laws, on occupational safety and medicine and other measures.

International agreements ratified by Brazil

- Convention of the International Labor Organization No. 29 of 1930, ratified by Brazil on April, 25, 1957: Provides for the abolition of forced labor.
- International Labor Organization Convention No. 87 of 1940: Provides for freedom of association.
- Convention of the International Labor Organization No. 97 of 1949, ratified by Brazil on June 18, 1965: Provides for migrant workers.
- Convention of the International Labor Organization No. 98 of 1949, ratified by Brazil on November 18, 1952: Provides for the right to organize unions and collective bargaining.
- Convention of the International Labor Organization No. 100 of 1951, ratified by Brazil on April, 25, 1957: Provides for equal pay for men and women.
- International Labor Organization Convention No. 105, ratified by Brazil on June 18, 1965: Provides for the abolition of forced labor.
- Convention of the International Labor Organization No. 111 of 1958, ratified by Brazil on March, 01, 1965: Provides for discrimination in respect of employment and occupation.
- Convention of the International Labor Organization No. 131 of 1970, ratified by Brazil on May, 04, 1983: Provides for minimum wage setting, especially in developing countries.
- Convention of the International Labor Organization No. 138 of 1973, ratified by Brazil on June, 28, 2001: Provides for the minimum age for admission.

- Convention of the International Labor Organization No. 142 of 1975, ratified by Brazil on November, 24, 1981: Provides for the development of human resources.
- International Labor Organization Convention No. 143 of 1975: Provides for illegal immigration and the promotion of equal opportunities for migrant workers.
- Convention of the International Labor Organization No. 155 of 1981, ratified by Brazil on May, 18, 1992: Provides for the workers safety and health.
- Convention of the International Labor Organization No. 169 of 1989, ratified by Brazil on July, 25, 2002: Provides for indigenous and tribal rights.
- International Labor Organization Convention No. 182, ratified by Brazil on February 02, 2000: Provides for the prohibition of the worst forms of child labor and immediate action for its elimination.

2.3.16. Occupational Safety Assessment (G3.12)

An important component of the Project involves the strict care with the workers safety, considering the internal regiment and the official norms instituted by the federal and state governments. The Grupo Jari has a complex quality management system, “*Política Integrada do Grupo Jari*”, in which all activities carried out by the company are described through operational procedures, work instructions and environmental procedures, all procedures are reviewed and updated annually. The activities related to forest management are those that may pose some risk to the health and safety of the operating employees.

The monitoring is performed by a specialized work safety team that evaluates the activities in its occupational, operational and environmental safety aspects. During the period of the activities, the technicians actively circulate in the areas and intercede alerting any irregularities and/or problems.

There is a system of annual trainings and qualification aimed at preparing own and third-party employees engaged in forest management activities. In addition to the training, all personnel involved receive personal (helmets, boots, leggings, ear protectors, gloves, among others) and collective (tents, when necessary) protective equipment.

Through internal rules and improvements in occupational health and safety practices, all positions and situations that could provide some type of occupational hazard were profoundly avoided and mitigated. Other relevant tools are reported in the following procedures and manuals:

- Task Risk Analysis (ART)
- Areas of Expertise
- Security Dialog
- Risk Management
- Occupational Health and Safety Management
- Safety Inspection IS
- Planned Observance of Unsafe Acts OPAI
- Hazards and Risks - Accidents

- Plan for Emergency Care
- Procedure for emergency response

As an addition to the manuals, procedures and standards, there is always the disclosure organized by the Grupo Jari of safety alerts relevant to the climate and the season, such as insects and venomous animals.

2.4 Management Capacity

2.4.1. Required Technical Skills (G4.2)

Every area of knowledge and technical skills required to successfully implement the project and activities are described below as well as the proponent responsible for each area.

- **Biofilica Investimentos Ambientais** is a Brazilian Company that promotes the management of forest areas in the Amazon biome. The company was created in 2008 aiming to create pioneering alternatives and to turn environmental preservation into an economically attractive activity for forest owners, communities and investors. Biofilica's mission is to reduce deforestation and carbon emissions into the atmosphere, to preserve biodiversity and hydric resources, to promote social inclusion and the development of the communities living in the Amazon biome through the trade of environmental services credits and to promote and finance scientific researches and the development of sustainable business chains.

Responsibilities in the Project: general coordination of socioeconomic and environmental diagnostics (DSEA) and baseline and carbon stock studies; development and financing of the PDD (Project Design Document); remote monitoring of forest cover and implementation/coordination of additional actions aimed at reducing/mitigating greenhouse gas emissions; validation/verification and commercialization of credits; management of the Project throughout its duration.

- **Fundação Jari** is a non-profit organization belonging to Grupo Jari that, together with a large network of partners, develops programs and projects on education, health, and human rights guarantee, environment, culture and employment and income generation. Its main source of financing is the fixed contribution of 1% gross revenue of Grupo Jari. Since 1994, the foundation has assisted over 6.8 million people in Brazil.

Responsibilities in the Project: responsible for the co-management of the Project, as well as all related activities such as environmental and social management of the Project to reduce negative impacts and generate positives. In addition to being responsible for the development of social activities and for the social management of the Project.

- **Jari Celulose S.A** is a company of the Grupo Jari's that has two divisions: the Cellulose Division, which produces bleached eucalyptus pulp and is the only company in Brazil, and first in the world, to have FSC Pure Label certification for its entire custody chain. The Paper and Packaging Division is the second largest integrated industry serving almost all economic segments.

Responsibilities in the Project: responsible for the Project co-management, for the operation low-impact forest management in Jari's properties, provide support in infrastructure and logistics for Biofílica and other professionals involved in the project, owner of the land and responsible for land security and patrimonial surveillance.

2.4.2. Management Team Experience (G4.2)

Management team includes individuals with significant experience in AFOLU project design and implementation, and in carbon accounting, under approved GHG programs. Description of team members' experience below.

Augusto Praxedes Neto – Grupo Jari (Project management and Institutional Relations and Sustainability)

Augusto Praxedes has a degree in Business Administration and graduation in Expertise in Auditing and Environmental Management. He has 30 years of experience in agroforestry activities in the Amazon, specifically in the Jari Valley. He works with Institutional and Governmental Relations for Grupo Jari since the Group assumed control of Jari Celulose's shares, in 2000. He is responsible for the management of the certifications ISO 9001, ISO 14001 and FSC for Jari Florestal and Jari Celulose forest activities, as well as licensing and environmental monitoring. For two years he has been a member of the economic chamber of FSC Brasil, he is president of the Certified Producers Association from Amazon and representative of Grupo Jari in the Sustainable Amazon Forum (FAS, in Portuguese).

Paulo Roberto da Silva – Grupo Jari (Patrimonial security and land tenure)

Business manager, he is post graduated in Corporate Security Management by Universidade Gama Filho and has MBA in Environmental Survey, Auditing and Management by Faculdade Oswaldo Cruz. He works for Jari Celulose, Papel e Embalagens since 1984, where he has been leading the Corporate and Land Tenure Security area. Currently, he is the Manager of Forest Control, Land Tenure and Security of Grupo Jari in the Jari region, being responsible for the areas of industrial operations, natural forests and plantations within a total of 1,300,000 hectares, in Para and Amapá States.

Jorge Rafael de Almeida – Fundação Jari (Social management)

Rafael holds a full degree in Pedagogy from Universidade Federal do Pará and initiated his post-graduation in Cooperative Production Management from Universidade Federal Rural de Pernambuco. He works for Grupo Jari since 2007 as the Coordinator of Social Operations of Fundação Jari, former Fundacao Orsa, at Jari Unit, leading the management of corporate social responsibility programs of Grupo Jari in the Jari region.

Plínio Ribeiro – Biofílca (Executive Director)

Plínio Ribeiro has a degree in Business Administration from Instituto de Ensino e Pesquisa - INSPER and a master's degree in Public Administration and Environment from Columbia University and the Earth Institute (USA). He participated in several conservation projects on the lower Rio Negro, through the Instituto de Pesquisas Ecológicas – IPÊ since 2005, and was one of the producers of Jean Michel Cousteau's documentary "Return to the Amazon". He works for Biofílca since 2008, where he has already leaded Project, Operations and Business Management. Currently, he is the Executive Director and shareholder of the company.

Cláudio Pádua – Biofílca (Scientific Director)

Cláudio Pádua has a degree in both Business Administration and Biology, a master's degree in Latin American Studies and a PhD in Ecology from the University of Florida in Gainesville (USA). A retired professor from the University of Brasília, Pádua is currently the dean of the Escola Superior de Conservação e Sustentabilidade and the vice-president of the Instituto de Pesquisas Ecológicas (IPÊ). He is also a Senior Associate Researcher at the Center for Environment and Conservation Studies at Columbia University (USA) and an International Conservation Director at the Wildlife Trust Alliance, as well as an advisor to the Brazilian Biodiversity Fund (FUNBIO) and WWF Brazil. Pádua represents Brazil before the International Advisory Group (IAG) of the G7 Pilot Program. In 2003, together with his wife, Suzana Pádua, he was appointed by Time Magazine a "Hero of the Planet" for his activities on behalf of biodiversity conservation. Between 1997 and 2007, he won six conservation awards, and three national and three international ones. Pádua has published two books and over 30 papers in scientific journals, both national and international. Since 2008 directs the involvement and scientific production of Biofílca as Scientific-Director and advisor.

Paula Conde – Biofílca (Financial and Administrative Analyst)

Paula Conde has a degree in Business Administration from São Luís - PUC and post graduate degree in Accounting and Financial Management from FAAP. She has large experience, most of it in one of the largest media and educational group in Latin America – Editora Abril, where she worked with Finance Control and Reporting, Treasury, Accounting and Financial Reconciliation, Accounts Payable & Receivable and Royalties. At Biofílca, she is responsible for administrative and financial activities, logistical support to the team and to projects.

Caio Gallego – Biofílica (Project Coordinator)

Caio Gallego is a Forest Engineer graduated from ESALQ-USP. Specialist in geoprocessing and remote sensing aimed at environmental conservation area, mapping and analysis of changes in land use. Has knowledge facing the Sustainable Forest Management, environmental modeling and the use of alternative GIS for forestry and agribusiness. Has advanced knowledge in the use of GIS softwares and analysis of change on the land use and land cover as ArcGIS, QuantumGIS and DinâmicaEGO.

Luana Cordeiro – Biofílica (Projects Analyst)

Luana Cordeiro is a Forestry Engineer graduated by USP - University of São Paulo (Campi ESALQ) and Technical in Environment formed by the State Technical School of São Paulo. During graduation, worked in the planning, implementation and monitoring of restored areas and in the development of social projects in Piracicaba (SP) through the Enactus network. At the end of graduation, developed a Model of Solid Waste Management Plan for Sawmills of Native Species, focusing on the sustainable production of the timber sector in the Amazon. Currently serves as a REDD+ Project Analyst and is an active member of the Global Shapers Community.

Susane Rasera – Biofílica (Projects Analyst)

Forest Engineer with a master's degree in Forest Resources, both from the University of São Paulo (ESALQ Campus). She has experience in Forest Ecosystem Conservation, mainly on Forest Restoration and forest biomass and carbon allocation. She is currently a REDD+ Project Analyst and takes a specialization course in Ecological Restoration.

Fernanda dos Santos Rotta – Biofílica (Legal aspects)

Fernanda is bachelor's in law from Mackenzie University with MBA in Sustainability Management from FGV-EAESP and specialization in Administrative Law from PUC/COGEAE. Fernanda studied at the universities of Siena (Italy) and Vermont (USA), in the fields of international environmental law, conservation and sustainability. At Biofílica, she has a strong presence in projects and cases focused on the implementation of the New Forest Code, REDD+ mechanisms and climate and forest policies. She has worked in highly reputed law firms (Mattos Filho Advogados and Nascimento e Mourão Advogados) in the areas of environmental law and real estate, and was a trainee at Instituto Socioambiental, in the environmental law area. Also participated in the compilation of projects and legislative analysis by Centro de Estudos em Sustentabilidade (GVces) on the theme Adaptation to Climate Change and by the International Finance Corporation - IFC on the subject of biodiversity and benefit sharing (ABS), among others.

2.4.3. Project Management Partnerships/Team Development (G4.2)

Amintas Brandão – Imazon (Land-use and land-use change modeling)

Amintas Brandão Jr. is an Environmental Engineer that graduated from Universidade Estadual do Pará. He also specialized in Statistics from Universidade Estadual do Pará and received his master's degree in Geographic Information System for the Development and Environment from Clark University (USA). Since 2003 he holds a position of researcher for Imazon and he is a member of the Centre of Geo-technologies of Imazon (CGI). In CGI his research is focused on environmental modeling, spacial analysis and systems for decision support. His most recent studies include the deforestation modeling in the north stream of the Amazonas river in the State of Pará (master dissertation), as well as indirect deforestation modeling caused by the construction of the Hydroelectric Power Plant Belo Monte (State of Pará). Besides those activities, he collaborates with several Imazon projects on spacial analysis, raises financial resources and qualifies people in geo-technology tools.

Márcio Sales – Imazon (Carbon stock and emissions accounting)

Márcio Sales has a BSc. in Statistics from the Universidade Federal do Pará and a MA in Geography with emphasis in Geostatistics at the University of California at Santa Barbara. His Master's thesis focused on the mapping of forest biomass and estimates of uncertainty in emissions inventories and C for the Amazon. He is a researcher at the Instituto do Homem e do Meio Ambiente da Amazonia – Imazon since 2002 and conducts research on geostatistical modeling applied to mapping biomass, and deforestation risk forecast. His most recent works include the modeling of uncertainty in CO₂ emissions and estimates of the annual risk of deforestation in the Amazon. He also collaborates on several projects with statistical analysis applied to several research lines at the Institute.

Antônio Fernando de Gaspari – Ambiens (Biodiversity Monitoring Coordinator)

Antônio Fernando holds a degree in Biological Sciences from the Universidade de Santo Amaro (1988). He has been working in the area of environmental consultancy since 1997, and has experience in environmental licensing, fauna and flora diagnosis and survey, wildlife monitoring and management, environmental viability plans, "EAS", "RAP", "EIA RIMA", projects for zoos and animal breeding, among others. With experience in environmental projects, survey and evaluations of biodiversity and natural resources. And has performed several licensing and planning works, with experience in surveys, management and rescue of fauna and flora. He is currently director and managing partner of Ambiens Soluções Ambientais.

Agregue Industria, Comércio e Transportes de madeiras

Agregue is a company located in Laranjal do Jari, with a commercial focus on tropical timber production. Through the concession for forest exploitation in the Grupo Jari areas, it carries out low-impact

management activities for the forest. Investing also in the improvement of communication, aiming at remediation and mitigation of the impacts of its activities, in relation to the parts that may be affected.

Empresa Brasileira de Pesquisa Agropecuária - EMBRAPA/AP (Brazilian Agricultural Research Corporation)

Embrapa Amapá is one of the 42 Decentralized Units of the Brazilian Agricultural Research Corporation (Embrapa in Portuguese), linked to the Ministry of Agriculture, Livestock and Supply (MAPA in Portuguese). It was created in 1980, and in 1991 became the Amapá Agroforestry Research Center (CPAFAP in Portuguese), meeting the needs of strengthening research, innovation and technology actions about the development of the state of Amapá, including border relations in the Amazon basin of the country.

Instituto de Extensão, Assistência e Desenvolvimento Rural do Amapá (RURAP) – Vitória do Jari & Laranjal do Jari

RURAP is a State Autarchy of Indirect Administration of the State of Amapá, with independent financial administration, linked to the Secretary of State for Rural Development. With the objective of promoting the sustained rural development of the State of Amapá, through practical demonstrations that promote the addition of value to the land and production, with the improvement of the lives of those who live and work in the field, their actions enable the appropriation of knowledge and information by producers and their organizations.

2.4.4. Financial Health of Implementing Organization(s) (G4.3)

Biofílica Investimentos Ambientais is a Brazilian company with 10 years of experience in the environmental assets market, has a diversified line of business, and investors who support the company's business.

The Grupo Jari has expanded its operations since its creation in 1981, demonstrating its excellent management capacity and financial health. To ensure continued success, the Group completed the conversion of the cellulose plant to the production of Dissolving Wood Pulp (DWP), a commodity that has a market price significantly higher than cellulose for paper.

The supporting documents of the financial health of both companies are classified as Commercially Sensitive Information and were shared with the audit team on a confidential basis.

2.4.5. Avoidance of Corruption and Other Unethical Behavior (G4.3)

Biofílica Investimentos Ambientais supports annual financial auditing processes ensuring that your resources are allocated responsibly and free of corruption. The financial statements and minutes of

meetings related to the company are published on JusBrasil's website, the largest open and legal community in Latin America.

Like the Biofílica, the Grupo Jari does not tolerate any kind of corruption such as kickbacks, bribes, nepotism, favors, fraud, favoritism, extortion, money laundering, among others, and has a *"Política de Direitos Humanos e Responsabilidade Social: corrupção passiva e ativa dentro e fora da empresa"*. If such situations occur, all information will be verified and those responsible will be prosecuted and removed from the company. The Grupo also provides an internal ombudsman communication channel, mentioned above, which, among other functions, and facilitates complaints of corruption. The complaints and claims are forwarded and correctly resolved. It should be noted that the channel is stealthy and works free through a 0800-telephone number.

2.4.6. Commercially Sensitive Information (Rules 3.5.13 – 3.5.14)

Some information required by the VCS and/or CCB standards is consider confidential or commercially sensitive and cannot be publicly by the Project Proponents. This information has been completely supplied to the VVB during the verification process attached to this document but weren't included in the public version. Below follows the list of information that were available only to VVB:

- Project Financial Performance Worksheet and other related documents;
- Sustainable Forest Management Plan Amapá;
- Agreements and contracts between the parties involved;
- Legal Status and Property Right Documents;
- Financial Statements Grupo Jari (Jari Celulose and Fundação Jari);
- Financial Statements Biofílica;
- Operating and Environmental Procedures of Grupo Jari;
- Clarification note from the Grupo Jari regarding the absence of disputes and conflicts on Amapá property.

2.5 Legal Status and Property Rights

2.5.1. Recognition of Property Rights (G5.1)

The Jari/Amapá REDD+ Project recognizes and respects all property rights, complying with significant statutory and regular requirements, as well as having the required approvals of the appropriate state, local and indigenous authorities. The Project recognizes respects and supports the rights to lands, territories and resources, including the statutory and traditional rights of Indigenous Peoples and others within Communities and Other Actors.

Through the work of the Fundação Jari, the proponents of the project acted as mediators of the conflicts between the extractivists themselves, in addition to having a good relationship with the surrounding communities. In this way, the following aspects are described in detail:

- The Jari Celulose S.A., in accordance with the Federal Constitution and the Brazilian Civil Code, owns the properties where the Jari/Amapá REDD+ Project is carried out, holding the rights of use and economic management of the properties, as well as the right to natural resources of the same.
- No disputes were detected with third parties for possession of the Jari's property, for access to natural resources or for the use of real estate in the Jari/Amapá REDD+ Project Area, as well as conflicts with traditional squatters claiming the regularization of their possessions inside of these areas.
- Although no disputes over land ownership, property or use/access rights have been detected, some measures have been implemented to resolve any possible disputes or juxtaposition of claims, as well as to provide support to resolve any land issues in designated public agencies. To this end, Jari Celulose S.A. signed a Term of Commitment, a Protocol of Intent, a Cooperation Agreement and a Commitment Form with the State of Amapá, in order to create a major partnership program to resolve any possible occupation of traditional communities, through the exchange of areas that may be of interest to Jari Celulose S.A., as well as promoting activities that may be necessary to foster the socio-economic development of the area.
- Another measure to prevent and inhibit invasions in the Project Area were the monitoring activities of the property's perimeter carried out by a land surveillance team. When invasions were identified, a police record was made, formalizing the private property invasion report, which was then forwarded to the legal department of the company for adequate measures, and to the Brazilian Institute of Environment and Natural Renewable Resources (IBAMA) for investigation of environmental crime, as appropriated.

2.5.2. Free, Prior and Informed Consent (G5.2)

The Project has not carried out any activities on private property or belonging to indigenous and traditional communities or the government, only on property belonging to the Grupo Jari. The property where the Project is located has a much larger area than the area used for the Project's activities and there has been no interference in the surrounding properties. The Prior Informed Consent (of the communities present on the property where the project is located and government representatives in all areas) has been applied since the implementation period of the Jari/Amapá REDD+ Project. With regard to social and biodiversity monitoring activities, no activities were carried out without the free, prior and informed consent of the parties involved.

No activities related to the Project have resulted in the involuntary removal or relocation of Property Rights Owners from their lands or territories, nor have they forced them to relocate activities important to

their culture or livelihood, as such no party was affected by the project, no restitution or compensation of any kind was required. The Grupo Jari offered support to the regularization of land tenure of the communities working on the project with the designated public institutions through the actions carried out by the Fundação Jari.

In addition, all the actors that could be impacted directly or indirectly in some way by the Jari/Amapá REDD+ Project were consulted. These consultations will continue throughout the life cycle of the Project. In addition, all information about the Jari/Amapá REDD+ Project can be acquired in virtual channels, such as Biofílica website and newsletter by social media such as Facebook and LinkedIn, or through the Fundação Jari and its publications.

2.5.3. Property Right Protection (G5.3)

The development of Jari/Amapá REDD+ Project activities has not led to the involuntary removal or relocation of any part of its lands or territories, as well as activities important to the culture and livelihoods of communities living within the boundaries of the Project Area were respected and supported by the Project.

As previously mentioned, the land regularization of the communities acting in the Project is supported and sustained by the Grupo Jari with the responsible public institutions, through the actions that were carried out by the Fundação Jari.

2.5.4. Identification of Illegal Activity (G5.4)

Illegal deforestation is the main illegal activity that can negatively impact the development of the Jari/Amapá REDD+ Project, with predatory hunting and exploitation of other fauna and flora species being possible.

This illegal deforestation is caused by land squatters for subsistence agriculture ("farms") and by small farmers for small-scale agricultural crops, pasture and demarcation of property boundaries. Between 2000 and 2010 36,204 hectares were deforested in the Project reference region for the implementation of these activities. For the next 30 years, a loss of 79,129 hectares has been projected in this scenario, of which 11,070 hectares are to be deforested within the Project Area.

The control and combat of these illegal activities commonly found in the region covered by the Project was carried out through mitigating measures such as the strengthening of land and property inspection, in addition to encouraging the engagement of other actors and stakeholders, social inclusion and regional socioeconomic development through the generation of economic alternatives to deforestation. This was expected to improve the welfare of communities without generating a burden on native forest and local biodiversity.

Land inspection and patrimonial surveillance aim to curb illegal practices of deforestation, extraction of plant species and hunting and capture of wild animals by third parties. The mechanisms and procedures for land inspection are summarized in Table 8.

Table 8 - Summary of the mechanisms of land inspection in the Jari/Amapá REDD+ Project Area

Inspection of the Project Area	
Purpose	To determine the conditions of inspection in the land owned by Jari Celulose S.A. by fluvial and road means.
General condition	<u>Patrols:</u> - To carry out regular patrols with the purpose of ensuring the protection of the land assets of Jari; - Avoid deforestation, forest fires, or other acts of aggression to the environment; - Prevent the extraction and illegal trade of timber, other products and predatory hunting and fishing; - Maintain a good relationship with squatters and existing communities; - Promote social actions; - Provide support to police and oversighting authorities, where necessary; - River patrol is carried out with boats that cover the main hydrographic basins of the region; - Road patrol is carried out by vehicles through main roads, side roads and contours to monitor the forest areas and communities existing in the areas where the company operates. <u>Method of operation:</u> - Sending a team to the place of occurrence to investigate the fact and application of appropriate measures; - Activation of the legal sector for measures; - Registration at the police station by the Patrimonial Security Coordinator, of occurrences involving invasion of property, damage to property and illegal extraction of forest products; - The occurrences involving aggression to the environment should be registered in the responsible agencies (IBAMA, Environmental Police etc.) by the Patrimonial Security Coordinator; - In all situations that involve land conflicts, it is necessary to avoid confrontation between the parties, respecting the laws in force in the country.
Specific Condition	- The patrolling route is prepared in accordance with a Monthly Inspection Program; - When detected by the land inspection, occurrence of illegal activities, the Patrimonial Security must take the appropriate measures, as well as collect the geographic coordinates for sending to the Geoprocessing sector; <u>Forest Fire Surveillance</u> - Patrols take into account openings of plantations that may cause fire hazards to the forests, and the person responsible should be advised of the risks and necessary foresight necessary to be taken by the forest area. <u>High Conservation Value Areas (HCVA)</u> - Following proven validation of a HCVA, specific care is taken to protect the identified HCVA's. <u>Ecological Corridors</u> - Areas of ecological importance for the passage of fauna are monitored during the inspection.
Records	- Protocol of occurrences registered with IBAMA; - Bulletin of occurrences; - Photographic record of occurrences;

	- Monthly monitoring program; - Report on the Activities of Property Security.
Surveillance Intelligence Strategies	<u>Planned investment actions in intensification and intelligence in the activities of Land Property Security:</u> - Monitoring via high-resolution satellite imagery enabling the generation of monthly reports of altered areas; - Acquisition of support equipment for the patrolling team; - Additional financial support for logistics and vehicle maintenance costs.

2.5.5. Ongoing Disputes (G5.5)

In the area of the Jari/Amapá REDD+ Project, there were no conflicts, current or unresolved disputes over land rights, use of properties or access to natural resources, as well as disputes with traditional third parties or squatters, revoking the right to property of Jari Celulose S.A.

To demonstrate this fact, the Grupo Jari presented a note of clarification regarding the absence of any type of land conflict/dispute over the land, which was presented to the VVB. Since, during the survey of information about the monitored period, the state of Amapá experienced an exponential increase in cases of COVID-19 contagion, the Amapá Court of Justice, as a preventive measure, suspended in-person access at all regional forums, which hindered the request for a certificate of civil distribution in the Laranjal do Jari District Forum, which would be a conclusive proof of the absence of conflicts over Jari lands in Amapá.

Even so, one way found to prove the non-existence of these conflicts is the fact that the environmental agencies have been issuing environmental licenses and forest exploration authorizations to the Grupo Jari all these years. It is well known that environmental licenses and forest management authorizations can only be issued if there is no land conflict/dispute over the land, as it is a legal requirement that mitigating measures be adopted to offset environmental and social impacts.

Although there were no disputes in the Project Area on land ownership or rights to access or use, the Grupo Jari has a prepared problem-solving mechanism in the “Gestão de Conflitos” document, should any possible disputes arise over the region. In addition, the Grupo Jari has a cooperation dialogue with government agencies to support the regularization of the land tenure situation for the project's communities, as already mentioned above.

2.5.6. National and Local Laws (G5.6)

Compliance with Laws, Statutes and other significant regulatory instances for the Jari/Amapá REDD+ Project are related to the forest management activity. In the State of Amapá, the activities of the enterprise are being licensed by the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), thus having to apply federal legislation. Subordinated to the federal legislation, the legislation at the state level applies.

Regarding REDD+ activities, there is nothing establishing or regulating officially any legislation related to this subject up to the present moment. One can note a history of initiatives despite the construction and negotiation of this concept through agreements and meetings in the United Nations Framework Convention on Climate Change (UNFCCC).

So far, the most relevant initiative at the national level has been the submission of Bill No. 225/2015 which “Establishes the national system for reducing emissions from deforestation and degradation, conservation, sustainable forest management, maintenance and increase of forest carbon stocks (REDD+) and other measures”, but is still under way.

In addition, in December 2015, the National Strategy for REDD+ of Brazil (ENREDD+) was instituted by MMA Ordinance No. 370, a document that formalizes to Brazilian society and the UNFCCC signatory countries how the Brazilian government has structured its efforts and aims to improve them by 2020, contributing to climate change mitigation by controlling deforestation and forest degradation, promoting forest recovery and promoting sustainable development.

Below are the main relevant laws and regulations at the federal and state levels listed and detailed.

Federal Legislation

- Law n. 6,938 of 08/31/1981: Establishes the National Environmental Policy, its objectives and mechanisms to formulate and enforce, and other related matters.
- Law n.12,651, of 05/25/2012: Establishes provisions on the protection of native vegetation; alters Laws n. 6,938, of August 31, 1981; n. 9,393, of December 19, 1996; and, n. 11,428, of December 22, 2006; revokes Laws n. 4,771, of September 15, 1965; and n. 7,754, of April 14, 1989 and Provisional Law n. 2,166-67, of August 24, 2001; and other related matters.
- Complementary Law n. 140 of 12/08/2011: Establishes rules to the items III, VI and VII of the caput and paragraph unique of the article 23 of the Federal Constitution, to the cooperation between the Federal Government, the States, the Federal District and the Municipalities on administrative actions arising from the practice of the common competence relative to the protection of the natural landscape, to the protection of the environment, to the fight against any type of pollution and to the protection of forests, fauna and flora; and alter the Law nº 6,938 of 08/31/1981.
- Provisional Law n. 571 of 05/25/2012: alters Laws n. 12,651, of May 25, 2012, which establishes provisions on the protection of native vegetation; alters Laws n. 6,938, of August 31, 1981; n. 9,393, of December 19, 1996; and n. 11,428, of December 22, 2006; revokes Laws n. 4,771, of September 15, 1965; and n. 7,754, of April 14, 1989; and Provisional Law n. 2,166-67, of August 24, 2001.
- Decree n. 58,054, of 03/23/1966: promulgate the Convention for the protection of the flora, fauna and scenic beauty of the American countries.
- Decree n. 96,944, of 10/12/1988: creates the Legal Amazon Ecosystems Complex Defense Program, and other related matters.

- Decree n. 2,661, of 07/08/1998: regulates the single paragraph of article 27 of Law n. 4,771, of September 15, 1965 (Forest Code), establishing precautionary regulations regarding the use of fire in agricultural and cattle raising practices, and other related matters.
- Decree n. 2,959, of 02/10/1999: establishes provisions on measures to be implemented in the Legal Amazon for monitoring, prevention, environmental education and fighting forest fires.
- Decree n. 5,975, of 11/30/2006: regulates articles 12 - final part, 15, 16, 19, 20 and 21 of Law n. 4,771, of September 15, 1965; article 4, item III, of Law n. 6,938, of August 31, 1981; article 2 of Law n. 10,650, of April 16, 2003; alters and adds provisions to Decrees n. 6,514/08 and 3.420/00, and other related matters.
- CONAMA Resolution n. 16, of 12/07/1989: institutes the Legal Amazon Assessment and Environmental Control Integrated Program.
- CONAMA Resolution n. 237, of 12/19/1997: Establishes guidelines, procedures and criteria to the environmental licensing process, competences, and other relative matters.
- CONAMA Resolution n. 378, of 10/19/2006: defines the enterprises with potential to cause national and regional environmental impacts regarding the provisions in item III, § 1, article 19 of Law n. 4,771, of September 15, 1965, and other related matters.
- CONAMA Resolution n. 379, of 10/19/2006: creates and regulates the data and information system related to forest management regarding the Environment National System - SISNAMA.
- IBAMA Administrative Rule n. 218, of 05/04/1989: establishes provisions on the cutting and management of native forest and the formation of Atlantic Forest successor native forests, and other related matters.
- IBAMA Administrative Rule n. 37-N, of 04/03/1992: recognize as the Official List of the Brazilian Flora Endangered Species the list presented in the Administrative Rule.
- MMA Administrative Rule n. 103, of 04/05/2006: establishes provisions on the implementation of the Forest Origin Document – DOF, and other related matters.
- MMA Administrative Rule n. 253, of 08/18/2006: institutes, from September 1, 2006, with regard to IBAMA (Brazilian Environmental and Natural Renewable Resources Agency), the Document of Forest Origin – DOF in replacement of the Forest Products Transportation Authorization – ATPF.
- MMA Normative Instruction n. 1, of 09/05/1996: establishes provisions on the Mandatory Forest Recovery and the Forest Integrated Plan.
- MMA Normative Instruction n. 07, of 04/27/1999: establishes provisions on the authorization for deforestation in Legal Amazon states.
- MMA Normative Instruction n. 02, of 05/10/2001: establishes provisions on the economic management of forests, in rural properties located in the Legal Amazon including areas of Legal Reserve and except for areas of permanent preservation established in the legislation in force, to be carried out through sustainable forest management practices of multiple uses.

- IBAMA Normative Instruction n. 30, of 12/31/2002: regulates the calculation of standing tree volume through specific volume equation, and other related matters.
- IBAMA Normative Instruction n. 112, of 08/21/2006: regulates o Document of Forest Origin - DOF, instituted by Administrative Rule /MMA/ n. 253, of August 18, 2006; (altered by IBAMA Normative Instruction n. 134, of 22/11/2006).
- MMA Normative Instruction n. 06, of 12/15/2006: establishes provisions on forest recover and the consumption of forest raw material, and other related matters.
- IBAMA Normative Instruction N. 178, of 06/23/2008: defines the IBAMA's guidelines and procedures to assess and grant the issuance of authorization for the suppression of forests and other forms of native vegetation in areas larger than two thousand hectares in rural properties located in the Legal Amazon and one thousand hectares in rural properties located in other areas of the country

State Legislation

- Law n. 702, of 06/28/2002: establishes provisions on the State Policy regarding Forests and other forms of vegetation in the state of Amapá, and other related matters.
- COEMA Resolution n. 0001/99: establishes guidelines to characterize enterprises with the potential to cause environmental degradation; for environmental licensing; and other related matters.
- Complementary Law n. 005, of August 18th, 1994: institutes the Environmental Protection Code of the State of Amapá, and other related matters.

Regarding some Project activities, for instance the activities with the small farmers, the institution responsible is Amapá's Environment and Land Planning Institute (IMAP), a State level institution. IMAP is still the responsible for license, enforce and control environmental, land use and territorial planning in small farmers property (regional and local level).

Regarding the existing applicable law of Laranjal do Jari Municipality, according with direct consultation with staff of Laranjal do Jari Environmental Secretariat, has an Environmental Code dated from 2006, composed by the following laws:

- Municipal Law nº 261, of 07/22/2005: Institute the Environmental Code of Laranjal do Jari Municipality, among others providences.
- Municipal Law nº 184, of 12/07/2001: Creates the Laranjal do Jari Municipal Council of Environmental Defense – COMDEMA, set its composition and competence, and creates the Special Fund of Resources to the Municipal Environment - FERMAM, among other providences.
- Municipal Law nº 237, of 11/14/2003: Regulates the law of inspection, control and monitoring of environmental activities effective or potential cause of environmental degradation on Laranjal do Jari Municipality, among other providences.
- Municipal Law nº 238, of 11/14/2003: Regulates the licensing of environmental activities effective or potential cause of environmental degradation on Laranjal do Jari Municipality, among other providences.

- Municipal Decree nº150, of 08/22/2005: Regulates the Title V of Municipal Law nº 261, of 07/22/2005, that institutes the Environmental Code of Laranjal do Jari Municipality, among others providences.

Besides the environmental code the Municipalities should also have a Directive Plan, which Laranjal do Jari Municipality has since 2008, and regulates about the Zoning, land use and urban and rural activities of the Municipality.

Regarding the existing applicable law of Vitória do Jari Municipality, according with direct consultation with staff of Laranjal do Jari Environmental Secretariat staff, Vitória do Jari Environmental Secretariat staff and Fundação Jari staff, the municipality initiated the process of composing its Environmental Legal Code and its Directive Plan, but due to changes in the Government they are still unfinished and not approved, in this case only Federal and State Laws are applicable.

3 CLIMATE

3.1 Monitoring GHG Emission Reductions and Removals

3.1.1. Data and Parameters Available at Validation

Data / Parameter	Deforestation
Data unit	Hectare (ha)
Description	Maps of forest cover areas converted into non-forest areas.
Source of data	Measured through data from PRODES/INPE project.
Value applied	0.269%/year on average (2000-2010).
Justification of choice of data or description of measurement methods and procedures applied	For deforestation mapping and production of the Forest Cover Benchmark Map data from PRODES Digital (official Brazilian Amazon Forest deforestation satellite mapping) program was used. A total of 28 Landsat images were used during the analyzed period. The ISOSEG non-supervised classification method was used in the classification of the images to map forest classes, non-forest vegetation, hydrography and deforestation.
Purpose of the data	- Determination of baseline scenario - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	See documents: - Câmara et al. 2006. Metodologia para o cálculo da taxa anual de desmatamento na Amazônia Legal - Determinação da Linha de Base e Dinâmica de Desmatamento para o Projeto Jari/Amapá.

Data / Parameter	Ctot
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Data unit	tCO ₂ e ha ⁻¹
Description	Average carbon stock per hectare in all carbon pools in the forest class used in the baseline scenario.
Source of data	Calculated by allometric equations, expansion factors from literature and Jari Florestal field measured data.
Value applied	566 tCO ₂ e ha ⁻¹
Justification of choice of data or description of measurement methods and procedures applied	Above-ground biomass estimate was carried out using forest inventory data, allometric equations developed in areas similar to the project area (HIGUCHI, 1998). And expansion factors developed by Nogueira et al. (2008) in sites of the Brazilian Amazon to estimate biomass of trees with DBH lower than 10 cm, palm trees, vines, non-tree components and dead above-ground biomass. Below-ground biomass was obtained using root-shoot ratio of 25.8% biomass of trees DBH > 10cm. Total biomass spatial estimate was obtained applying geostatistics techniques developed by Sales et al. (2007).
Purpose of the data	- Determination of baseline scenario - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	See documents: - Estimativa do Estoque de Carbono Florestal para o Projeto Jari/Amapá. - PMFS – Amapá - Section 3.1 of the Project Description - Tabela_Estoque_TDR4_2013.xlsx

Data / Parameter	DBH
Data unit	cm
Description	Diameter at Breast Height (130 cm) for each tree with DBH equal or higher than 15 cm in each plot of the forest inventory.
Source of data	Measured in the field by Jari Florestal.
Value applied	See field measurements spreadsheet.
Justification of choice of data or description of measurement methods and procedures applied	VCS Methodology VM0015 requirement. Data from forest inventory collected less than 10 years ago from multiple plots at wide spatial distribution.
Purpose of the data	- Determination of baseline scenario - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	Jari/Amapá REDD+ Project's main variable for carbon stock estimate.

Data / Parameter	$\ln(P_i) = -1.497 + 2.548 \times \ln(\text{DBH})$
Data unit	Ln kg (fresh weight)

Description	Equation to convert DBH into biomass for trees with DBH equal to or higher than 5 cm.
Source of data	Higuchi et al (1998) Biomassa da parte aérea da vegetação da floresta tropical úmida de terra-firme da Amazônia brasileira. Acta Amazonica 28(2): 153-166. 1998
Value applied	$\ln(P_i) = -1.497 + 2.548 \times \ln(DBH)$
Justification of choice of data or description of measurement methods and procedures applied	Equation developed for forest with characteristics similar to the forests in the reference region.
Purpose of the data	- Baseline scenario determination (for AFOLU projects only) - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	R_i
Data unit	Dimensionless
Description	Above-ground to below-ground biomass conversion factor using root-shoot ratio.
Source of data	VCS Methodology VM0015
Value applied	25.8%
Justification of choice of data or description of measurement methods and procedures applied	Nogueira, E.; Fearnside, P.; Nelson, B., et al., 2008. Estimates of forest biomass in the Brazilian Amazon: New allometric equations and adjustments to biomass from wood-volume inventories. Forest Ecology and Management, 256(11), pp.1853-1867.
Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	Expansion factor to convert fresh weight biomass into dry weight biomass
Data unit	Dimensionless
Description	Expansion factor to convert fresh weight biomass into dry weight biomass
Source of data	The value was obtained by the average of dry/fresh ratio for the crown and bole weighted by the percentage contribution of bole and crown weight to total biomass. HIGUCHI, N., DOS SANTOS, J., RIBEIRO, R. J., MINETTE, L., BIOT, Y. Biomassa da parte aérea da

	vegetação da floresta tropical úmida de terra-firme da Amazônia brasileira. Acta Amazonica 28(2): 153-166. 1998.
Value applied	0.5997
Justification of choice of data or description of measurement methods and procedures applied	Values calculated in forests with similar characteristics to the forests in the reference region.
Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	Expansion factor to estimate palm trees biomass for dense forest
Data unit	Dimensionless
Description	Expansion factor to convert biomass of trees DBH > 10cm into biomass of palm trees for dense forest
Source of data	Nogueira, E.; Fearnside, P.; Nelson, B., et al., 2008. Estimates of forest biomass in the Brazilian Amazon: New allometric equations and adjustments to biomass from wood-volume inventories. Forest Ecology and Management, 256(11), pp.1853-1867
Value applied	0.019
Justification of choice of data or description of measurement methods and procedures applied	Values calculated in forests with similar characteristics to the forests in the reference region.
Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	Expansion factor to estimate palm trees biomass for non-dense forest
Data unit	Dimensionless
Description	Expansion factor to convert biomass of trees DBH > 10cm into biomass of palm trees for non-dense forest
Source of data	Nogueira, E.; Fearnside, P.; Nelson, B., et al., 2008. Estimates of forest biomass in the Brazilian Amazon: New allometric equations and adjustments to biomass from wood-volume inventories. Forest Ecology and Management, 256(11), pp.1853-1867
Value applied	0.086

Justification of choice of data or description of measurement methods and procedures applied	Values calculated in forests with similar characteristics to the forests in the reference region.
Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	Expansion factor to estimate biomass of trees with DBH<10 cm for dense forest
Data unit	Dimensionless
Description	Expansion factor to convert biomass of trees DBH > 10cm into biomass of trees <10 cm in DBH for dense forest
Source of data	Nogueira, E.; Fearnside, P.; Nelson, B., et al., 2008. Estimates of forest biomass in the Brazilian Amazon: New allometric equations and adjustments to biomass from wood-volume inventories. Forest Ecology and Management, 256(11), pp.1853-1867
Value applied	0.065
Justification of choice of data or description of measurement methods and procedures applied	Values calculated in forests with similar characteristics to the forests in the reference region.
Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	Expansion factor to estimate biomass of trees with DBH<10 cm for non-dense forest
Data unit	Dimensionless
Description	Expansion factor to convert biomass of trees DBH > 10cm into biomass of trees <10 cm in DBH for dense forest
Source of data	Nogueira, E.; Fearnside, P.; Nelson, B., et al., 2008. Estimates of forest biomass in the Brazilian Amazon: New allometric equations and adjustments to biomass from wood-volume inventories. Forest Ecology and Management, 256(11), pp.1853-1867
Value applied	0.040

Justification of choice of data or description of measurement methods and procedures applied	Values calculated in forests with similar characteristics to the forests in the reference region.
Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	Expansion factor to estimate biomass of vines
Data unit	Dimensionless
Description	Expansion factor to convert biomass of trees DBH > 10 cm into biomass of palm trees into vine.
Source of data	Nogueira, E.; Fearnside, P.; Nelson, B., et al., 2008. Estimates of forest biomass in the Brazilian Amazon: New allometric equations and adjustments to biomass from wood-volume inventories. Forest Ecology and Management, 256(11), pp.1853-1867
Value applied	0.031
Justification of choice of data or description of measurement methods and procedures applied	Values calculated in forests with similar characteristics to the forests in the reference region.
Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	Expansion factor to estimate dead wood biomass
Data unit	Dimensionless
Description	Expansion factor to convert biomass of trees DBH > 10 cm into biomass of dead wood
Source of data	Nogueira, E.; Fearnside, P.; Nelson, B., et al., 2008. Estimates of forest biomass in the Brazilian Amazon: New allometric equations and adjustments to biomass from wood-volume inventories. Forest Ecology and Management, 256(11), pp.1853-1867
Value applied	0.137

Justification of choice of data or description of measurement methods and procedures applied	Values calculated in forests with similar characteristics to the forests in the reference region.
Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	Expansion factor to estimate non-tree components biomass
Data unit	Dimensionless
Description	Expansion factor to convert biomass of trees DBH > 10 cm into biomass of non-tree components
Source of data	Nogueira, E.; Fearnside, P.; Nelson, B., et al., 2008. Estimates of forest biomass in the Brazilian Amazon: New allometric equations and adjustments to biomass from wood-volume inventories. <i>Forest Ecology and Management</i> , 256(11), pp.1853-1867
Value applied	0.002
Justification of choice of data or description of measurement methods and procedures applied	Values calculated in forests with similar characteristics to the forests in the reference region.
Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	IC
Data unit	m ³
Description	FSC-certified forest management expected harvest intensity.
Source of data	<i>Plano de Manejo Florestal Sustentável-Amapá</i>
Value applied	20 m ³
Justification of choice of data or description of measurement methods and procedures applied	Average intensity of the harvest for timber Expected in each UPA of the Sustainable Forest Management Plan - AP.

Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	CF
Data unit	t
Description	Carbon content in dry biomass
Source of data	Nogueira, E.; Fearnside, P.; Nelson, B., et al., 2008. Estimates of forest biomass in the Brazilian Amazon: New allometric equations and adjustments to biomass from wood-volume inventories. Forest Ecology and Management, 256 (11), pp.1853-1867
Value applied	0.485
Justification of choice of data or description of measurement methods and procedures applied	Value found in scientific literature.
Purpose of the data	- Baseline scenario determination - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

Data / Parameter	44/12
Data unit	tCO ₂ e
Description	Carbon mass to CO ₂ e mass conversion factor.
Source of data	From scientific literature: 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 AFOLU.
Value applied	44/12
Justification of choice of data or description of measurement methods and procedures applied	IPCC standard value
Purpose of the data	- Baseline scenario determination (AFOLU projects only) - Calculation of baseline emissions - Calculation of project emissions - Calculation of leakage
Comments	-

3.1.2. Data and Parameters Monitored

Data / Parameter	Deforestation in the project area and leakage belt																							
Data unit	Hectare (ha)																							
Description	Forest cover areas converted into non-forest areas inside the Jari/Amapá REDD+ Project area and leakage belt.																							
Source of data	The areas were calculated using the remote sensing images from the LANDSAT8 satellite used by the PRODES project corresponding to orbit/point 226/60 and 226/61 (08/15/2018 and 10/15/2019). This information was used to prepare the monitoring bulletins (available to the VVB), which were sent to the patrimonial surveillance team for the field identification of the deforestation points with the GPS data (Forest Cover Monitoring Maps, also available to the VVB).																							
Description of measurement methods and procedures to be applied	Monitoring of the forest cover in the monitored area was accomplished by overlaying PRODES vector data on the boundary of the Jari/Amapá REDD+ Project Area. The polygons mapped as deforestation in the years of 2014 to 2019 were selected for quantification of the deforested area and subsequent field verification activities.																							
Frequency of monitoring/recording	Annual																							
Value monitored	<table><tr><td></td><td>ABSLPA_{icl,t} (ha)</td><td>ABSLLK_{icl,t} (ha)</td></tr><tr><td>2014</td><td>122</td><td>117</td></tr><tr><td>2015</td><td>163</td><td>204</td></tr><tr><td>2016</td><td>37</td><td>33</td></tr><tr><td>2017</td><td>103</td><td>95</td></tr><tr><td>2018</td><td>69</td><td>87</td></tr><tr><td>2019</td><td>80</td><td>15</td></tr></table>				ABSLPA _{icl,t} (ha)	ABSLLK _{icl,t} (ha)	2014	122	117	2015	163	204	2016	37	33	2017	103	95	2018	69	87	2019	80	15
	ABSLPA _{icl,t} (ha)	ABSLLK _{icl,t} (ha)																						
2014	122	117																						
2015	163	204																						
2016	37	33																						
2017	103	95																						
2018	69	87																						
2019	80	15																						
Monitoring equipment	Images if remote sensing of digital processing program, geographic information system and navigational GPS.																							
QA/QC procedures to be applied	Images with spatial resolution of 30 meters or more were used in the mapping and the minimum mapping unit was 1 ha. The methodology for evaluating the accuracy of the data is described in Section 6.1. The minimum accuracy of the land use and land cover classification map was 83% for the 2018 PRODES data, and 91% for the 2019 PRODES data. This information was used as a source for the monitoring reports (available to the VVB) that were sent to the patrimonial surveillance team, which carried out the subsequent identification in the field with the GPS data of the identified points ("forest cover map" from 2014 to 2019), this step is also described in the Section 6.1.																							
Purpose of the data	- Calculation of project emissions - Calculation of leakage																							
Calculation method	Where unplanned deforestation was detected, the Forest Coverage Benchmark Mark Map were updated by map algebra.																							
Comments	- PRODES Digital Project: http://www.dpi.inpe.br/prodesdigital/prodes.php																							

	- More information on quality assurance and control available at: Câmara et al. 2006. Methodology for the calculation of the annual rate of deforestation in the Legal Amazon.
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Data / Parameter	Ctot
Data unit	tCO ₂ e.ha ⁻¹
Description	Average carbon stock per hectare in all carbon pools in the Forest class used at baseline scenario.
Source of data	Calculated by allometric equations, expansion factors from scientific literature, and data measured in the field.
Description of measurement methods and procedures to be applied	Above-ground biomass estimate will be carried out using forest inventory data, allometric equations developed in areas like the project area (HIGUCHI, 1998). Expansion factors developed by Nogueira et al. (2008) in sites of the Brazilian Amazon will be used to estimate biomass of trees with DBH lower than 10 cm, palm trees, vines, non-tree components and dead above-ground biomass. Below-ground biomass will be obtained using root-shoot ratio of 25.8% biomass of trees DBH> 10cm. Total biomass spatial estimate was obtained applying geostatistics techniques developed by Sales et al. (2007).
Frequency of monitoring/recording	One year before harvest. At one, three and five-year intervals after the UPA harvesting.
Value monitored	566 tCO ₂ e ha ⁻¹
Monitoring equipment	N/A
QA/QC procedures to be applied	See the document: - VCS-MR-jariamapa-2014-2019-v2.xlsx
Purpose of the data	- Calculation of project emissions - Calculation of leakage
Calculation method	Comparison between total carbon stock average value contained in forest class used in the baseline scenario, according to Estimativa do Estoque de Carbono Florestal para o Projeto REDD+ Jari/Amapá and measures analyzed after the UPA harvesting.
Comments	According to VM0015 (p. 107), in forest management areas the monitoring of carbon stocks is mandatory if the areas are subject to a significant reduction in the carbon stock in the project scenario, in relation to the ex-ante evaluation. Since the management carried out is of low impact, not causing the opening of the forest canopy, if the impact caused by logging was not considered relevant, because of this, this parameter was not renewed, maintaining the value used at the beginning of the project and in previous verifications.

Data / Parameter	DBH
Data unit	cm

Description	Diameter at Breast Height (130 cm) for each tree with DBH equal or higher than 15cm in each plot of the forest inventory.
Source of data	Calculated from the circumference at breast height measured in the field.
Description of measurement methods and procedures to be applied	DBH is calculated from the circumference at breast height (CBH) data of each monitored tree measured in the field.
Frequency of monitoring/recording	One year before harvest. In intervals of one, three and five years after the UPA harvest. As the harvest of UPA 01 has not yet been completed within the monitored period, only pre exploration data are presented.
Value monitored	See the document: - inventario-100-POA 01.xlsx
Monitoring equipment	Calculated from the circumference at breast height data measured in the field. A team of 32 people was used, equipped with: knives, tape, pen, paper, clipboard, hammer, nails and aluminum plugs numbered, each tree measured was identified by popular name.
QA/QC procedures to be applied	The main target of the inventory were the forest species of recognized market acceptance such as Angelim, Maçaranduba, Cumaru, Jatobá, Sucupira, Cupiúba, but also all species with potential for commercialization in the region were inventoried, which had a diameter equal or superior to 40 cm. The circumference of the measuring point was collected (1.30m from the ground or above any irregularity), using a tape. The commercial height was estimated comparing it with 4 m logs. The trunk quality was defined by 1- Fully usable, 2-Partially usable and 3- Unusable. The spatial location was determined with the aid of orientation pickets, collecting the X and Y coordinates, noting the data in appropriate field spreadsheets. After identification and measurement, each tree was identified with a aluminum plug numbered, which was fixed with nail in a visible and easily accessible place at its base. See the document: - POA-Agregue versão finalv 02.pdf
Purpose of the data	- Estimation of loss and/or regeneration of forest individuals in management areas
Calculation method	DBH is calculated from the circumference at breast height (CBH) data of each tree monitored measured in the field.
Comments	-

Data / Parameter	Planned deforestation to build the Forest Management infrastructure
Data unit	Hectare (ha)
Description	Map of forest cover areas converted into non-forest areas due to the construction of forest management roads, trails and forest patios.

Source of data	Remote sensing images, technical maps, and specific field cards to monitor the construction of forest management roads, trails and forest patios. See the documents: - Estradas_em_area.shp - Patios_POA_1.shp - mapa-POA01-microzoneamento.pdf														
Description of measurement methods and procedures to be applied	The monitoring of forest cover areas in the Forest Management area was done by satellite image analysis, road, trails and forest patios construction maps, and field verification. With the occurrence of the planned deforestation, the Forest Cover Benchmark Map was updated by map algebra. The reduction in carbon stock in the project area was reported in the verification processes.														
Frequency of monitoring/recording	During the year of management of each UPA.														
Value monitored	<table border="1"> <thead> <tr> <th></th><th>APDPA_{icl,t} (ha)</th></tr> </thead> <tbody> <tr> <td>2014</td><td>0</td></tr> <tr> <td>2015</td><td>0</td></tr> <tr> <td>2016</td><td>0</td></tr> <tr> <td>2017</td><td>0</td></tr> <tr> <td>2018</td><td>37</td></tr> <tr> <td>2019</td><td>0</td></tr> </tbody> </table>		APDPA _{icl,t} (ha)	2014	0	2015	0	2016	0	2017	0	2018	37	2019	0
	APDPA _{icl,t} (ha)														
2014	0														
2015	0														
2016	0														
2017	0														
2018	37														
2019	0														
Monitoring equipment	Field card and geographic information system.														
QA/QC procedures to be applied	The mapping of deforestation areas planned for the implementation of sustainable forest management infrastructure was carried out through the field survey.														
Purpose of the data	- Calculation of project emissions														
Calculation method	Where unplanned deforestation was detected, the Forest Coverage Benchmark Map were updated by map algebra.														
Comments	Although the management was not FSC certified, as described in section 2.2.4, during the monitored period, the parameter was applied following the same premises.														

Data / Parameter	$\Delta C_{abBSLLK_t}$
Data unit	tCO ₂ -e
Description	Total carbon stock changes in the leakage belt area
Source of data	Calculated
Description of measurement methods and procedures to be applied	- Leakage prevention activities will be listed; - A map will be prepared showing the areas of intervention and the type of intervention; - Areas where leakage prevention activities impact the carbon stock will be identified; - Non-forest classes existing in these areas in the baseline case will be identified; - Carbon stocks will be measured in the identified classes or conservative estimates of the literature will be used;

	- Changes in the carbon stock in the leakage management areas under the project scenario will be reported using Table 30.b of Methodology VM0015; - Changes in the net carbon stock caused by the prevention measures during the baseline fixed period and optionally in the project crediting period will be calculated; - The results of the calculations will be reported in Table 30.c of Methodology VM0015.														
Frequency of monitoring/recording	Annual														
Value monitored	No leakage was identified during the monitored period <table border="1"> <thead> <tr> <th></th><th>$\Delta\text{CabBSLLK}_t$ (tCO₂-e)</th></tr> </thead> <tbody> <tr><td>2014</td><td>0</td></tr> <tr><td>2015</td><td>0</td></tr> <tr><td>2016</td><td>0</td></tr> <tr><td>2017</td><td>0</td></tr> <tr><td>2018</td><td>0</td></tr> <tr><td>2019</td><td>0</td></tr> </tbody> </table>		$\Delta\text{CabBSLLK}_t$ (tCO ₂ -e)	2014	0	2015	0	2016	0	2017	0	2018	0	2019	0
	$\Delta\text{CabBSLLK}_t$ (tCO ₂ -e)														
2014	0														
2015	0														
2016	0														
2017	0														
2018	0														
2019	0														
Monitoring equipment	Images of remote sensing of digital processing program and calculation tables.														
QA/QC procedures to be applied	Images with special resolution of 30 m or more were used in the mapping and the minimum mapping unit is 1 ha. Classifications were assessed through data collected in the field using GPS navigation. The minimum accuracy of use classification map and ground cover is 80%.														
Purpose of the data	- Calculation of leakage														
Calculation method	Evaluation of ex-post estimates in the Leakage Belt in relation to the ex ante project estimate (Table 35 of VM0015).														
Comments	-														

Data / Parameter	Methane (CH ₄) and nitrous oxidate (N ₂ O) emissions from livestock
Data unit	tCO ₂ -e e yr ⁻¹
Description	Emissions from grazing animals in leakage management areas at year t
Source of data	Reports from Fundação Jari and geographic information system
Description of measurement methods and procedures to be applied	- Annual areas that have grazing activities in the leakage management areas will be specified; - Types of animal, forage and manure management will be briefly described. Table 31 of VM0015 will be used to report the key parameters required to perform the calculation of GHG emissions; - The number of animals in the baseline case and under the project scenario will be determined based on available areas and forage. The difference will be considered for the calculation of the increase in GHG emissions; - Methods described in appendix 4 of the VM0015 will be used to estimate emissions from enteric fermentation and manure management; final calculations will be done using

	equation 18 of the VM0015 and results will be reported in Table 32 of the VM0015.
Frequency of monitoring/recording	Annual
Value monitored	Not applicable.
Monitoring equipment	Field spreadsheets
QA/QC procedures to be applied	Not applicable.
Purpose of the data	- Calculation of project emissions - Calculation of leakage
Calculation method	Equation 18 of the VM0015 will be used.
Comments	-

3.1.3. Monitoring Plan

3.1.3.1. Organizational structure, responsibilities and competencies

The monitoring plan for the Jari / Amapá REDD + Project is a combination of three components: climate, community and biodiversity.

Biofílica is responsible for coordinating the monitoring processes during the life cycle of the project. In addition, he was also responsible for monitoring the climatic aspects, with the support of the Jari Celulose and Fundação Jari teams.

The monitoring of community attributes was carried out mainly by the Fundação Jari, and indicators related to Sustainable Forest Management were worked on by the outsourced company responsible for the Management operations, called Agregue.

Monitoring related to biodiversity, in turn, was carried out by Ambiens, an environmental consulting company contracted to carry out this study. There are also some biodiversity indicators that were under the responsibility of the Fundação Jari.

Project Competencies and Responsibilities

Biofílica is a Brazilian company focused on the management and conservation of forest areas in the Amazon biome. It was created in 2008 with the aim of creating pioneering alternatives to make environmental conservation an economically interesting activity for forest owners, communities and investors. In line with these objectives, its mission is to reduce deforestation and carbon emissions in the atmosphere, conserve biodiversity and water resources, and promote social inclusion and the development of communities living in the Amazon biome through the commercialization of credits for environmental services, the promotion and financing of scientific research activities and the development of sustainable business chains.

Responsibilities: general coordination of socioeconomic and environmental diagnosis (DSEA) and baseline and carbon stock studies; development and financing of the PDD (Project Design Document); remote monitoring of forest cover and implementation/coordination of additional actions in order to reduce/mitigate greenhouse gas (GHG) emissions; credit validation/verification and commercialization; co-management of the Project throughout its duration.

Jari Celulose: is a company of the Grupo Jari's that has two divisions: the Cellulose Division, which produces bleached eucalyptus pulp and is the only company in Brazil (and first in the world) to have FSC Pure Label certification for its entire custody chain, and the Paper and Packaging Division, that is the second largest integrated industry serving almost all economic segments.

Responsibilities: responsible for the Project co-management, for the operation low-impact forest management in Jari's properties and for providing infrastructure and logistics support to Biofíllica and other professionals involved in the project. In addition, it owns the land and is responsible for land security and asset surveillance.

Fundação Jari: is the social enterprise of the Grupo Jari's which, together with a vast network of partners, develops programs and projects in the areas of education, health, human rights, environment, culture and employment and income generation. Its main financing source is a fixed contribution of 1% of the gross annual revenue of the Grupo Jari's. Since 1994, it has assisted more than 6.8 million people in Brazil.

Responsibilities: co-management of the Project, as well as for all activities related to the environmental and social management of the Project, in order to reduce negative impacts and generate positive ones. It is also responsible for providing infrastructure and logistics support to Biofíllica and other professionals involved in the project.

3.1.3.2. Internal auditing performed

Biofíllica Investimentos Ambientais supports annual financial auditing processes ensuring that its resources are allocated responsibly and free of corruption. The financial statements and minutes of meetings related to the company are published on JusBrasil's website, the largest open and legal community in Latin America.

Like Biofíllica, Grupo Jari does not tolerate any type of corruption, such as kickbacks, bribery, nepotism, favors, fraud, favoritism, extortion, money laundering, among others. The Group also has a "Human Rights and Social Responsibility Policy: passive and active corruption inside and outside the company". Therefore, if situations occur, all information will be verified and those responsible will be prosecuted and removed from the company. Additionally, the Grupo Jari provides a communication channel, called "Internal Ombudsman", which, among other functions, facilitates the reporting of corruption.

Complaints and claims are forwarded and correctly resolved. It should be noted that the channel is secret and works free of charge through a 0800-telephone number.

3.1.3.3. Monitoring Plan for Climate Impacts

The Project's Climate Impacts Monitoring Plan covers two tasks: 1) Monitoring of carbon stock changes and GHG emissions for periodical verification; and 2) Revisiting the baseline projections for future fixed baseline period. During this monitoring period only the Task 1 was carried out.

TASK 1: Monitoring Carbon Stock Changes and GHG Emissions for Periodical Checks

1. Monitoring current changes in carbon stock and GHG emissions in the Project area

a) Technical description of monitoring tasks

In the Project Area, monitoring of changes in carbon stocks and GHG emissions was carried out through the analysis of avoided unplanned deforestation. During the monitored period the project encompassed the monitoring of complementary REDD+ activities with the objective of avoiding unplanned deforestation through intensified enforcement activities (increase frequency and scope), monitoring of forest cover through satellite images, and social inclusion of communities in the Jari/Amapá REDD+ Project's area of influence.

The proponents were responsible for managing the monitoring of REDD+ activities, which aim to avoid unplanned deforestation and quantify the emissions avoided by the project. This process was carried out by verifying the change of use of forest cover areas using satellite images available from the PRODES Project in the period from 2014 to 2019. The field check of deforestation polygons detected by the analysis of satellite images was made by the Grupo Jari's asset surveillance team between 2018 and 2020, a detailed description of this process is provided in section 6.1.

Additionally, since the PRODES data used to account for the project emissions did not cover the period from 10/16/2019 to 4/16/2020, coinciding with the CCB monitoring, an analysis of the monitored areas was performed with satellite imagery. The analysis was performed by evaluating the Sentinel-2 satellite image (04/21/2020), supported with images from the satellites LandSat-7 (05/08/2020), LandSat-8 (04/30/2020), and Sentinel-2 (05/01/2020) because of the high cloud cover in the region during the period.

The evaluation demonstrated that no significant loss events occurred in the period and the emission estimate for the period, when compared to previous years, is within expectations. With this analysis it was possible to verify the maintenance of the net benefits on the climate maintained by the project in the period covered only by the CCB monitoring period. A detailed description of the methodology applied and the results is in section 7.

b) Data to be collected

Table 9 - Data collected to monitor changes in carbon stock and GHG emissions for periodic verification in the REDD+ Jari/Amapá Project Area

Data/Parameter	Description	Unit	Source	Frequency
$C_{tot_{icl}}$	Average carbon stock for all carbon pools in the forest class <i>icl</i>	ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated by allometric equations and field-measured data	Collected in periods of up to 10 years
$APDPA_{icl,t}$	Areas of planned deforestation in forest class <i>icl</i> in year <i>t</i> in the Project area	Hectare (ha)	Calculated through remote sensing images, technical maps and data, field and post-exploratory information on management	Annual
$\Delta CPLdPA_t$	Total decrease in carbon stock due to planned timber cutting activities in year <i>t</i> in the Project area	ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated	Annual
$ACPA_{icl,t}$	Annual area within the Project area affected by catastrophic events in class <i>icl</i> in year <i>t</i>	Hectare (ha)	Calculated through remote sensing images	Each time a catastrophic event occurs
$AUFPA_{icl,t}$	Areas affected by forest fire in class <i>icl</i> where carbon stock recovery occurs in year <i>t</i>	Hectare (ha)	Calculated through remote sensing images	Each time a forest fire event occurs
$\Delta CUFdPA_t$	Total carbon stock decrease due to unplanned forest fires in year <i>t</i> in the Project area	ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated	Each time a forest fire event occurs
$\Delta CUCdPA_t$	Total decrease in carbon stock due to catastrophic events in year <i>t</i> in the Project area	ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated	Each time a catastrophic event occurs
$\Delta CUDdPA_t$	Total current change in carbon stock due to avoided planned deforestation in year <i>t</i> in the Project area	ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated	Annual
$\Delta CPSPA_t$	Total inventory change in the Project area in year <i>t</i>	ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated	Annual

c) Brief description of the data collection procedures

REDD+ Activities: The main activities performed by the project for monitoring unplanned deforestation in the Project Area, for the years 2014 and 2019, was based on the data processed by the PRODES project that was published in 2020. The procedures performed for data collection and processing are described in section 6.1 of this document, identifying the areas of land use conversion. For the period from 10/16/2019 to 2/16/2020, which is not covered by PRODES, additional analysis was performed with satellite imagery, which is described in section 7.

Low Impact Forest Management: The monitoring of planned deforestation caused by forest management activities, carried out for the period 2018 to 2020, used information contained in maps and shapefiles of the planning of roads and trails, as well as information from the planning of log decks (quantity and average size) installed per UPA and the environmental authorization for the installation of infrastructure, for the respective years monitored.

d) Quality control procedures and quality assurance

REDD+ Activities: To validate the information obtained from the Satellite images, the following procedures were applied:

1. The accuracy of the PRODES data was performed using images with special resolution of 30 meters or more and with the minimum mapping unit of 1 ha, the methodology for evaluating the accuracy of the data is described in Section 6.1. The accuracy found for the land use and land cover classification map was 93%, a good result since the minimum accuracy of classification for land use and land cover is 80% according to VM0015.
2. Complementary to this analysis, field mapping of data obtained by PRODES for the period 2014 to 2018 was performed. The information on land use and land cover change served as a source for the preparation of annual monitoring bulletins, produced by Biofílica and forwarded to the property surveillance team. Armed with this data, the verification of the points identified as deforestation was carried out, using GPS navigation, between 2018 and 2020, this step is detailed in Section 6.1.
3. For the additional analysis carried out, Sentinel-2 (April/2020) images were used, with 10m resolution, but since in the analysis period the cloud cover in the region is very high, images from Landsat-7 (May/2020), Landsat-8 (April/2020) and Sentinel-2 (May/2020) satellites were used to support the analysis and verify possible changes in land use and occupation. The technical details of this assessment can be found in section 7.

Low Impact Forest Management: To validate the control and quality assurance of the data generated by the operations, the information was supported in the documents Amapá Forest Management Plan - Agregue, Annual Operational Plan (POA 01) - Agregue and PMFS Approval Communication Letter and, in the Grupo Jari's procedures.

e) Data archiving

Biofíllica Investimentos Ambientais keeps all Jari/Amapá REDD+ Project data and reports stored in digital files for the duration of the Project. The original reports and collected field records produced by the forest management activity and surveillance activities are stored by the Grupo Jari.

All documents related to the monitoring of the Jari/Amapá REDD + Project are compiled into paper and/or digital files and made available to the verifiers at each verification event.

1.1. Monitoring of Project Implementation

Implementation of REDD+ activities were monitored through physical-financial timelines, performance and quality monitoring reports, forest cover maps, meeting reports, land invasion police reports and other actions to control illegal deforestation, as well as other possible relevant documents.

The monitoring of the implementation and execution of Sustainable Forest Management activities was conducted in accordance with the procedures of the Group Jari, as this activity takes place in the area leased by the Group, during all its stages and in all its aspects - operational, environmental, and social - in order to comply with the rules, laws and operating procedures, before, during and after the operations.

1.2. Monitoring of changes in land use and land cover within the Project area

The monitoring of planned and unplanned deforestation was developed by mapping the forest cover of the Project area using data provided annually by PRODES. Subsequently, the mapping was validated from the evaluation of the accuracy with Sentinel-2 images, with a resolution of 10 meters and low cloud cover. And additionally, the deforestation data were verified in the field as described in section 6.1. Furthermore, an additional analysis was performed with satellite images to analyze the period from 10/16/2019 to 2/16/2020, not covered by PRODES, this evaluation is detailed in section 7.

The monitoring of deforestation for the implementation of the Forest Management infrastructure (roads, branches and storage yards) within the Project Area was done using Post-Exploratory Reports, maps and satellite images containing information of the forest cover areas converted into the non-forest class. Data on deforestation events were compared to the baseline scenario. The emission reduction values for the monitored period were based on the comparison between the predicted deforestation and the deforestation that actually occurred and are presented in the tables below.

1.3. Monitoring of changes in carbon stocks

Within the Project Area: although the change in the ex-ante estimate of the carbon stock for forest class during the baseline period was not expected, the monitoring was carried out in compliance with the VM0015 Methodology. It requests that the monitoring of the carbon stock in the Project Area be carried out when the area is subject to a significant decrease in the carbon stock in the Project scenario (according to the ex-ante evaluation), either by the planned management activities or by the unplanned [such as catastrophic events and forest fires.

Within the areas of leakage management: In the Project scenario, no area is subject to planned carbon stock decrease within the Leakage Management Areas.

Ex-post estimate of non-CO₂ emissions due to forest fires: Emissions due to burning biomass are not computed in this Project. According to Methodology VM0015, non-CO₂ emissions can be conservatively omitted, since, as demonstrated by scientific research, in the Amazon region the occurrence of natural fires is rare, with a predominance of anthropogenic fires related to human occupation (SCHROEDER et al, 2009). Moreover, besides the project does not include or stimulate activities associated with fire, it promotes actions to mitigate deforestation caused by these agents, both by strengthening the property surveillance as the monitoring of degraded areas. Thus, it is conservative to exclude these emissions from monitoring.

1.4. Monitoring of impacts of natural disturbances and other catastrophic events

The reduction in the carbon stock and the increase in GHG emissions caused by natural disturbances or catastrophic events were investigated by monitoring forest cover by satellite, using the same methods applied in monitoring forest cover in the Project area.

Emissions due to natural disturbance or catastrophic events were estimated by multiplying the area of forest loss mapped by the average of forest carbon stock. During this monitoring period no significant reduction in carbon stock due to natural disturbance or catastrophic events were identified during the forest cover monitoring.

2. Monitoring of Leakage

a) Technical description of monitoring tasks

The Jari / Amapá REDD + Project involves two activities to monitor leakage sources:

- i. Monitoring the decrease in carbon stocks and/or the increase in GHG emissions associated with leakage prevention measures if project proponents implement activities such as tree planting, agricultural intensification, fertilization, forage production and/or other improvement actions in agricultural areas and pastures.

When these activities cause a carbon stocks decrease and/or an increase in GHG emissions in Leak Management Areas, these changes in the carbon stock and/or GHG emissions are estimated by Biofílica Investimentos Ambientais.

During the monitored period, the project proponents did not carry out any of the mentioned interventions. Therefore, carbon stock changes and GHG emissions associated with leakage prevention activities were not accounted for in this monitoring period.

- ii. Monitoring of forest cover in the Leakage Belt using satellite images, carried out by Biofílica Investimentos Ambientais.

Biofíllica Investimentos Ambientais monitored the forest cover in the Leakage Belt using satellite images to account for the carbon stock decrease and the increase in GHG emissions due to leakage displacement, applying a methodology similar to what was described for the project area, through the analysis of PRODES data (2019) and with the complementary evaluation with high-resolution imagery from the Sentinel-2 satellite (April/2020) for the period not covered by PRODES, between 10/16/2019 to 2/16/2020.

b) Data to be collected

Table 10 - Data collected for monitoring the leakage of REDD+ Jari/Amapá.

Data/Parameter	Description	Unit	Source	Frequency
$ABSLLK_{fcl,t}$	Area of final (post-deforestation) forest class <i>fcl</i> deforested at time <i>t</i> within the leakage belt in the baseline case	Hectare (ha)	Calculated	Annual
$\Delta CLPMLK_t$	Decrease in carbon stock due to leakage prevention measures	Ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated	Annual
$ELPMLK_t$	Total annual increase in GHG emissions due to leakage prevention measures in year <i>t</i>	Ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated	Annual
$\Delta CabBSLLK_t$	Total carbon stock change in the leakage belt area	Ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated	Annual

c) Brief description of the data collection procedures

Monitoring of carbon stock changes and GHG emissions associated to leakage prevention activities: The decrease in carbon stocks due to activities developed in Leakage Management areas did not occur, since any activity for improved farming techniques, or management of grazing areas that could alter carbon stocks and increase GHG emissions, as compared to the baseline scenario, was planned to be implemented or was implemented during this monitoring period.

However, if it is decided that such activities are necessary, the ex-ante carbon stock changes and GHG emissions associated to such activities will be estimated through step 8 of the VM0015 methodology. Sequentially, if significant, the emissions will be monitored and data will be provided to the verification body at each verification event through tables 30b, 30c, 31, 32 and 33 of VM0015 methodology, version 1.1.

In case of leakage prevention activities be implemented in LMA, some main activities will be carried out to collect and process data for monitoring the carbon stock changes:

- Leakage prevention activities will be listed;

- A map showing areas and type of intervention will be prepared;
- Areas where leakage prevention activities impact carbon stock will be identified;
- Non-forest classes existing within these areas in the baseline case will be identified;
- Carbon stocks will be measured on the identified classes or conservative literature estimates will be used;
- Carbon stock changes in the leakage management areas under the project scenario will be reported using table 30b of the VM0015;
- Net carbon stock changes that the leakage prevention measures cause during the fixed baseline period and, optionally, the project crediting period will be calculated;
- Results of the calculations will be reported in table 30.c of the VM0015.

For monitoring Methane (CH₄) and nitrous oxide (N₂O) emissions from livestock, the main following activities will be carried out:

- The annual pasture areas within Leakage Management Area (LMA) will be specified;
- Types of animal, forage and manure management will be briefly described and Table 31 of VM0015 will be used to report the key parameters required to perform the calculation of GHG emissions;
- The number of animals in the baseline case and under the project scenario will be determined based on total pasture areas and forage. The difference will be considered for the calculation of GHG emissions;
- The methods described in appendix 4 of the VM0015 will be used to estimate emissions from enteric fermentation and manure management. Final calculation will be done using equation 18 of the VM0015 and being significant, the results will be reported in Table 32 of VM0015.

Monitoring of the carbon stock reduction and increase in GHG emissions due to the leakage displacement: Activity data for the leakage belt area was determined using the same methods applied to monitoring deforestation in the project area (item 1.1). If during the monitoring process a deforestation event higher than the expected for baseline scenario is identified in the leakage belt (which did not happen during this monitoring period), and such deforestation is attributed to deforestation agents from the project area, the losses in carbon stock will be accounted and reported using Table 22c and 21d of the approved methodology VM0015, version 1.1.

d) Quality control procedures and quality assurance

Monitoring of changes in carbon stock and GHG emissions associated with leakage prevention activities: To be determined according to the activity, if implemented. Such kinds of activities were not implemented during this monitoring period.

Monitoring of carbon stock decrease and increase in GHG emissions due to activity displacement leakage: The procedures for quality control and quality assurance were the same as those applied to monitoring deforestation in the Project Area (item d)).

e) Data archiving

The original reports and field worksheets are stored by Biofílica Investimentos Ambientais, which also keeps a copy of these documents in digital format throughout the project. The original (raster) and processed (vector) digital data from satellite images, coordinates, technical maps, field photos and worksheets are also stored by Biofílica Investimentos Ambientais throughout the project. Maps of annual deforested areas, satellite images and reports are made available to the verification body at each verification event.

2.1. Monitoring of carbon stock changes and GHG emissions associated to leakage prevention activities

The decrease in the carbon stock due to the activities developed in Leakage Management Areas did not occur, since no agrarian improvement or management of pasture areas capable of altering the carbon stock and increasing GHG emissions when compared to the baseline scenario were implemented during this monitoring period.

However, if it is decided that these activities are necessary, the ex-ante carbon stock changes and the GHG emissions associated with these activities will be estimated through Step 8 of the VM0015 methodology. If significant, activities and associated emissions will be monitored and data will be made available to verifiers through tables 30b, 30c, 31, 32 and 33 of the VM0015 methodology, version 1.1.

The following activities in Leakage Management Areas may lead to a reduction in carbon stock or an increase in GHG emissions:

- Changes in carbon stock from activities implemented in the Leakage Management Areas;
- Emissions of methane (CH₄) and nitrous oxide (N₂O) from intensification of livestock (involving a change in the animals' diet and/or number of animals).

Nitrous oxide (N₂O) emissions from nitrogen fertilization are always considered insignificant, according to the latest version of the VCS standard. The consumption of fossil fuels is always considered insignificant in AUD of the project activities and should not be considered.

2.2. Monitoring of carbon stock decrease and increase in GHG emissions due to activity displacement leakage

Activity data for the Leakage Belt area was determined using the same methods applied to monitoring deforestation in the Project Area (item 1.1). If there is a deforestation event larger than expected

for the baseline scenario during the monitoring process and it is recognized in the Leakage Belt and deforestation is attributed to deforestation agents in the Project Area, the losses in the carbon stock will be accounted for and reported using Tables 21c and 22c of the Approved Methodology VM0015 version 1.1, which did not occur during the monitoring period of this report.

2.3. Total ex post estimated leakage

The results were demonstrated to the verifiers using Table 35 of the Approved Methodology VM0015 version 1.1.

3. Ex-post net reductions of GHG gases

a) Technical description of monitoring tasks

In the verification processes the results was presented using the Table 36 of VM0015 approved methodology version 1.1 together with spatial data (deforestation maps, when available).

b) Data to be collected

Table 11 - Data collected to monitor the net ex-post GHG gases reductions for the REDD+ Jari/Amapá Project

Data/Parameter	Description	Unit	Source	Frequency
$\Delta\text{REDD}_{,t}$	Net anthropogenic greenhouse gas emission reduction attributable to the AUD project activity at year t	ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated	Annual
$\text{VCU}_{,t}$	Number of Verified Carbon Units (VCUs) to be made available for trade in year t	ton of carbon dioxide equivalent (tCO ₂ -e)	Calculated	Annual

c) Brief description of the data collection procedures

The calculation of the number of Verified Carbon Units (VCUs) to be produced by the REDD+ Jari/Amapá Project activities at the years 2014, 2015, 2016, 2017, 2018 and 2019 were calculated using equation 19 and 20 of Methodology VM0015 version 1.1.

d) Quality control procedures and quality assurance

All tasks and tools listed in part 2 of the Approved Methodology VM0015 were used to ensure that the data are suitable for the verification process and the number of Verified Carbon Units is reliable.

e) Data archiving

All data and reports of the Jari/Amapá REDD+ Project are stored by Biofílica Investimentos Ambientais in digital files throughout the project. All documents related to the monitoring of the Project are compiled and made available to the verification body at each verification event.

3.1.4. Dissemination of Monitoring Plan and Results (CL4.2)

As already described in item 2.3.1, the Jari/Amapá REDD+ Project has implemented three methods of communication, aiming to guarantee access to documents and all other information of the Project to the communities and other stakeholders through oral, written and virtual form.

The results were disseminated in a printed version, where each document related to the monitoring were made available for consultation at the Fundação Jari office, in a virtual version where the documents related to the monitoring were available through the Verra website and website, newsletter and social media of Biofílica, and orally through the REDD+ Technical Chambers (CT), meetings between the community council of agricultural communities and technicians, during the Technical Assistance and Rural Extension (TARE) process, as well as other opportunities for contact between stakeholders and project proponents.

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1. Baseline Emissions

Carbon stock spatial estimate was obtained by geostatistics (SALES et al., 2007) with the use of auxiliary variables such as elevation, type of soil and forest. Carbon stock per hectare varied between 148.7 and 1007 tCO₂e/ha in the Reference Region. Areas with higher biomass values are located to the north of the reference region. Methodological details for the construction of the biomass map can be found in the report: Estimativa do Estoque de Carbono Florestal na Área do Projeto REDD+ Jari/Amapá. Table 12 presents average carbon stock values per hectare of all land-use and land-cover classes in the baseline scenario, present in the Project area, leakage belt and leakage management areas.

Table 12 - Carbon stocks per hectare of initial forest classes icl existing in the project area and leakage belt

Initial forest class <i>icl</i>							
Name: Forest							
ID _{icl} 1							
Average carbon stock per hectare + 90% CI							
Cab _{icl}		Cbb _{icl}		Cdw _{icl}		Ctot _{icl}	
C stock tCO ₂ e ha ⁻¹	± 90% CI tCO ₂ e ha ⁻¹	C stock tCO ₂ e ha ⁻¹	± 90% CI tCO ₂ e ha ⁻¹	C stock tCO ₂ e ha ⁻¹	± 90% CI tCO ₂ e ha ⁻¹	C stock tCO ₂ e ha ⁻¹	± 90% CI tCO ₂ e ha ⁻¹
419.1	9.1	96.0	8.9	51.0	4.7	566.0	17.9

AB/BB Proportion = 25,8% (Nogueira et al., 2008)

Where:

Cab_{icl} = Average equivalent carbon stock per hectare for the above-ground biomass reservoir for the initial forest class (tCO₂-e/ha);

Cbb_{icl} = Average equivalent carbon stock per hectare for the below-ground biomass reservoir for the initial forest class (tCO₂-e/ha);

Cdw_{icl} = equivalent carbon stock per hectare for the dead biomass reservoir for the initial forest class (tCO₂-e/ha);

$Ctot_{icl}$ = Average carbon stock per hectare for the total biomass reservoir for the initial forest class (tCO₂-e/ha)

For baseline calculations, were extract form the land-use and land-cover maps the number of hectares of each forest class that would be deforested, and the results of the baseline projections showed a deforestation of 4,323 hectares in the Project Area between 2014 and 2019 (Table 13) and 4,599 hectares in the Leakage Belt (Table 14).

Table 13 - Annual areas of unplanned baseline deforestation in the Project Area for the 2014-2019 monitoring period

Area establish after deforestation per zone within the project area		Total baseline deforestation in the project area	
IDz>	1	ABSLPA _t	ABSLPA
Name>	Zone 1		
Project year _t	ha	ha	ha
2014	608	608	608
2015	847	847	1,455
2016	724	724	2,179
2017	770	770	2,949
2018	747	747	3,696
2019	627	627	4,323

Table 14 - Annual areas of unplanned baseline deforestation in the Leakage Belt for the 2014-2019 monitoring period

Area establish after deforestation per zone within the leakage belt		Total baseline deforestation in the leakage belt	
IDz>	1	ABSLK _t	ABSLPA
Name>	Zone 1		
Project year _t	ha	ha	ha
2014	946	946	946
2015	795	795	1,741
2016	719	719	2,460
2017	685	685	3,145

2018	707	707	3,852
2019	747	747	4,599

For the calculation of the baseline changes in carbon stock in the Project Area (Table 15) and Leakage Belt (Table 16) for year t was used Method 1 of VM0015 version 1.1, according to Equation 10 (page 72 of this VM0015), and which was also used in the project description (VCS – p. 111) to calculate the total change in the baseline carbon stock in the project area and the leakage belt, presented below:

$$\Delta C_{BSLPA_t} = \sum_{p=1}^P \left(\sum_{icl=1}^{Icl} ABSLPA_{icl,t} * \Delta Cp_{icl,t=t^*} - \sum_{z=1}^Z ABSLPA_{z,t} * \Delta Cp_{z,t=t^*} \right. \\ + \sum_{icl=1}^{Icl} ABSLPA_{icl,t-1} * \Delta Cp_{icl,t=t^*+1} - \sum_{z=1}^Z ABSLPA_{z,t-1} * \Delta Cp_{z,t=t^*+1} \\ + \sum_{icl=1}^{Icl} ABSLPA_{icl,t-2} * \Delta Cp_{icl,t=t^*+2} - \sum_{z=1}^Z ABSLPA_{z,t-2} * \Delta Cp_{z,t=t^*+2} + \dots \\ \left. + \sum_{icl=1}^{Icl} ABSLPA_{icl,t-19} * \Delta Cp_{icl,t=t^*+19} - \sum_{z=1}^Z ABSLPA_{z,t-19} * \Delta Cp_{z,t=t^*+19} \right) \quad (1)$$

Where:

ΔC_{BSLPA_t} : Total baseline carbon stock change within the project area at year t (tCO₂-e);

$ABSLPA_{icl,t}$: Area of initial forest class icl deforested at time t within the project area in the baseline case (ha);

$ABSLPA_{icl,t-1}$: Area of initial forest class icl deforested at time $t-1$ within the project area in the baseline case (ha);

$ABSLPA_{icl,t-19}$: Area of initial forest class icl deforested at time $t-19$ within the project area in the baseline case (ha);

$\Delta Cp_{icl,t=t^*}$: Average carbon stock change factor for carbon pool pin the initial forest class icl applicable at time t (as per Table 20.a) (tCO₂-e.ha⁻¹);

$\Delta Cp_{icl,t=t^*+19}$: Average carbon stock change factor for carbon pool pin the initial forest class icl applicable at time $t=t^*+19$ (20th year after deforestation, (as per Table 20.a) (tCO₂-e.ha⁻¹);

$ABSLPA_{z,t}$: Area of the zone z “deforested” at time t within the project area in the baseline case (ha);

$ABSLPA_{z,t-1}$: Area of the zone z “deforested” at time $t-1$ within the project area in the baseline case (ha);

$ABSLPA_{z,t-19}$: Area of the zone z “deforested” at time $t-19$ within the project area in the baseline case (ha);

$\Delta Cp_{z,t=t^*}$: Average carbon stock change factor for carbon pool pin zone z applicable at time $t = t^*$ (as per Table 20.b) (tCO₂-e.ha⁻¹);

$\Delta Cp_{z,t=t^*+1}$: Average carbon stock change factor for carbon pool pin zone z applicable at time $t = t^*+1$ ((=2nd year after deforestation, as per Table 20.b) (tCO₂-e.ha⁻¹);

$\Delta C_{p,z,t=t^*+19}$: Average carbon stock change factor for carbon pool pin zone z applicable at time $t = t^*+19$ ($=20^{\text{th}}$ year after deforestation, as per Table 20.b) ($\text{tCO}_2\text{-e.ha}^{-1}$).

Total emissions in the baseline scenario in the Project Area for the period from 2014 to 2019 was 2,026,401 tCO_2e , as presented in Table 15. The total emissions from the baseline scenario in the leakage belt for the same period was 2,205,282 tCO_2e , respectively, as presented in Table 16.

Table 15 - Total net baseline carbon stock change in baseline scenario in the Project Area (table 21.b. VM0015)

Carbon stock changes per initial forest class icl		Total carbon stock change of initial forest class in the project area		Carbon stock changes per post-deforestation zone z		Total carbon stock change of post-deforestation zones in the project area		Total net carbon stock change of the project area	
ID $_{icl}$ >	1	$\Delta C_{BSLPA_{icl,t}}$	$\Delta C_{BSLPA_{icl}}$	ID $_{iz}$ >	1	$\Delta C_{BSLPA_{z,t}}$	ΔC_{BSLPA_z}	ΔC_{BSLPA_t}	ΔC_{BSLPA}
Name>	Forest	annual	cumulative	Name>	Zone 1	annual	cumulative	annual	cumulative
Project Year t	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$	Project Year t	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$
2014	287,773	287,773	287,773	2014	13,714	13,714	13,714	274,059	274,059
2015	400,390	400,390	688,162	2015	18,895	18,895	32,609	381,495	655,553
2016	359,472	359,472	1,047,635	2016	23,324	23,324	55,933	336,148	991,701
2017	390,064	390,064	1,437,699	2017	28,034	28,034	83,967	362,030	1,353,732
2018	391,398	391,398	1,829,097	2018	32,603	32,603	116,570	358,795	1,712,527
2019	350,313	350,313	2,179,410	2019	36,438	36,438	153,009	313,874	2,026,401

Table 16 - Total net baseline carbon stock change in baseline scenario in the Leakage Belt area (table 21.c. VM0015)

Carbon stock changes per initial forest class icl		Total carbon stock change of initial forest class in the leakage belt area		Carbon stock changes per post-deforestation zone z		Total carbon stock change of post-deforestation zones in leakage belt area		Total net carbon stock change of the leakage belt area	
ID $_{icl}$ >	1	$\Delta C_{BSLLK_{icl,t}}$	$\Delta C_{BSLLK_{icl}}$	ID $_{iz}$ >	1	$\Delta C_{BSLLK_{z,t}}$	ΔC_{BSLLK_z}	ΔC_{BSLLK_t}	ΔC_{BSLLK}
Name>	Forest	Annual	cumulative	Name>	Zone 1	annual	cumulative	annual	cumulative
Project Year t	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$	Project Year t	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$	$\text{tCO}_2\text{-e}$
2014	448,701	448,701	448,701	2014	21,733	21,733	21,733	426,968	426,968
2015	397,090	397,090	845,791	2015	26,596	26,596	48,330	370,494	797,462
2016	375,799	375,799	1,221,590	2016	30,994	30,994	79,324	344,804	1,142,266
2017	371,611	371,611	1,593,201	2017	35,185	35,185	114,509	336,427	1,478,693
2018	391,219	391,219	1,984,420	2018	39,509	39,509	154,018	351,710	1,830,402
2019	418,958	418,958	2,403,378	2019	44,079	44,079	198,096	374,880	2,205,282

3.2.2. Project Emissions

3.2.2.1. Emissions due to planned deforestation

As pointed out in the PD, there was an estimate of the decrease in carbon stock due to deforestation for the implementation of infrastructure in each annual production unit (UPA) in the Project Area. During the monitored period, this decrease was accounted in 2018, when the management activity started in UPA 01. The values surveyed were based on data collected in loco, performed by the field teams, presenting some differences from what had been initially planned. These differences occur because at the time of implementation it was essential to consider local conditions that at the time of planning are not expected.

Table 17 shows carbon stock decrease due to planned deforestation in the Project Area, the total emissions related to the planned deforestation is 21,108 tCO₂e. This value was obtained by multiplying the average area of the infrastructures annually opened for roads and log decks (necessary to carry out the management within each Annual Production Unit (UPA)), by the average carbon stock change, as shown in the equation below.

$$\Delta\text{CPDdPA}_t = (\text{APDPA}_{icl,t} \times \text{Ctot}_{icl,t}) \quad (2)$$

Where:

ΔCPDdPA_t : Total decrease in carbon stock due to planned deforestation at year t in the project area;

$\text{APDPA}_{icl,t}$: Areas of planned deforestation in forest class icl at year t in the project area;

$\text{Ctot}_{icl,t}$: Average carbon stock of all accounted carbon pools in forest class icl at time t .

Table 17 - Carbon stock decrease due to planned deforestation in the Project Area (Table 25.a. VM0015)

Project Year t	Areas of planned deforestation x Carbon stock change (decrease) in the project area		Total carbon stock decreases due to planned deforestation	
	ID _{cl} =	1	annual	cummulative
	APDPA _{icl,t}	Ctot _{icl,t}	ΔCPDdPA_t	ΔCPDdPA
	ha	tCO ₂ e ha ⁻¹	tCO ₂ e	tCO ₂ e
2014	0	566.0	0.0	0.0
2015	0	566.0	0.0	0.0
2016	0	566.0	0.0	0.0
2017	0	566.0	0.0	0.0
2018	37	566.0	21,108	21,108
2019	0	566.0	0.0	21,108

3.2.2.2. Emissions due to planned logging activities

As already expected in the PD, the low impact forest management in the Project Area did not realize emissions associated with the logging activities from 2014 to 2019. Furthermore, as outlined in the most updated Forest Management Plan of 2018, and as confirmed by information on wood sales, logging was mainly directed to obtain long-lived wood products and, based on the fact that VM0015 considers conservative to disregard these products from the calculations, all logging activities were excluded.

Table 18 - Carbon stock decrease due to planned logging activities in the project area (Table 25.b. VM0015)

Project Year t	Areas of planned logging activities x Carbon stock change (decrease) in the project area		Total carbon stock decreases due to planned logging activities	
	ID _{cl} =	1	annual	cummulative
	APLPA _{icl,t}	Ctot _{icl,t}	ΔCPLdPA_t	ΔCPLdPA
	ha	tCO ₂ e ha ⁻¹	tCO ₂ e	tCO ₂ e
2014	0	0.0	0.0	0.0
2015	0	0.0	0.0	0.0
2016	0	0.0	0.0	0.0
2017	0	0.0	0.0	0.0
2018	0	0.0	0.0	0.0
2019	0	0.0	0.0	0.0

3.2.2.3. Emissions due to fuel-wood and charcoal activities

No emissions associated to planned fuel-wood and charcoal activities were developed in the Project Area.

Table 19 - Carbon stock decrease due to planned fuel-wood collection and charcoal production in the Project Area (Table 25.c. VM0015)

Project Year t	Areas of planned fuel-wood & charcoal activities x Carbon stock change (decrease) in the project area		Total carbon stock decreases due to planned fuel-wood and charcoal activities	
	ID _{cl} =	1	annual	cummulative
	APFPA _{icl,t}	Ctot _{icl,t}	ΔCPFdPA_t	ΔCPFdPA
	ha	tCO ₂ e ha ⁻¹	tCO ₂ e	tCO ₂ e
2014	0	0.0	0.0	0.0
2015	0	0.0	0.0	0.0
2016	0	0.0	0.0	0.0

2017	0	0.0	0.0	0.0
2018	0	0.0	0.0	0.0
2019	0	0.0	0.0	0.0

3.2.2.4. Removals due to carbon stock increase of planned activities

Carbon stock increase due to planned activities in areas that would be deforested in the baseline case was omitted.

Table 20 - Total ex post carbon stock decreases due to planned activities in the Project Area (Table 25.d. VM0015)

Project Year t	Total carbon stock decreases due to planned deforestation		Total carbon stock decreases due to planned logging activities		Total carbon stock decreases due to planned fuel-wood and charcoal activities		Total carbon stock decreases due to planned activities	
	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCPDdPA_t	ΔCPDdPA	ΔCPLdPA_t	ΔCPLdPA	ΔCPFdPA_t	ΔCPFdPA	ΔCPAdPA_t	ΔCPAdPA
	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
2014	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2015	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2016	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2017	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2018	21,108	21,108	0.0	0.0	0.0	0.0	21,108	21,108
2019	0.0	21,108	0.0	0.0	0.0	0.0	0.0	21,108

3.2.2.5. Total ex post carbon stock decrease in the Project Area

No carbon stock decrease associated to Project activities has occurred in the Project Area in the monitored period.

Table 21 - Total Ex post estimated net carbon stock decrease in the Project Area

Project Year t	Total carbon stock decreases due to planned activities		Total carbon stock increase due to planned activities		Total carbon stock decreases due to unavoided unplanned deforestation		Total carbon stock change in the project case	
	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCPAdPA_t	ΔCPAdPA	ΔCPAiPA_t	ΔCPAiPA	ΔCUDdPA_t	ΔCUDdPA	ΔCPSPA_t	ΔCPSPA
	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
2014	0.0	0.0	0.0	0.0	54,448	54,448	54,448	54,448
2015	0.0	0.0	0.0	0.0	72,966	127,413	72,966	127,413

2016	0.0	0.0	0.0	0.0	19,931	147,345	19,931	147,345
2017	0.0	0.0	0.0	0.0	48,677	196,022	48,677	196,022
2018	21,108	21,108	0.0	0.0	35,116	231,139	56,224	252,246
2019	0.0	21,108	0.0	0.0	40,110	271,249	40,110	292,357

3.2.2.6. Emissions due to unavoidable unplanned deforestation

Total unplanned deforestation in the Project Area during this monitoring period is 574 hectares, according to PRODES data. The accuracy of the PRODES (2018) data for the land use and land cover classes in the monitored area was 83%, and for the PRODES (2019) data was 91%, in both years a value higher than the 80% established by VM0015. The methodology and results of this analysis are described in section 6.1. The annual data was presented in Table 22.

Table 22 - Observed annual areas deforested in each zone within the project area monitored (Table 13.b. VM0015)

Area established after deforestation per zone within the project area		Total monitored deforestation in the project area	
IDz>	1		
Name>	Zone 1	Annual	Cumulative
Project year _t	ha	ha	ha
2014	122	122	122
2015	163	163	285
2016	37	37	322
2017	103	103	425
2018	69	69	494
2019	80	80	574

3.2.2.7. Emissions due to forest fires and catastrophic events

No emissions associated to forest fires and catastrophic events have occurred in the Project Area in the monitored period.

Table 23 - Carbon Stock decrease due to forest fires in the Project Area (Table 25.e. VM0015)

Project Year <i>t</i>	Areas affected by forest fires x Carbon stock change (decrease)		Total carbon stock decreases due to forest fires	
	ID _{cl} =	1	annual	cummulative

	AUFPA _{icl,t}	Ctot _{icl,t}	ΔCUFdPA _t	ΔCUFdPA
	ha	tCO ₂ e ha ⁻¹	tCO ₂ e	tCO ₂ e
2014	0	0.0	0.0	0.0
2015	0	0.0	0.0	0.0
2016	0	0.0	0.0	0.0
2017	0	0.0	0.0	0.0
2018	0	0.0	0.0	0.0
2019	0	0.0	0.0	0.0

Table 24 - Carbon Stock decrease due to catastrophic events in the Project Area (Table 25.f. VM0015)

Project Year <i>t</i>	Areas affected by catastrophic events x Carbon stock change (decrease)		Total carbon stock decreases due to catastrophic events	
	ID _{cl} =	1	annual	cummulative
	ACPA _{icl,t}	Ctot _{icl,t}	ΔCUCdPA _t	ΔCUCdPA
	ha	tCO ₂ e ha ⁻¹	tCO ₂ e	tCO ₂ e
2014	0	0.0	0.0	0.0
2015	0	0.0	0.0	0.0
2016	0	0.0	0.0	0.0
2017	0	0.0	0.0	0.0
2018	0	0.0	0.0	0.0
2019	0	0.0	0.0	0.0

Table 25 - Carbon Stock decrease due to forest fires and catastrophic events (Table 25.g. VM0015)

Project Year <i>t</i>	Total carbon stock decreases due to forest fires		Total carbon stock decreases due to catastrophic events		Total carbon stock decreases due to forest fires and catastrophic events	
	annual	cummulative	annual	cummulative	annual	cummulative
	ΔCUFdPA _t	ΔCUFdPA	ΔCUCdPA _t	ΔCUCdPA	ΔCFCdPA _t	ΔCFCdPA
	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
2014	0	0.0	0.0	0.0	0.0	0.0
2015	0	0.0	0.0	0.0	0.0	0.0
2016	0	0.0	0.0	0.0	0.0	0.0
2017	0	0.0	0.0	0.0	0.0	0.0
2018	0	0.0	0.0	0.0	0.0	0.0
2019	0	0.0	0.0	0.0	0.0	0.0

3.2.2.8. Ex post estimated net carbon stock change in the Project area

The calculation of the ex-post estimated net carbon stock change in the project area uses the same method described in the sections 6.1.2 and 6.1.3 of the Approved VCS Methodology VM0015, considering at this time the changes observed in the current monitoring period. The total change in carbon stock due to unavoidable unplanned deforestation in the Project area was calculated follows Equation 3.

$$\Delta \text{CUDdPA}_t = \sum_{y=1}^t \left(\sum_{icl=1}^{icl} \text{AUDPA}_{icl,y} * \Delta \text{Ctot}_{icl,t-y} - \sum_{fcl=1}^{fcl} \text{AUDPA}_{fcl,y} * \Delta \text{Ctot}_{fcl,t-y} \right) \quad (3)$$

Where:

ΔCUDdPA_t : Total carbon stock changes due to unavoidable unplanned deforestation in the Project Area in year t ;

$\text{AUDPA}_{icl,y}$: Unplanned deforestation area in the initial forest class icl in year t in the Project Area in the Project scenario;

$\Delta \text{Ctot}_{icl,Ac}$: Loss of carbon stock in the initial forest class icl at the age of change Ac (number of years after the change of use and soil cover);

$\text{AUDPA}_{fcl,y}$: Post deforestation non-forest class area fcl in year t in the Project Area after unplanned deforestation in the Project scenario;

$\Delta \text{Ctot}_{fcl,Ac}$: Gain in carbon stock in the final post deforestation non-forest class fcl at the age of change Ac (number of years after change of use and soil cover).

Total ex post estimated carbon stock change in Project area under the Project scenario in this monitoring period is presented in Table 26.

Table 26 - Ex-post carbon stock change in the Project Area (Table 21.b.2. VM0015)

Carbon stock changes per initial forest class icl		Total carbon stock change of initial forest class in the project area		Carbon stock changes per post-deforestation zone z		Total carbon stock change of post-deforestation zones in the project area		Total net carbon stock change of the project area	
ID $_{icl}$ >	1	$\Delta \text{CBSLPA}_{icl,t}$	$\Delta \text{CBSLPA}_{icl}$	ID $_{iz}$ >	1	$\Delta \text{CBSLPA}_{z,t}$	ΔCBSLPA_z	ΔCBSLPA_t	ΔCBSLPA
Name >	Forest	annual	cumulative	Name >	Zone 1	annual	cumulative	annual	cumulative
Project Year t	tCO $_2$ -e	tCO $_2$ -e	tCO $_2$ -e	Project Year t	tCO $_2$ -e	tCO $_2$ -e	tCO $_2$ -e	tCO $_2$ -e	tCO $_2$ -e
2014	55,429	55,429	55,429	2014	981	981	981	54,448	54,448
2015	74,695	74,695	130,124	2015	1,729	1,729	2,710	72,966	127,413
2016	22,655	22,655	152,779	2016	2,724	2,724	5,434	19,931	147,345
2017	51,629	51,629	204,408	2017	2,951	2,951	8,385	48,677	196,022
2018	38,696	38,696	243,103	2018	3,579	3,579	11,965	35,116	231,139

2019	44,114	44,114	287,217	2019	4,004	4,004	15,968	40,110	271,249
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3.2.2.9. Non-CO2 emissions from forest fires

Following the guidelines of item 6.2 of VM0015 (pg. 81), Non-CO2 emissions from fires used to clear forests in the baseline were omitted, being monitored in the ex-post scenario only when significant. During the monitoring period, the monitored area did not suffer any significant and unplanned reduction in carbon stock, for example, due to uncontrolled forest fires and other catastrophic events. And according to item 1.1.4 of VM0015 v 1.1 (page 112) these events are subject to monitoring and should be accounted for in the project scenario, when significant. Therefore, as nonsignificant event occurred during the monitored period, this information was considered not relevant and was not monitored.

Table 27 - Total ex post estimated actual net carbon stock changes and emissions of non-CO₂ gasses in the project area (Table 29 VM0015)

Project Year t	Total ex post carbon stock decreases due to planned activities		Total ex post carbon stock increase due to planned activities		Total ex post carbon stock decreases due to unavaoided unplanned deforestation		Total ex post net carbon stock change		Total ex ante estimated actual non-CO2 emissions from forest fires in the project area	
	annual	cumulative	Anual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCPA_{dPA_t}	ΔCPA_{dPA}	ΔCPA_{iPA_t}	ΔCPA_{iPA}	ΔCUD_{dPA_t}	ΔCUD_{dPA}	$\Delta CPSPA_t$	$\Delta CPSPA$	$EBBBSLPA_t$	$EBBPSPA$
	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2e}	tCO _{2-e}	tCO _{2-e}
2014	0.0	0.0	0.0	0.0	54,448	54,448	54,448	54,448	0.0	0.0
2015	0.0	0.0	0.0	0.0	72,966	127,413	72,966	127,413	0.0	0.0
2016	0.0	0.0	0.0	0.0	19,931	147,345	19,931	147,345	0.0	0.0
2017	0.0	0.0	0.0	0.0	48,677	196,022	48,677	196,022	0.0	0.0
2018	21,108	21,108	0.0	0.0	35,116	231,139	56,224	252,246	0.0	0.0
2019	0.0	21,108	0.0	0.0	40,110	271,249	40,110	292,357	0.0	0.0

3.2.3. Leakage

One source of leakage was monitored: leakage due to displacement activity. Leakage due to displacement activity was monitored by mapping forest cover change in the leakage belt. As defined in the VCS Methodology VM0015, deforestation above the baseline in the leakage belt area was considered activity displacement leakage. Activity data for the leakage belt area was determined using the same methods applied to deforestation mapping in the Project area.

3.2.3.1. Total ex post carbon stock decrease in the Leakage Belt

Total deforestation in the Leakage Belt during this monitoring period was 551 hectares, according to PRODES data. As mentioned for the Project Area, the PRODES data used in the Leakage Belt monitoring also had its accuracy analyzed, the methodology and results of this analysis are described in section 6.1. The annual data was presented in Table 28.

Table 28 - Annual areas deforested in each zone within the leakage belt monitored (Table 13.c. VM0015)

Area established after deforestation per zone within the leakage belt		Total monitored deforestation in the leakage belt	
IDz>	1		
Name>	Zone 1	Annual	Cumulative
Project year _t	ha	ha	ha
2014	117	117	117
2015	204	204	321
2016	33	33	354
2017	95	95	449
2018	87	87	536
2019	15	15	551

Total carbon stock change due to unavoidable unplanned deforestation within the leakage belt area is calculated the following way:

$$\Delta CBSLLK_t = \sum_{y=1}^t \left(\sum_{icl=1}^{icl} AUDLK_{icl,y} * \Delta Ct_{icl,t-y} - \sum_{fcl=1}^{fcl} AUDLK_{fcl,y} * \Delta Ct_{fcl,t-y} \right) \quad (4)$$

Where:

$\Delta CBSLLK_t$: Total carbon stock changes due to unavoidable unplanned deforestation in the area of the Leakage Belt in year t ;

$AUDLK_{icl,y}$: Unplanned deforestation area in the initial forest class icl in year t in the area of the Leakage Belt in the Project scenario;

$\Delta Ct_{icl,Ac}$: Loss in the carbon stock in the initial forest class icl at the age of change Ac (number of years after the change of LU/LC);

$AUDLK_{fcl,y}$: Post deforestation non-forest class area fcl in year t in the Leakage Belt after unplanned deforestation in the Project scenario;

$\Delta Ct_{fcl,Ac}$: Gain in carbon stock in the final post deforestation non-forest class fcl at the age of change Ac (number of years after the change of LU/LC).

Table 29 - Ex-post Baseline carbon stock change in the leakage belt area (Table 21.c.2. of VCS VM0015)

Carbon stock changes per initial forest class icl		Total carbon stock change of initial forest class in the leakage belt area		Carbon stock changes per post-deforestation zone z		Total carbon stock change of post-deforestation zones in leakage belt area		Total net carbon stock change of the leakage belt area	
ID _{icl} >	1	$\Delta CBSLLK_{icl,t}$	$\Delta CBSLLK_{icl}$	ID _{iz} >	1	$\Delta CBSLLK_{z,t}$	$\Delta CBSLLK_z$	$\Delta CBSLLK_t$	$\Delta CBSLLK$
Name>	Forest	annual	cumulative	Name>	Zone 1	annual	cumulative	annual	cumulative
Project Year t	tCO ₂ -e	tCO ₂ -e	tCO ₂ -e	Project Year t	tCO ₂ -e	tCO ₂ -e	tCO ₂ -e	tCO ₂ -e	tCO ₂ -e
2014	53,824	53,824	53,824	2014	1,287	1,287	1,287	52,537	52,537
2015	93,159	93,159	146,983	2015	2,002	2,002	3,289	91,157	143,694
2016	22,293	22,293	169,276	2016	3,248	3,248	6,536	19,045	162,739
2017	49,527	49,527	218,803	2017	3,452	3,452	9,988	46,075	208,814
2018	47,370	47,370	266,173	2018	4,033	4,033	14,022	43,336	252,151
2019	17,566	17,566	283,738	2019	4,565	4,565	18,587	13,001	265,152

3.2.3.2. Total ex post estimated leakage

Ex post total net carbon stock changes in the leakage belt due to displacement of activity in this monitoring period are presented in Table 30. The Leakage was calculated as the difference between the ex post and ex ante assessment.

In this case, as result, the value of the carbon stock change within the Monitoring Period from 2014 to 2019 is lower than zero (<0), so the ex post leakage was set to zero in these years as recommended by the section 1.2 – Monitoring of Leakage, of VCS VM0015.

Table 30 - Total net ex ante and ex post baseline carbon stock change in the leakage belt

Project Year t	Total net carbon stock change of the leakage belt area		Total net carbon stock change of the leakage belt area		Total ex-post Leakage	
	$\Delta CBSLLK_t$	$\Delta CBSLLK$	$\Delta CBSLLK_t$	$\Delta CBSLLK$	$\Delta CBSLLK_t$	$\Delta CBSLLK$
	annual	cumulative	annual	cumulative	annual	cumulative
	tCO ₂ -e	tCO ₂ -e	tCO ₂ -e	tCO ₂ -e	tCO ₂ -e	tCO ₂ -e
2014	426,968	426,968	52,537	52,537	0	0.0
2015	370,494	797,462	91,157	143,694	0	0.0
2016	344,804	1,142,266	19,045	162,739	0	0.0
2017	336,427	1,478,693	46,075	208,814	0	0.0
2018	351,710	1,830,402	43,336	252,151	0	0.0
2019	374,880	2,205,282	13,001	265,152	0	0.0

3.2.4. Net GHG Emission Reductions and Removals

The net anthropogenic GHG emissions reductions were calculated following the equation 19, equation 20 and equation 21 of VCS VM0015 version 1.1, presented below. The risk factor used to calculate VCS buffer credits (VBC) is 10%, as calculated in Non-permanence Risk Report. The calculated ex post GHG emissions reductions are presented in Table 31:

$$\Delta REDD_t = (\Delta CBSLPA_t + EBBBSLPA_t) - (\Delta CPSPA_t + EBBPSPA_t) - (\Delta CLK_t + ELK_t) \quad (5)$$

Where:

$\Delta REDD_t$: Ex post estimated net anthropogenic greenhouse gas emission reduction attributable to the AUD project activity at year t (tCO₂e);

$\Delta CBSLPA_t$: Sum of baseline carbon stock changes in the project area at year t (tCO₂e);

$EBBBSLPA_t$: Sum of baseline emissions from biomass burning in the project area at year t (tCO₂e);

$\Delta CPSPA_t$: Sum of ex post actual carbon stock changes in the project area at year t (tCO₂e);

$EBBPSPA_t$: Sum of ex post actual emissions from biomass burning in the project area at year t (tCO₂e);

ΔCLK_t : Sum of ex post leakage net carbon stock changes at year t (tCO₂e);

ELK_t : Sum of ex post leakage emissions at year t (tCO₂e);

t : 1, 2, 3 ... T , a year of the proposed project crediting period (dimensionless).

$$VCU_t = \Delta REDD_t - VBC_t \quad (6)$$

$$VBC_t = (\Delta CBSLPA_t - \Delta CPSPA_t) * RF_t \quad (7)$$

Where:

VCU_t : Number of Verified Carbon Units that can be traded at time t (tCO₂e);

$\Delta REDD_t$: Ex post net anthropogenic greenhouse gas emission reduction attributable to the AUD project activity at year t (tCO₂e);

VBC_t : Number of Buffer Credits deposited in the VCS Buffer at time t (t CO₂-e);

$\Delta CBSLPA_t$: Sum of baseline carbon stock changes in the project area at year t (tCO₂e);

$\Delta CPSPA_t$: Sum of ex post actual carbon stock changes in the project area at year t (tCO₂e);

RF_t : Risk factor used to calculate VCS buffer credits (%);

t : 1, 2, 3 ... T , a year of the proposed project crediting period (dimensionless).

Table 31 - Ex post estimated net anthropogenic GHG emission reductions (ΔREDD_t) and Verified Carbon Units (VCU_t) (Table 36 VM0015)

Project Year t	Baseline carbon stock changes		Ex post project carbon stock changes		Ex post leakage carbon stock changes		Ex post net anthropogenic GHG emission reductions		Ex post VCUs tradable		Ex post buffer credits	
	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCBSLPA_t	ΔCBSLPA	ΔCPSPA_t	ΔCPSPA	ΔCLK_t	ΔCLK	ΔREDD_t	ΔREDD	VCU_t	VCU	VCB_t	VCB
	tCO ₂ -e	tCO ₂ -e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
15/02/2014 - 14/02/2015	274,059	274,059	54,448	54,448	0.0	0.0	219,611	219,611	197,650	197,650	21,961	21,961
15/02/2015 - 14/02/2016	381,495	655,553	72,966	127,413	0.0	0.0	308,529	528,140	277,676	475,326	30,853	52,814
15/02/2016 - 14/02/2017	336,148	991,701	19,931	147,345	0.0	0.0	316,217	844,357	284,595	759,921	31,622	84,436
15/02/2017 - 14/02/2018	362,030	1,353,732	48,677	196,022	0.0	0.0	313,353	1,157,710	282,018	1,041,939	31,335	115,771
15/02/2018 - 14/02/2019	358,795	1,712,527	56,224	252,246	0.0	0.0	302,571	1,460,281	272,314	1,314,252	30,257	146,028
15/02/2019 - 15/10/2019	313,874	2,026,401	40,110	292,357	0.0	0.0	273,764	1,734,045	246,388	1,560,640	27,376	173,404

3.3. Optional Criterion: Climate Change Adaptation Benefits

Does not apply.

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1. Community Impacts (CM2.1)

Community Group	Ramal França Rocha
Impact	2 Families benefited by: development of priority projects (conventional açaí and cassava cultivation, and conventional banana cultivation), technical assistance and rural extension services provided by the Fundação Jari (micro-zoning and soil analysis in the 2 properties), participation of the technical chambers, participation in training and workshops on agroextractivist techniques and reception of seedlings for restoration of degraded areas and production (all projects are implemented in altered areas, without native vegetation).
Type of Benefit/Cost/Risk	Direct actual benefit
Change in Well-being	The priority projects were developed from the process of transferring production technology to the families of the rural producers participating, through the provision of technical assistance and rural extension (TERA) services. The objective was the insertion of good practices of cultivation and integrated management of the properties, aiming at improving quality, increasing productivity and diversifying family production. In addition to having the improved knowledge about the limits of your property, the land uses applied and any needs for environmental adaptation or remediation that were necessary. Additionally, advice was provided to obtain reimbursable and non-reimbursable resources, especially in access to rural credit from the National Program to Strengthen Family Agriculture (PRONAF in Portuguese) and the Northern Constitutional Fund (FNO in Portuguese). This guarantees the financial independence of producers in relation to the 'traditional system of warehousing' of production, until harvesting and marketing, practicing fair trade and solidarity. Complementary to this action, all educational activities (workshops and training) have provided families more access to several technologies, increasing and improving their knowledge and skills in agroforestry systems, agricultural production, REDD+ and in fire control and fire management techniques.

Community Group	Igarapé das Pacas
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Impact	6 Families benefited by: development of priority projects (1 broiler chicken breeding and management, and 5 conventional crops of açaí and cassava), technical assistance and rural extension services provided by the Fundação Jari (micro-zoning and soil analysis in the 6 properties), participation of the technical chambers, participation in training and workshops on agroextractivist techniques and reception of seedlings for restoration of degraded areas and production (all projects are implemented in altered areas, without native vegetation).
Type of Benefit/Cost/Risk	Direct actual benefit
Change in Well-being	The priority projects were developed from the process of transferring production technology to the families of the rural producers participating, through the provision of technical assistance and rural extension (TERA) services. The objective was the insertion of good practices of cultivation and integrated management of the properties, aiming at improving quality, increasing productivity and diversifying family production. In addition to having the improved knowledge about the limits of your property, the land uses applied and any needs for environmental adaptation or remediation that were necessary. Additionally, advice was provided to obtain reimbursable and non-reimbursable resources, especially in access to rural credit from the National Program to Strengthen Family Agriculture (PRONAF in Portuguese) and the Northern Constitutional Fund (FNO in Portuguese). This guarantees the financial independence of producers in relation to the 'traditional system of warehousing' of production, until harvesting and marketing, practicing fair trade and solidarity. Complementary to this action, all educational activities (workshops and training) have provided families more access to several technologies, increasing and improving their knowledge and skills in agroforestry systems, agricultural production, REDD+ and in fire control and fire management techniques.

Community Group	Nova Conquista
Impact	10 Families benefited by: development of priority projects (3 conventional açaí and cassava crops, 1 conventional basic fish farming, 4 conventional basic fish farming and açaí, 1 conventional açaí, cassava and vegetable farming, and 1 artesian well with vegetable and plastic farming), technical assistance and rural extension services provided by the Fundação Jari (micro-zoning of 10 properties and soil analysis in 9 properties), participation of the technical chambers, participation in training and workshops on agroextractivist techniques and reception of seedlings for restoration of degraded areas and production (9 of

	the projects are implemented in altered areas, without native vegetation).
Type of Benefit/Cost/Risk	Direct actual benefit
Change in Well-being	The priority projects were developed from the process of transferring production technology to the families of the rural producers participating, through the provision of technical assistance and rural extension (TERA) services. The objective was the insertion of good practices of cultivation and integrated management of the properties, aiming at improving quality, increasing productivity and diversifying family production. In addition to having the improved knowledge about the limits of your property, the land uses applied and any needs for environmental adaptation or remediation that were necessary. Additionally, advice was provided to obtain reimbursable and non-reimbursable resources, especially in access to rural credit from the National Program to Strengthen Family Agriculture (PRONAF in Portuguese) and the Northern Constitutional Fund (FNO in Portuguese). This guarantees the financial independence of producers in relation to the 'traditional system of warehousing' of production, until harvesting and marketing, practicing fair trade and solidarity. Complementary to this action, all educational activities (workshops and training) have provided families more access to several technologies, increasing and improving their knowledge and skills in agroforestry systems, agricultural production, REDD+ and in fire control and fire management techniques.

Community Group	Água Azul
Impact	5 Families benefited by: development of priority projects (1 pig farming and management of açazais, 2 broiler chicken breeding and management, 1 conventional basic fish farming and 1 conventional basic fish farming and açai), technical assistance and rural extension services provided by the Fundação Jari (micro-zoning of the 5 properties and soil analysis in 4 properties), participation of the technical chambers, participation in training and workshops on agroextractivist techniques and reception of seedlings for restoration of degraded areas and production (all projects are implemented in altered areas, without native vegetation).
Type of Benefit/Cost/Risk	Direct actual benefit
Change in Well-being	The priority projects were developed from the process of transferring production technology to the families of the rural producers participating, through the provision of technical assistance and rural extension (TERA) services.

	The objective was the insertion of good practices of cultivation and integrated management of the properties, aiming at improving quality, increasing productivity and diversifying family production. In addition to having the improved knowledge about the limits of your property, the land uses applied and any needs for environmental adaptation or remediation that were necessary. Additionally, advice was provided to obtain reimbursable and non-reimbursable resources, especially in access to rural credit from the National Program to Strengthen Family Agriculture (PRONAF in Portuguese) and the Northern Constitutional Fund (FNO in Portuguese). This guarantees the financial independence of producers in relation to the 'traditional system of warehousing' of production, until harvesting and marketing, practicing fair trade and solidarity. Complementary to this action, all educational activities (workshops and training) have provided families more access to several technologies, increasing and improving their knowledge and skills in agroforestry systems, agricultural production, REDD+ and in fire control and fire management techniques.
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Community Group	Tira Couro
Impact	6 Families benefited by: development of priority projects (1 conventional cultivation of açaí, cassava and flour house, 1 conventional cultivation of vegetables, plastic farming and poultry, 1 cultivation of cassava and flour house, 1 cassava cultivation and flour house, 1 breeding and management of laying hens and 1 management of native açazais), technical assistance and rural extension services provided by the Fundação Jari (micro-zoning of the 6 properties and soil analysis in the 4 properties), participation of the technical chambers, participation in training and workshops on agroextractivist techniques and reception of seedlings for restoration of degraded areas and production (5 of the projects are implemented in altered areas, without native vegetation).
Type of Benefit/Cost/Risk	Direct actual benefit
Change in Well-being	The priority projects were developed from the process of transferring production technology to the families of the rural producers participating, through the provision of technical assistance and rural extension (TERA) services. The objective was the insertion of good practices of cultivation and integrated management of the properties, aiming at improving quality, increasing productivity and diversifying family production. In addition to having the improved knowledge about the limits of your property, the land uses applied and any needs for environmental adaptation or remediation that were necessary.

	Additionally, advice was provided to obtain reimbursable and non-reimbursable resources, especially in access to rural credit from the National Program to Strengthen Family Agriculture (PRONAF in Portuguese) and the Northern Constitutional Fund (FNO in Portuguese). This guarantees the financial independence of producers in relation to the 'traditional system of warehousing' of production, until harvesting and marketing, practicing fair trade and solidarity. Complementary to this action, all educational activities (workshops and training) have provided families more access to several technologies, increasing and improving their knowledge and skills in agroforestry systems, agricultural production, REDD+ and in fire control and fire management techniques.
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Community Group	Ramal Fé em Deus
Impact	4 Families benefited by: development of priority projects (2 conventional açaí and cassava crops, 1 conventional cultivation of açaí, cassava and flour house, and 1 conventional basic fish farming and açaí), technical assistance and rural extension services provided by the Fundação Jari (micro-zoning and soil analysis in the 4 properties), participation of the technical chambers, participation in training and workshops on agroextractivist techniques and reception of seedlings for restoration of degraded areas and production (all projects are implemented in altered areas, without native vegetation).
Type of Benefit/Cost/Risk	Direct actual benefit
Change in Well-being	The priority projects were developed from the process of transferring production technology to the families of the rural producers participating, through the provision of technical assistance and rural extension (TERA) services. The objective was the insertion of good practices of cultivation and integrated management of the properties, aiming at improving quality, increasing productivity and diversifying family production. In addition to having the improved knowledge about the limits of your property, the land uses applied and any needs for environmental adaptation or remediation that were necessary. Additionally, advice was provided to obtain reimbursable and non-reimbursable resources, especially in access to rural credit from the National Program to Strengthen Family Agriculture (PRONAF in Portuguese) and the Northern Constitutional Fund (FNO in Portuguese). This guarantees the financial independence of producers in relation to the 'traditional system of warehousing' of production, until harvesting and marketing, practicing fair trade and solidarity.

	Complementary to this action, all educational activities (workshops and training) have provided families more access to several technologies, increasing and improving their knowledge and skills in agroforestry systems, agricultural production, REDD+ and in fire control and fire management techniques.
Community Group	Ramal do Retiro
Impact	The community did not participate directly in the project activities; however, it was directly impacted by forest management activities. A committee with its representatives was organized to raise the main impacts caused to the community, where the following points were raised: obstruction of tracks, which are used for the flow of vehicles used to collect Brazil nuts; execution of forest operations in areas that have Brazil nuts trees for community use, with consequent losses of individuals (Brazil nuts trees) caused by management activities; complaints for more job opportunities provided by the company to community residents; need to recover old tracks, already existing before the forest operations.
Type of Benefit/Cost/Risk	Direct actual cost
Change in Well-being	The impacts raised during the committee meetings served as a basis for the development of an action plan for the remediation and prevention of damage caused. This plan will be implemented immediately, once the materials for its execution are available. Among the main actions of the plan, the following can be mentioned: training of employees who will work in the operations of the areas close to the nut trees; carrying out daily checks on the activities of forestry operations carried out in the vicinity of the nut trees, to avoid the occurrence of any type of damage to the areas; using the machinery available for the cleaning and recovery of the tracks mentioned in the complaints; carrying out the evaluation of forestry impacts in the areas affected by the 2018 and 2019 operations, and with this, presenting a proposal that satisfies both parties involved, containing actions for compensation, related to the damage to the nut trees areas, and carrying it out after due acceptance by the parties.

4.1.2. Negative Community Impact Mitigation (CM2.2)

As already predicted, during the monitoring period, the Jari/Amapá REDD+ Project did not provide any type of negative impact for the well-being of local communities, especially for those who participated in the project. The most significant negative impact, identified in the elaboration of the project, would be the time needed for communities to dedicate to the proposed activities, competing with their regular productive

activities, which was mitigated by choosing the most favorable dates to hold project workshops and meetings. The presence in these activities was essential to generate the positive impacts that were expected, compared to their condition of well-being in the scenario without projects, as described in item 4.1.3.

The potential risks that could cause some kind of negative impact, such as the lack of interest of stakeholders in participating in the activities, the increase in population migration in the project area due to the improvements caused by the project, and the reduction in natural resources due to the increase in illegal activities on the property, were mitigated according to the following measures:

- The involvement of various stakeholders in decision-making processes was guaranteed and encouraged, mainly by participating in the Technical Chambers, as well as in workshops, courses, training and diagnostics conducted by the Fundação Jari. In addition, the communication channels were constantly monitored and enhanced. Although these actions were carried out, some producers, who initially engaged in the project, lost interest in participating in the activities, as described in item 2.2.3. In spite of this, the families that left the scope of the project did not cause any changes in the planned activities, and were not harmed because of this, and at the same time that there were dropouts, new families joined to participate in the project;
- In order to mitigate the risks of property invasion and to ensure that illegal activities that threatened natural resources did not occur, the project supported and gave all necessary support to the surveillance team to carry out their field patrols by river and land routes acting to combat illegal activities. In addition, as expected, population movement due to project activities and their related impacts did not occur because only established and consolidated communities in the area were able to participate in project activities.

During the monitoring period, the analysis of areas of high conservation value (HCVA) was not completed. Even so, in the project description the Brazil nut areas were defined as potential HCVA, with two identified risks that were related to forest management activities: concern about restricted access to the areas and possible damage that could be caused to Brazil nut areas. These risks were confirmed and occurred during the management of the Annual Production Unit 1 that was carried out between 2018 and 2020. The consequence of this was the demand for compensation for the damage caused to the Ramal do Retiro community, which did not initially participate in the project, but was directly affected.

With this, in January 2020, the community members meeting with the company Agregue, mediated by the Fundação Jari, and at this event they were exposed to those responsible for managing all the damage caused, especially in relation to the Brazil nut collection areas. At this event, it was decided to elect a committee representing the interests of the community, which was responsible for conducting the dialogue with the company in subsequent meetings. The main product of this dialogue was the elaboration of an action plan that will be implemented as soon as possible, depending basically on the availability of raw material. Section 4.1.4 contains the complete description of this process.

4.1.3. Net Positive Community Well-Being (CM2.3, GL1.4)

In the initial scenario without the presence of the project, the absence of public policies and the low-income context made the communities seek more favorable alternatives for increasing income from land use in an unplanned manner and, sometimes, illegally. What it brought about in an agriculture that occurred in an inefficient and unprofitable way. Based on this, the Jari/Amapá REDD+ Project proposed the consolidation of a plan aimed at socioeconomic development with a focus on strengthening social organizations, improving production processes, by providing rural technical assistance and strengthening the actions of the Fundação Jari, and improving communication with the communities.

During the monitored period, the Project carried out the socio-economic development process for the communities involved in the project, focusing on the consolidation of local social organizations and the supply of a differentiated TARE based on diversification and production.

In this regard, the assistance, training and direct capacitation to the producers were carried out from the joint construction of knowledge and the most appropriate techniques for each family and community, maximizing the results to be obtained and continuously involving the producers in the management of the activities.

The methodology applied in these actions is part of the improvement of knowledge already dominated by producers, integrated with complementary information, thus giving more autonomy to producers. In this way, the project has provided the following positive impacts:

- I. Producers trained in better production techniques;
- II. Access to technical assistance and rural extension services directed to the reality of each community;
- III. Creation of new spaces for participation generating opportunities for direct communication with other stakeholders;
- IV. Access to workshops and training in agroforestry and agricultural techniques, giving access to diverse productive technologies;
- V. Increase knowledge and skills in agroforestry systems, agricultural production and REDD+;
- VI. Knowledge in fire control and fire management techniques;
- VII. Analysis of soils, fertilizers, genetic material and other selected seeds.

The main indirect impacts achieved in this monitoring period were: empowerment of resource management, increased self-esteem and confidence, greater access to local public policies, greater opportunities for access to credit (loans), natural resources used conscientiously, fixing the rural community in the field and consequently reducing rural exodus and urban marginalization, mitigation of risks of extreme climate events, increased availability of and safe access to food, rapprochement and dialogue with public agents, poverty reduction, increased consumer power and increased social well-being.

4.1.4. Protection of High Conservation Values (CM2.4)

As noted in section 4.1.2, during the monitoring period the analysis of high conservation value areas (HCVAs) was not completed, identified in the project description as the Brazil nut areas. Even so, during the implementation of the forest management activities some actions aimed at these areas were carried out.

The forest management at the Amapá property was carried out by the company Agregue between 2018 and 2020, during the planning phase, the 100% inventory of all the trees present in the Annual Production Unit exploited before harvesting was carried out. Before the harvest, the main focus of this survey was the trees with commercial value, as mentioned in the approved Forest Management Plan of 2018, but besides the commercial trees, other species were inventoried, especially those that have some kind of "social interest" or are protected by legislation such as Brazil nuts, Copaíba and Andiroba. The main objective of this activity was to assist the forestry team in planning the harvest to cause the least possible damage to these species.

In addition to the 100% inventory, which helped in the planning of the harvest, with the beginning of activities there were changes in the choices of trees that would be harvested because of three main risks: opening of clearings in the forest, risks to the safety of employees and the risk of Brazil nut trees falling, Figure 10 illustrates the trees that were cut down due to these reasons.

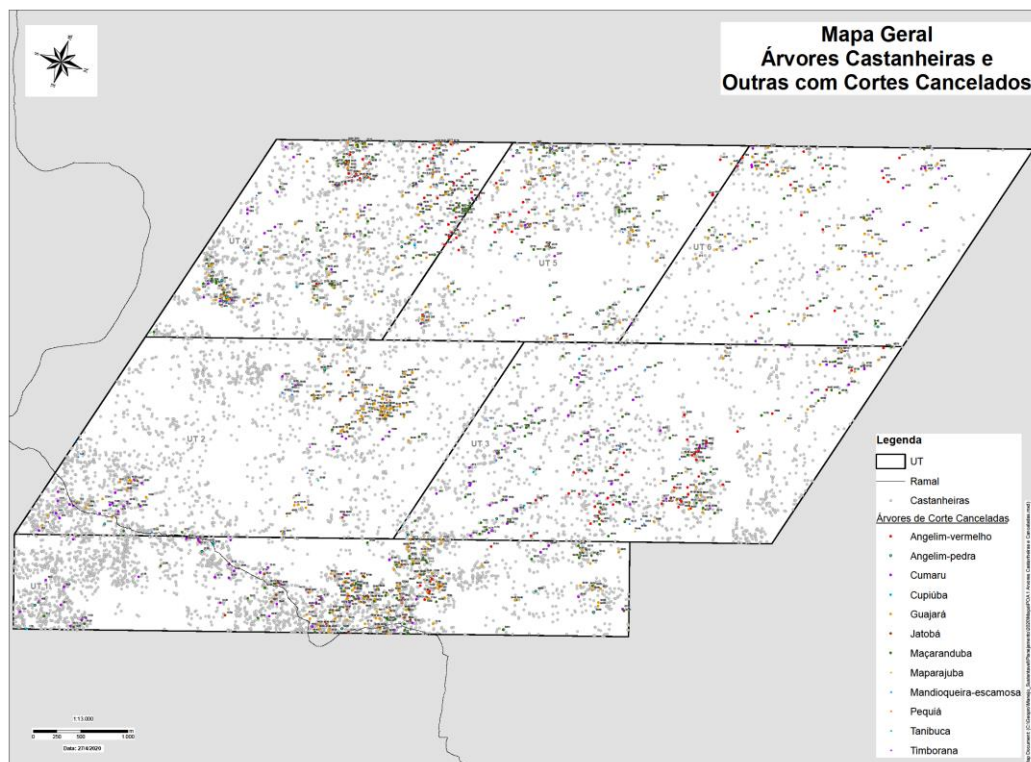


Figure 10 - Map with trees that had their felling canceled during logging

Even with the mitigation measures taken, the occurrence of impacts during the management activities was inevitable. The main risks, related to these areas, cited in the PD were: the concern with the

restriction of access to the areas and possible damage that could be caused to Brazil nut areas. These points were highlighted mainly after the initiative of the community Ramal do Retiro contacted the company Agregue and demanded social compensation for the damage caused.

The conversation between the parties began on January 4, 2020, in a meeting between the company Agregue and the communities of the Ramal do Retiro, with the mediation of the Fundação Jari. At this meeting, all the damage caused was exposed to those responsible for forest management, especially with regard to the Brazil nut collection areas. The result of this meeting was the election of a committee representing the interests of the community, which was responsible for conducting the dialogue with the company in subsequent meetings. The second meeting with the community, the first of the elected committee, took place on April 30, 2020. In this meeting the main demands pointed out were:

- Obstruction of tracks, which are used for the traffic flow of vehicles used for the collection of Brazil nuts and the need to recover old tracks, already existing before forestry operations;
- Execution of the activities in areas that have Brazil nut trees for community use, causing losses of individuals (Brazil nuts);
- Complaint for more employment opportunities provided by the company to community residents.

Based on these demands, initially Agregue proposed the following actions to remedy the damage immediately: provide machinery for cleaning the tracks mentioned in the complaints, evaluate the forest impacts in the areas affected by the operation and prepare an action plan for the treatment of other demands.

The evaluation of the forest impacts on the affected areas was carried out by the Agregue team with the support of technicians from the Fundação Jari. A survey was carried out in the Brazil nut areas, surveying the damage that occurred and mapping the areas, illustrated in Figure 11.

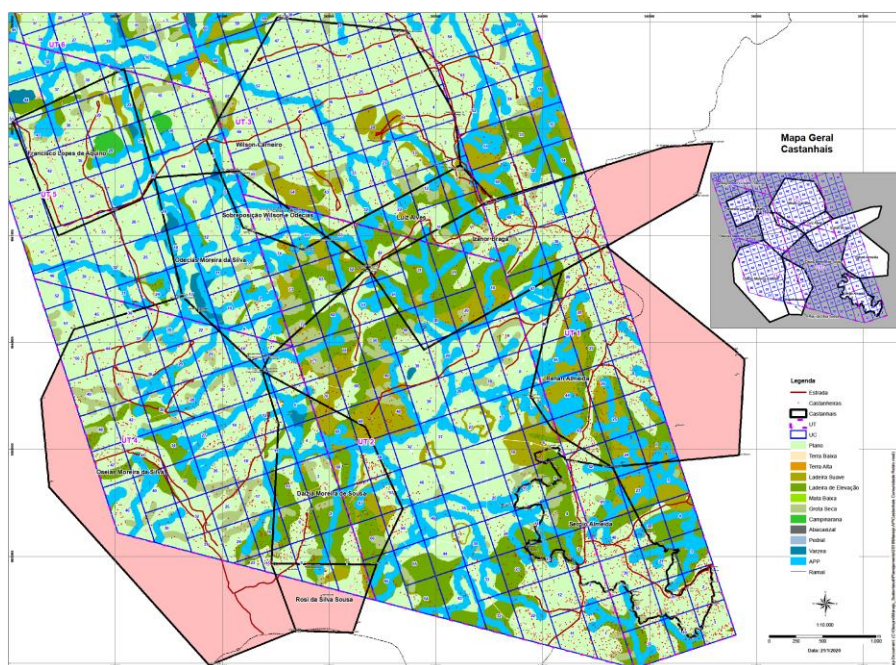


Figure 11 - Map of the areas of the Brazil nut trees in the community Ramal do Retiro overlapping the forest management area

The next step was the elaboration of the Action Plan, which followed the following points:

- Clearing of roads that are used for the flow of vehicles for the collection of Brazil nuts;
- Promote guidelines for those responsible for the execution of forestry operations in areas with Brazil nut trees for community use, programming the monitoring of the activities carried out;
- Prepare a proposal that contains compensation actions, related to the damages to the Brazil nut areas, to be carried out after the due acceptance of the parties;
- Identify ways to generate more employment opportunities that serve the community residents;
- Promote the recovery of old roads, existing before forest operations;
- To produce documents proving that all demands have been met;
- Install solar panel kits for the affected families.

By the end of the monitoring period, the plan had not yet been discussed with the community members. This occurred at a second committee meeting with Agregue on July 22, 2020, where proposals were presented to the community members to add their counterpoints. The main points raised at this meeting were the need to open tracks to access the Brazil nut groves and the construction of some bridges, in a joint planning with the community members, and the survey of the families who live and work at the Ramal do Retiro to be attended by technical assistance through the Fundação Jari and the project.

4.2. Other Stakeholder Impacts

4.2.1. Mitigation of Negative Impacts on Other Stakeholders (CM3.2)

Regarding the other communities in the Project Zone, the project did not impose any kind of land use restrictions or containment for changes in their way of life. However, during the monitoring period, impacts caused to one community in the Project Zone, because of forest management activities, were identified.

As a result, in January 2020 the community members met with the Agregue company, with the mediation of the Fundação Jari, and in this event all the damage caused was exposed to those responsible for forest management, especially in relation to the areas where Brazil nuts are collected. In this event, it was decided to elect a committee representing the interests of the community, which was responsible for conducting the dialogue with the company in subsequent meetings. The main product of this dialog was the elaboration of an action plan that will be implemented immediately, depending basically on the availability of raw material. Section 4.1.4 contains the complete description of this process.

Regarding the other project activities, no negative impacts were identified, and the success of this result can be attributed to the main mitigation measure applied, the conflict resolution procedure, described in item 2.3.12.

During the monitoring period, any questions, complaints, dissatisfactions, disagreements, and confrontations of opinions on land, environmental or social issues that might occur were reported by the

communities through the "Contact Us" channel, or through the "Stakeholders' Comments Form", available at Fundação Jari offices and transported with the technicians during their field activities. Even so, of the records obtained (available to the VBB) none had any connection with any kind of negative impact caused by the project's activities.

4.2.2. Net Impacts on Other Stakeholders (CM3.3)

As described and detailed in the previous section, the project activities did not limit the access to natural resources in the Project area of any agent originally dependent on these resources, in addition the activities to be carried out in relation to the surrounding communities were based mainly on the actions of technical assistance and rural extension, on the monitoring of possible impacts caused by forest management, which are in the process of mitigation, as described in section 4.1.4, workshops and training in agro-extractive techniques, community-level workshops, and improvement of communication channels, in addition to the articulation with government agencies and other local institutions precisely for the promotion of improvements in living conditions, greater access to public policies and technical assistance.

The mainly impacts generated by the activities of the Project have promoted inclusion and well-being to the communities and other stakeholders, the quantified and detailed data of the impacts caused by these activities are described in the Appendix. In addition, as a result of reduced deforestation during the period monitored, indirect positive impacts were generated that benefited various stakeholders, such as other community groups living on Grupo Jari property. Among the benefits caused can be listed:

- I. Facilitation in the access to technical assistance and rural extension services directed to the reality of each community, supporting the realization of sustainable agro-extractive practices;
- II. Opportunity to access workshops and training in agroforestry and agricultural techniques, introducing various production technologies, and knowledge about techniques to control burning and fire management;
- III. Part of the communities present in the Project Zone have fishing as an important source of subsistence consumption, an activity preserved due to the maintenance of the water quality of the rivers, with the reduction of soil erosion;
- IV. The agro-extractive activities carried out by the communities in the Project Zone are their main source of income, and due to the maintenance of genetic variability of plant and animal species, important for species resilience to pests and diseases, as well as the maintenance of water body volume flows, that ensuring water for irrigation and agricultural production, and the conservation of forest cover that acts as a protective shield against winds and storms, so common in the region, these factors form a favorable environment to carry out these activities, besides the constant support from the technical assistance actions.

Other benefits contemplated by the community members include results of the partnership between municipality of Laranjal do Jari and Agregue. The partnership is related to provision of wood logs by Agregue, derived from SFM activities, to be benefited and used for construction and restoration of

walkways, bridges, bus stops among other constructions that benefit communities. The results of this partnership work on one of the concerns raised by the community as pointed out in section 2.3.3 – “new roads for them to have better access to the area”.

4.3. Community Impact Monitoring

4.3.1. Community Monitoring Plan (CM4.1, CM4.2, GL1.4, GL2.2, GL2.3, GL2.5)

During the project design, a plan was developed for monitoring the communities and other stakeholders, which considered the causal relationship of the project activities and the expected impacts for the actors involved. However, during the monitored period, some activities were not carried out according to the expected periodicity, and some indicators were not monitored, the justifications for these deviations are cited in section 2.2.4.

Independent of these deviations, during the monitoring period, the focus of the monitoring was the communities located within the Project Zone (Gleba Jari II). These are rural communities with similar patterns of social organization and livelihoods, with the common characteristic of developing small-scale farming activities, based mainly on the slash-and-burn system, where the forest is harvested and burned. Among the rural communities identified, 8 were initially selected as communities that would be involved in the project from the beginning, but as described in the description of section 2.2.3, they became 6 main communities that would be covered by the project activities.

Therefore, the sampling methods used and the monitoring process for the activities listed in Table 32, and their results are presented detailed in Appendix.

1. Sustainable Forest Management: Agregue has become the legitimate holder of the contractual concession for the forest exploitation on Amapá property. Between the years 2018 to 2020, the company carried out low-impact forest management on the property, following norms, laws and operational procedures rigorously monitored, to cause the least possible impact during logging activities on social and environmental well-being, evidence of which was made available to VBB. The non-performance of this activity between 2014 and 2017 was justified in section 2.2.4.b (FSC Certified Forest Management).

For this monitoring period, information was gathered on the relationship between the forest management activities carried out by Agregue in the Annual Production Unit 01 and their impacts on the communities.

The indicators “Number of communities affected by the SFM”, “Number of workshops regarding SFM activities implemented prior to the operation” e “Number of complains and demands regarding the SFM activities” considered information gathered about the hiring and training of employees, the holding of workshops before the start of exploratory activities, to meetings with the community of the Ramal do Retiro, where a committee was formed recording complaints and demands regarding management activities, as described in section 4.1.4.

The indicator “Number and location of trees important to the communities mapped” was surveyed according to the methods described in section 4.1.4, which involved the pre-exploration inventory and

mapping action of the affected Brazil nut areas of the Ramal do Retiro community. The information for the indicator "Extension of roads opened" was taken from the shapefiles generated by the forest management operation and registered in the Annual Operation Plan.

2. Deforestation Monitoring: The Grupo Jari's property security sector has been continuously monitoring properties in Pará and Amapá since 2003 and, since the project's beginning, has aimed to operate in accordance with the principles of REDD+ certification.

For the "Deforestation Monitoring" activity, annual data of areas detected as "deforestation" were collected through the PRODES (INPE) project data for the Project Area and the Leakage Belt throughout the monitored period. Complementary to this, regular patrol actions were carried out regularly in the years monitored, by river and land roads. These patrols were carried out in accordance with updated procedures designed to meet certification criteria and with the monthly program of the surveillance team, designed to ensure protection of the Grupo Jari property, preventing and identifying actions involving deforestation, illegal exploitation of timber and forest products, among other illegal activities.

When the deforested areas were identified in field, the security team collected all the information pertinent to the problems, such as description of the deforested area and name of the person possibly involved. This information, together with photographic records, are then passed on to the Infrastructure Manager who evaluated the fact. If the need for immediate action was verified during the inspection, the patrol members activated the competent agencies, police, state agencies (Environmental Secretariat) and federal agencies (IBAMA), to take the necessary corrective actions. The entire description of the process of gathering information with PRODES data, forwarding it to the surveillance team, and carrying out the monitoring activities in the field is described in section 6. The indicator "Number of occurrences forwarded to environmental agencies" was collected through the records of field verifications where it was necessary to call the appropriate agencies to deal with offenders.

In addition to the use of PRODES data by the surveillance, the monitoring of deforestation considers other information, such as the location of the communities and the land lots of the families that developed the priority projects. The boundaries of the lots were delimited through the micro-zoning process, which was completed only in 2018, with this, it was possible to monitor the "Area deforested per family attended" indicator, performing the intersection between PRODES data and the data of the lots.

For the "Area deforested per engaged community" indicator, it was necessary to combine the PRODES data, the shapefiles of the delimitation of the family lots, the shapefiles of roads and centroids of the communities, and the field knowledge of the Fundação Jari, which has a strong presence in the area and a deep knowledge of the community dynamics. This was done because the region where deforestation occurs is influenced by the displacement of communities along the roads to the community centers. Therefore, the delimitation of deforestation was based on the knowledge of the route taken by community members along the roads, which is specifically local knowledge. Only for the year 2020 there was no remote monitoring, because the PRODES deforestation data for 2020 will only be available in 2021. Therefore, this specific information will be available for the next verification.

3. Patrimonial Surveillance: For this activity, some workshops about fire control and prevention were implemented in the project area to share technical knowledge with the communities. The intention of the training sessions was to minimize the forest accidents caused by the traditional crop rotation techniques that still exist in the region and to guide the care that must be taken during the execution of these activities.

From the presence lists of each training held, it was possible to monitor the indicator " Number of fire control and prevention workshops implemented per communities engaged". Considering 2020, due to the pandemic situation, it was necessary to adapt the communication with communities to ensure health and safety of all. Thus, information's on fire control and prevention were carried out through the distribution of posters and by radios.

Although the project has reached some communities such as São José, Iratapuru and Cachoeira do Santo Antônio, only one engaged community - Nova Conquista - participated in the trainings. The project could not reach others engaged communities because the focus of these actions from Fundação Jari occurs in the state of Pará, during the monitoring period, due to certifications required by FSC and Serflor. However, the idea is to expand these trainings to more communities in Amapá, focusing mainly on those engaged in the project.

For the indicator "Number of complaints/demands regarding the surveillance action", there was a failure in monitoring due to the absence of a procedure that registered the need to collect this information, as described in section 2.2.4.b. However, PP has updated the procedure so that complaints and demands are registered and forwarded to the Infrastructure Management, preserving the confidentiality of the source. Thus, this information will be available at the next verification.

4. Technical Chambers: The technical chambers were articulation and decision-making meetings involving the project stakeholders, with respect to activities of a social nature. During this monitoring period, 5 Technical Chamber meetings were held involving the communities participating in the project and local partners. During the meetings, general questions about the implementation and results of the project were discussed, as well as some special topics such as the ownership of land and technical assistance actions. In addition, the technical chambers also served as an opening to enable communities to access public policies. In section 2.3 it is described, in several subsections, how the realization of the Technical Chambers was fundamental to stimulate community engagement in the project.

The data presented for all the indicators of this activity were collected through the registration of the meeting minutes, attendance list with signatures of those present, documents of presentations made to the public present, and records of mobilization with stakeholders. All these documents were made available to the VVB for analysis.

5. Technical Assistance and Rural Extension (TARE): The main objective of the technical assistance and rural extension service was to offer training and capacity building in agricultural and forestry techniques, according to the interest of each engaged family and of the Project Zone. Through TARE, rural

producers have become capable of implementing appropriate techniques, enabling them to manage their areas effectively and self-sufficiently, producing food and generating income, especially without the need to open new areas of forest, since the project encourages activities in areas already altered.

The indicators "Number of families attended", "Number of communities engaged", "Frequency of visits", "Percentage of families with access to loans" and " Gender and age of the producers attended" were quantified through an annual survey of all existing records of services provided to communities within the Project Zone, whether directed engaged in project activities or not. Each visit to a community member is counted as one " assistance" and was recorded by using forms that described the main activities carried out during the visit.

Since, for the monitored period, the amount of information was very high, its control was organized in spreadsheets on an annual basis, different from what had been defined by the PD-CCB, this point is described in item 2.2.4. Anyway, analyzing the results achieved, in total **were counted 4,854 assistances to the communities in the Project Zone, reaching 1,759 families, of these, 664 families represented by women.** In this total, only for the communities that were engaged in the monitored period, 2,177 services were provided.

Regarding food production and income generation, represented by the indicators " Percentage of producers using the forest to grow crops", "Amount of cassava produced", and " Diversity of products produced", information was collected through the information from the diagnosis made in 2014 (DOP), from the Family Agriculture Food Acquisition Program (FAFAP) for 2016 and 2018, and the questionnaire made in the field in 2020 for the acquisition of the Declaration of Aptitude to Pronaf (DAP).

These data served mainly to understand the diversity of products worked by community members and the percentage of producers who use forest products in their income. In addition, TARE's activity also involves supporting community members to have access to loans from incentive programs, the results of this performance were observed mainly between 2017 and 2018, where 10% of the community members were served.

"Family income", "Final market achieved" and "Time invested by the communities' members" were not collected in the monitored period, as indicated in section 2.2.4.

6. Workshops and training in agro-extractivist techniques: Associated to the TARE practices, courses and training were given according to the producers' demands, focusing mainly on productive issues. During the period monitored, about 30 activities were carried out with producers and community associations, teaching various agro-extractive techniques – almost 20 different ones – such as cultivation of corn in a mechanized area, açazal planting, phytosanitary control techniques, soil correction, among other topics.

All the indicators for this activity were collected from the attendance lists of each training held. **About 20 communities could participated in the trainings – 7 of them are engaged communities during the monitoring period – achieving more than 121 hours of training, 644 farmers, 223 of them women.**

In 2016, due to the crisis in Grupo Jari, actions provided by Fundação Jari were affected, including training in agro-extractive techniques. Similarly, in 2020 the activities could not be developed due to the pandemic. To ensure the health and safety of communities, face-to-face actions such as trainings had to be temporarily halted. When the situation get backs normal, the activities will resume normally. Thus, for these years, 2016 and 2020, could not reach the communities with workshops and trainings in agro-extractive techniques.

7. Development of the Plan for Use of Properties: One of the most relevant TARE activities carried out during the monitored period was the realization of the Property Use Plans, also called "Priority Projects", with the communities engaged in the project. Its implementation was divided in the steps described below, which generated inputs for the respective indicators indicated:

- *Carrying out the family diagnosis:* where the information regarding the current situation of the rural property of the community members interested in participating in the project. The result of this action was the list with the location, available natural resources, use of the property resources, characterization of family work and labor, activities developed on the property and information on commercialization was collected;
- *Property sketch (Actual and Future Map):* made by the technicians of the Fundação Jari together with the family, in the real map indicated the initial geographical distribution of the production unit, and the map of the future, was elaborated with the indication of the producers, with their wishes about the future of the production unit. This step served to collect data from the indicators "Number of "future maps" designed" and "Diversity of products in the future maps" through the analysis of the photos of the maps made by the community members in 2014, and the organization of the information in spreadsheets;
- *Micro-zoning of the family unit:* was the georeferenced demarcation of the entire property area, identifying productive areas, recoverable areas, watercourses and rivers, conservation areas, different uses of the property, delimiting borders and collecting soil samples for analysis. To answer the indicator " Number of property micro-zoning realized", the information from the two actions that took place in the monitored period was recorded. The first was in 2014 with some community members, where the memorials describing their properties were prepared. The second, covered a larger number of community members, and focused on those involved in priority projects in their most robust phase in 2018. In addition, this step served to answer the indicator "Number of soil analysis performed", which was gathered from the documented results of the soil analyses evaluated by the Group Jari's Product Research and Development Management, and were essential for directing the necessary cultural treatment on the properties;
- *Systematizing and planning the production unit:* with the information collected in the previous steps, it was carried out the debate between technicians and producers, carrying out an analysis of the technical and economic feasibility of existing and expected

production systems, considering in this analysis mainly the production, logistics and market costs, based on the results achieved in the previous stages. This step generated results for the indicator "Number of finalized property use plans discussed with farmers", because the discussions on each project were formalized through the Declaration of Commitment, which was signed by each participating community. At the end of these stages, the technicians had the responsibility of systematizing the information and giving the devolution to the participating families, preparing a report summarizing all the information generated and discussed, establishing the investment priorities for each family, detailing the actions to be developed and the necessary resources.

- *Implementation of plans:* For formalizing the final step of the whole process developed and responding to the indicators "Number of property use plans completely realized" and "Number of "future maps" implemented", to each priority project developed, a payment receipt, transfer receipts and material delivery receipts were generated, referring to the investments made by the project in the activity and demonstrating the implementation of the actions previously discussed and planned.

Since the beginning of the project, 61 community members have been involved in this activity, 14 of them women, but as already explained in section 2.2.3, it was made clear from the beginning that participation in the project has always been voluntary and the decision to participate, or not, has never been definitive or would result in any kind of restriction to the parties directly or indirectly impacted. Thus, throughout the monitored period, some communities and families decided to stop participating in the project and, as a result, **at the end of the monitored period, 33 priority projects were worked, 9 of which were headed by women**.

"Time invested by the communities' members" indicator was not collected in the monitored period, as indicated in section 2.2.4.

8. Workshops at Community Level: The focus of this activity was to identify demands from the communities and assist in finding resolutions. All the indicators for this activity were monitored through participatory organizational diagnosis workshops, technical boards, and documents of "Priority Projects", as well as newspapers, receipts, and other documents that could be validated.

Analyzing collected evidence, about 59 demands were raised by the communities' members, involving about 236 stakeholders (communities' members and technical team that held the workshops). Deviations that occurred in this activity were described in section 2.2.4.

9. Family Assessment: During the monitoring period, this activity was carried out only in 2014, prior to the implementation of the Priority Projects with engaged communities, to survey their situation before the project. Thus, the results presented for the indicators "Number of families interviewed", "Number of communities contemplated" and "Frequency" correspond to the initial data forms and questionnaires collected only in this period.

After the development and implementation of the priority projects, it was not possible to carry out new activities due to the COVID-19 pandemic. The monitoring of the results, as well as their benefits, costs and risks for the communities was pending to be applied in the next cycle, with the return of activities, as explained in section 2.2.4. In addition, the time spent by community members on this activity were not collected in the monitored period, as also indicated in section 2.2.4.

In addition, the indicator “Time invested by the communities’ members” indicator was not collected in the monitored period, as also indicated in section 2.2.4.

10. Structuring of the socio-environmental Fund REDD+ Jari (REDD+ Jari Financial Guidelines Agreement): As described in section 2.2.4, this activity has been adapted to fit the updated project management model. Its modification consisted of the creation and formalization of an agreement for the definition of financial management guidelines, communication procedures and involvement of stakeholders (specially the local communities). Efficient and transparent management is fundamental to ensure the quality, consistency and sustainability of the investments made by the project, as well as its long-term maintenance. This process was reflected in the result presented in the indicator "Resources invested on each strategic line (climate, community, biodiversity and management)", where all the proof of financial statements, investments, and payments made for the project during the monitored period were presented.

This financial management model states Fundação Jari as the central actor and protagonist of the project, responsible for resource management, construction of annual investment plans and ensuring transparent communication with all stakeholders (Figure 12). This management process is monitored and supported by other project proponents, and when related to community investments, should have the approval in the technical chamber by the social actors involved. The indicators "Number of meetings carried out between the executive committee", "Number of consultation made through Technical Board", "Number of communities represented in the technical board consulted about the investments to be done/done", and "Number of complains regarding the investments made" were answered with minutes, attendance lists, and records that demonstrate the involvement of all stakeholders in this process.

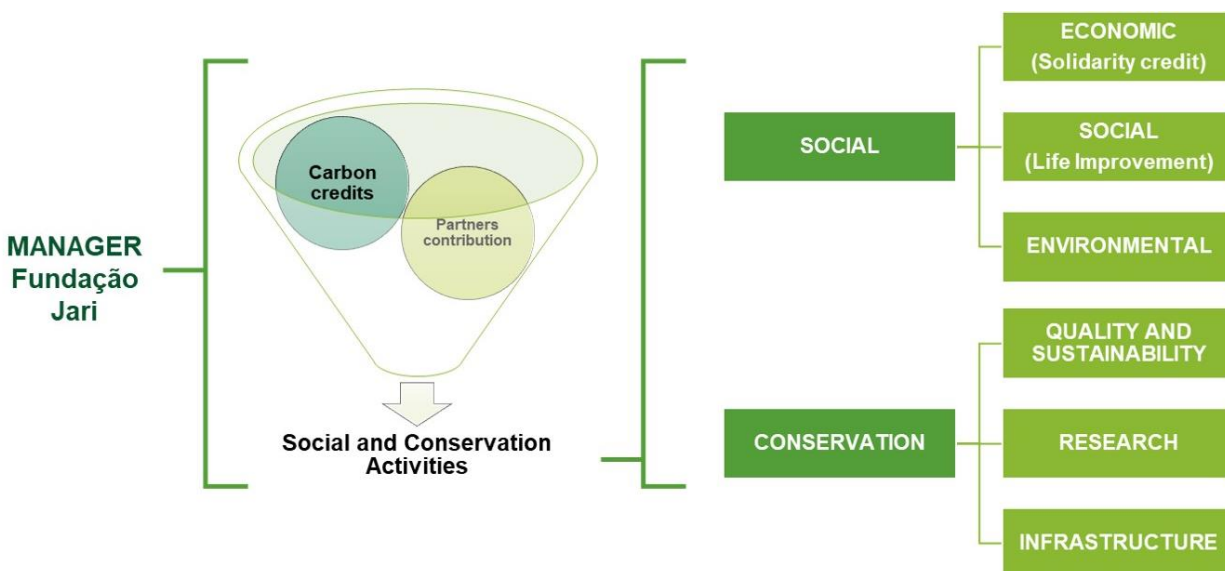


Figure 12 - Draft of the financial management model of the Jari/Amapá REDD+ Project

11. Improvement of communication channels: In addition to the activities of TARE and technical chambers carried out by the project, which are the main channels of communication with directly impacted stakeholders, the Quality and Environment department of the Grupo Jari is responsible for the management and monitoring of all feedback records directed at the communication channels described in section 2.3.12. During the period monitored, the channels were open to addressing a variety of issues, including ownership issues, infrastructure, suggestions, requests for products or supplies and compliments.

These information were collected from different sources and directed to those responsible within the Grupo Jari who were able to resolve the issues; this entire process was recorded in spreadsheets that were frequently updated to the end of each case, during all the years monitored. This procedure was essential to raise the results of the indicators "Number of registered complaints or demands" and "Number of addressed complaints or demands", in addition to being a channel for stakeholders living in the Project Zone to make complaints about deforestation, many times identifying those responsible, thus assisting the work of patrimonial vigilance.

12. Identification of High Conservation Value Attributes (HCVA): during the monitoring period the HCVA analysis was not completed. However, this was not an impediment to the collection of information on the indicators relating to this activity.

The data from the monitoring indicators "Number of communities engaged that manage Brazil Nut" and "Number of families attended that manage Brazil Nut" were collected based on the information from the diagnosis made in 2014 (DOP), from the Family Agriculture Food Acquisition Program (PAA in Portuguese) for 2016 and 2018, and the questionnaire made in the field in 2020 for the acquisition of the Declaration of Aptitude to Pronaf (DAP).

For the other indicators, which are directly related to forest management activities, the impacts that occurred due to the activities carried out by the company Agregue were surveyed. According to the actions

carried out in the pre-exploration, were surveyed “Number of workshops carried with communities affected by the SFM previously to the operation” and “Number of Brazil Nut trees identified by the pre-harvesting inventory”.

With the progress of timber harvesting, as described in section 4.1.4, it was possible to survey the communities that manage nuts that were in fact directly impacted by forest management. During the monitored period only one was identified (Ramal do Retiro), which contacted those responsible for operations to receive compensation for the impacts. The results of this process were used to collect the information from the indicators “Number of Brazil Nut tree damage by the SFM”, “Number of complaint regarding damage to Brazil Nut tree or to restriction of access” and “Analysis of communities’ perception regarding resources availability, focus on the Brazil Nut”.

13. Seedling Nursery: during the monitored period, the production of seedlings was aimed at the distribution of native and non-native species to local communities, with seedlings being used both in the recovery of degraded areas and for productive purposes.

In general, the conservation areas (recovery of degraded areas) and production areas occur together in the properties of the families involved in the project, mainly through the Agroforestry Systems, and it was not possible to accurately separate the seedlings for restoration purposes and those for productive purposes.

The description about the production and distribution of seedlings, as well as the methodology applied to collect information for all the indicators of this activity is detailed in item 5.3.

14. Xilothèque: the monitoring of this activity was established in view of the importance of the collections of wood samples, exsiccates and insects from the region, both for scientific and environmental education purposes (stimulating awareness and dissemination of the importance of the Jari Valley’s biodiversity, and the preservation of forests and their existing species).

The indicator related to the communities, “Number of families attended that have been there”, covered the registration (and counting) of visits made by the communities involved in the project, by the visitors’ registration book present at the entrance of the Xilothèque. During the monitored period, the families involved in the project did not visit the place. Although there were visits by residents, tourists, schools in the region, universities and research institutes, showing that the Xilothèque has been fulfilling its initial objective of preserving and increasing knowledge about the Amazon Forest heritage.

Table 32 - Monitored activities applied to communities

Activities	Indicator	Justification / Description	Type of measurement/ Unit	Sampling Methods	Frequency of Monitoring
Sustainable Forest	Number of communities	Related to the forest cover maintenance	Number	Analyses of the post-harvest	Annual

Management, FSC-certified	affected by the SFM	focal issue, and to communication focal issue (G1.8), allowing to better access impacts of the SFM in the communities, to monitor communication regarding SFM activities, and to monitor maintenance of important resources to the communities.		report, assessment with the forestry department and assessment with the environment, quality and certification department	
	Number of workshops regarding SFM activities implemented prior to the operation		Number		
	Number and location of trees important to the communities mapped		Number		
	Number of complains and demands regarding the SFM activities		Number		
	Extension of roads opened		kilometers		
Monitoring of Deforestation	Area deforested per engaged community	Related to “slash and burn” practices focal issue (G1.8), allowing to monitor the efficacy of projects proposed activities on reducing the need of opening new forest areas.	Hectares	Biofilica's Annual deforestation Bulleting and assessment with the Surveillance department	Annual
	Area deforested per family attended		Hectares		
	Number of occurrences forwarded to environmental agencies		Number		
Property Surveillance	Number of complaints/demands regarding the surveillance action	Related to external invasions focal issue, “slash and burn” practices focal issue and communication focal issue (G1.8), allowing to monitor the communication regarding Property Surveillance activities.	Number	Assessment with the Surveillance Department	Annual
	Number of fire control and prevention workshops implemented per communities engaged		Number		
	Number of meetings per year	Related to access to public policies focal	Number	Assessment with Fundação Jari,	Every 6 months

Technical Board Meetings	Number of institutions invited	issue and to communication focal issue (G1.8), allowing to monitor the occurrence of the technical board meetings, the invitation effort and efficacy, communities' and stakeholders' engagement, gender and youth representativeness, to monitor time invested by the communities, and to monitor project's social outcomes and impacts.	Number	Fundação Jari Social Activities report and Technical Board minutes	
	Number of Institutions that attended		Number		
	Number of communities invited		Number		
	Number of communities that attended		Number		
	Number of represents per communities		Number		
	Percentage of women participating		Percentage per event		
	Percentage of youth participating		Percentage per event		
	Number of issues addressed		Number		
	Time invested by the communities' members		Hours		
	Public Policies communities are accessing		Number	Family Assessment	Every 2 years
Technical Assistance and Rural Extension (TARE)	Number of families attended	Related to "slash and burn" focal issue (G1.8), allowing to monitor coverage of the project, TARE implementation, TARE environmental results, communities' main source of income, communities' food security and market sustainability, communities' access to additional resources, familiar income, gender and youth representativeness, market access and	Number	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months
	Number of communities engaged		Number		
	Frequency of visits		Number per month		
	Percentage of producers using the forest to grow crops		Percentage	Family Assessment	Every 2 years
	Amount of cassava produced		tons		
	Diversity of products produced		number		

	Percentage of families with access to loans	time invested by the producers.	Percentage of families attended		
	Familiar Income		Reais (R\$)		
	Gender and age of the producers attended		Percentage of the total	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months
	Final market achieved		Qualitative (what was the final destination)	Family Assessment	Every 2 years
	Time invested by the communities' members		Hours	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months
Workshops and training in agro-extractive techniques	Number of total trainings	Relate to "slash and burn" focal issue (G1.8), allowing to monitor coverage of the project, trainings implementation and coverage, gender and youth representativeness and time invested by the producers.	Number	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months
	Number of trainings per community		Number		
	Number of farmers attended		Number		
	Gender and age of farmers attended		Percentage per event		
	Variety of topics covered		Number		
	Time invested by the communities' members		Hours		
Development of Property Use Plans	Number of property use plans completely realized	Related to "slash and burn" focal issue (G1.8), allowing to monitor TARE activities implementation and time invested by the producers.	Number	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months
	Number of "future maps" designed		Number		
	Number of soil analysis performed		Number		
	Number of property micro-zoning realized		Number		

	Number of finalized property use plans discussed with farmers		Number		
	Diversity of products in the future maps		Number		
	Number of "future maps" implemented		Number		
	Time invested by the communities' members		Hours		
Community Level Workshops (Participatory Organizational Workshops, Community Development Plans and Risks and Impacts Assessment)	Number of demands identified per community	Related to access to public policies focal issue and communication focal issue (G1.8), allowing to monitor project's social outcomes, technical board efficacy, coverage of the project and time invested by the producers.	Number	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months
	Number of demands addressed per community		Number		
	Stakeholders involved on addressing each demand		Number		
	Time invested by the communities' members		Hours		
Family Assessment	Number of families interviewed	Related to "slash and burn" practices focal issue (G1.8), allowing to monitor families' socioeconomic development and project's socioeconomic impacts, coverage of the project and time invested by the producers.	Number	Family Assessment Report and Fundação Jari Social Activities report	Every 2 years
	Number of communities contemplated		Number		
	Frequency		Number per year		
	Time invested by the communities' members		Hours		
Structuring of the socio-environmental Fund REDD+ Jari	Resources invested on each strategic line (climate, community, biodiversity and management)	Related to resources and wiliness available to boost local socioeconomic development and biodiversity conservation focal	Reais (R\$)	Minutes of executive committee meetings, minutes of technical board, assessment with	Annual

	Number of meetings carried out between the executive committee	point (G1.8), allowing to monitor Project's investments and equity, and communication regarding projects investments.	Number	Fundação Jari and Fundação Jari Social Activities report	
	Number of consultation made through Technical Board		Number		
	Number of communities represented in the technical board consulted about the investments to be done/done		Number		
	Number of complains regarding the investments made		Number		
Improvement of communication channels	Number of registered complaints or demands	Related to the communication focal issue, allowing to monitor communication plan efficiency and efficacy.	Number	Assessment with Environment, Quality and Certification Department	Annual
	Number of addressed complaints or demands		Number		
Identified High Conservation Value	Number of communities engaged that manage Brazil Nut	To evaluate its relevance to engaged communities	Number	Assessment with Fundação Jari and Fundação Jari Social Activities report	Annually, once the HCV attribute is validated and the SFM Plan is approved.
	Number of families attended that manage Brazil Nut	To evaluate it relevance to attended communities	Number		
	Number of communities affected by the SFM that manage Brazil Nut	To evaluate possible risks to the HCV attribute	Number		
	Number of workshops carried with communities affected by the SFM previously to the operation	To evaluate the proposed mitigation measures	Number	Assessment with Environment, Quality and Certification Department	

	Number of Brazil Nut trees identified by the pre-harvesting inventory	To evaluate the proposed mitigation measures	Number	Assessment with the Forestry Department and the Post-harvesting report	
	Number of Brazil Nut tree damage by the SFM	To evaluate the proposed mitigation measures	Number		
	Number of complaint regarding damage to Brazil Nut tree or to restriction of access	To evaluate possible risks to the HCV attribute	Number	Assessment with Environment, Quality and Certification Department	
	Analysis of communities' perception regarding resources availability, focus on the Brazil Nut	To evaluate possible risks to the HCV attribute	Qualitative	Assessment with Fundação Jari and with the Environment, Quality and Certification Department	
Seedling Nursery	Number of total seedling produced	Related to biodiversity conservation focal issue and environmental education focal issue (G1.8), allowing to monitor the nursery production and coverage of the project.	Number	Assessment with Environment, Quality and Certification Department	Annual
	Number of different species produced		Number		
	Number of seedling distributed to the engaged communities		Number		
	Number of seedling distributed per family attended		Number		
Xylotheque (Wood Collection)	Number of families attended that have been there	Related to biodiversity conservation focal issue and environmental education focal issue (G1.8), allowing to monitor project inclusion regarding information on biodiversity and conservation issues.	Number	Assessment with Environmental, Quality and Certification Department	Annual

4.3.2. Monitoring Plan Dissemination (CM4.3)

As already described in item 2.3.1, the Jari/Amapá REDD+ Project has implemented three methods of communication, aiming to guarantee access to documents and all other information of the Project to the communities and other stakeholders through oral, written and virtual form.

The results were disseminated in a printed version, where each document related to the monitoring were made available for consultation at the Fundação Jari office, in a virtual version where the documents related to the monitoring were available through the Verra website and website, newsletter and social media of Biofísica, and orally through the REDD+ Technical Chambers (CT), meetings between the community council of agricultural communities and technicians, during the Technical Assistance and Rural Extension (TARE) process, as well as other opportunities for contact between stakeholders and project proponents.

4.4. Optional Criterion: Exceptional Community Benefits

Does not apply.

5 BIODIVERSITY

5.1. Net Positive Biodiversity Impacts

5.1.1. Biodiversity Changes (B2.1)

Change in Biodiversity	Reduction of unavoidable unplanned deforestation		
Monitored Change	During the monitored period, it was identified that the deforestation predicted in the baseline was higher than what occurred, in other words, there was a reduction of unavoidable unplanned deforestation both in project area and leakage belt.		
		Ex ante deforested area in PA (ha)	Ex post deforested area in PA (ha)
	2014	608	122
	2015	847	163
	2016	724	37
	2017	770	103
	2018	747	69
	2019	627	80
		Ex ante deforested area in LK (ha)	Ex post deforested area in LK (ha)
	2014	946	117
	2015	795	204
	2016	719	33
	2017	685	95
	2018	707	87
	2019	747	15

	A total change of 4,323 ha in the Project Area and 4,599 ha in the Leakage Belt, caused by deforestation, was predicted at the baseline (Section 3.2 and table above). However, according to the survey conducted in this report (Sections 3.2.2 and 3.2.3 and table above), the total change that actually occurred was 472 ha in the Project Area and 416 ha in the Leak Belt, representing 87% and 88% less than expected, respectively. Therefore, the change is considered real, positive, and direct. The consequent reduction of deforested areas also involved qualitative changes, such as the conservation and maintenance of forest integrity and existing ecological processes, reducing soil erosion, contributing to the conservation of water quality, maintaining the genetic variability of plant and animal species, important for resilience to pests and diseases, pollination and climate regulation, reducing the risks of extinction and conserving forest cover, which acts as a protective shield against winds and storms. More details can be found in Sections 4.2.1 and 5.1.3. of this document.
Justification of Change	The survey of deforestation data and the verification of accuracy, via satellite images and in the field is described in section 6.1. In addition to the monitoring of forest cover by satellite images, other activities influenced the results obtained during the monitored period: frequent patrols by the surveillance team, the development of forest management activities, which strengthen the governance of the property, and greater alignment with the communities in technical assistance and rural extension activities, workshops and training, and the improvement of communication channels. The details of these actions are found in sections 4.1.2, 4.1.3, 4.2, 4.3.1 5.1.2, 5.1.3, 5.2 and 5.3.1.
Change in Biodiversity	Biodiversity Conservation
Monitored Change	The results of the biodiversity monitoring conducted during the monitored period show that the presence of large areas of native forest in the landscape promotes the maintenance of bird communities on a regional scale. A total of 3619 bird records were obtained, in which four registered species are on the IUCN red list as "vulnerable species" (the mutum-poranga (<i>Crax alector</i>), the pomba-botafo (<i>Patagioenas subvinacea</i>), the tucano-de-papo-branco (<i>Ramphastos tucanus</i>) and the tucano-de-bico-preto (<i>Ramphastos vitellinus</i>)) and are birds of medium or large size that are characteristic of forest environments. In addition to these

	species, 22 of the species recorded in the field are endemic to the Guiana Shield, also characteristics of forest environments. For medium and large mammals, 18 species were recorded, distributed in 10 families and 6 orders, where, in areas of native forest, a greater richness of species was found. Most of the registered species present low tolerance to environmental alterations and are dependent on forest formations, being a strong indication that the fauna community is well established. The presence of endangered species recorded during this campaign was also identified, such as the onça-pintada (<i>Panthera onca</i>), o tatu-canastra (<i>Priodontes maximus</i>), o macaco-aranha (<i>Ateles paniscus</i>) e o veado-mateiro (<i>Mazama americana</i>). Regarding flora, the Shannon Diversity Index (H') value was 3.42 nats/ind, although this value is below those commonly found for the region, results above 3.11 nats/ind indicate well preserved plant formations. The monitoring of the flora indicates that the floristic composition and the horizontal structure of these communities revealed extremely rich arboreal vegetations in number of families, genera, and species. Therefore, the changes monitored for the conservation of biodiversity were considered real, positive and direct, since the Biodiversity Monitoring Report pointed out that the results obtained for fauna and flora in the study areas give the Project Area (with 65,980 ha) a status of conserved forest. Detailed results of all evaluated parameters are presented in the Report in question (available to the VVB team), in Section 5.3, and in the table of indicators (Appendix).
Justification of Change	The positive impact on biodiversity conservation is the result of both actions to contain deforestation, described in the previous table, and the good practices carried out in Forest Management (mainly reflecting on fauna). Moreover, it can be mentioned that the positive impact is also guaranteed by the realization of activities with communities, focusing on the sustainable use of natural resources and maintenance of the forest, and by the development of scientific research that results in knowledge of local biodiversity. The details of these actions are found in sections 4.2.2, 4.3.1, 5.1.2, 5.1.3, 5.1.4, 5.2 and 5.3.1.

5.1.2. Mitigation Actions (B2.3)

As presented in the PD, among the existing activities in the Project, the operation of forest management is the most likely to generate negative impacts. However, it is important to emphasize that

the reduced impact (sustainable) forest management is developed in such a way that all operations are planned and carried out in such a way as have the least possible impact on the forest.

In this connection, in order to avoid or minimize the negative impacts associated with Forest Management, Aguegue has a series of operational procedures focused on impact reduction strategies that are strictly monitored. These are procedures that range from the pre-exploratory stage, in the planning of operations (opening of roads and selection of trees), to the post-exploratory stage, with post-harvest treatments and environmental monitoring. All of these procedures adopted by the company are presented in the Sustainable Forest Management Plan.

The procedures are also mentioned in the UPA01 Annual Operational Plan, made available to the VVB. In this, some operations are already listed as performed, since they are pre-exploratory operations, such as the 100% forest inventory and cutting of vines. It is important to mention that all Aguegue's employees (own or outsourced) are qualified and trained in the operational and environmental procedures related to the activities they carry out, as well as on other topics, such as Sustainable Management, Certification and Work Safety.

Many are (and were) the techniques adopted to ensure that logging produces the least possible impact on biodiversity. Some of the main ones are:

- Planning of forest roads and channels: aims to ensure the lowest possible road density, reducing the cut of vegetation and protecting fauna and flora species. As a priority, the roads are opened following the micro-basins watersheds, avoiding accentuated slopes and passing through the points of least resistance in the forest, without abandoning the planned course. At points where there is an accumulation of earth on the sides of the road, water outlets (commonly called "whiskers" in Brazil) are made, in order to avoid puddling;
- Cutting of vines: prevents the overthrow of the desired individual affects nearby trees.
- Forest Inventory 100 % and extraction planning: inventory identifies trees with a minimum diameter desired, as well as ensure that the maximum volume extracted by APU is met. In addition, there is a plan for the selection of individuals to be explored, in order to minimally affect the surrounding trees and trees of relevant value, in addition to ensuring worker safety. Also, trees located in permanent preservation areas are not selected.
- Microzoning: together with the operation of the 100% inventory, the coordinates of "capoeira" areas and water courses are taken, in order to build a logistical map that considers the environmentally sensitive areas. The microzoning map was made available to the VVB.
- Branches tracing and Residues management procedure: Establishes the criteria to classify, dispose of and transport the residues generated by the management activities, aiming the reduction on soil damage;
- Prevention and control of forest fires procedure: Establishes the criteria for the prevention and control of forest fires.
- Erosion and deterioration: Procedures to guide the control of soil erosion:
 - Low impact management;

- Forest protection areas on the margins of water bodies or at risk of erosion (30-100 m wide) will be marked and protected;
- No management will take place on steep slopes;
- Construction of minimum size roads and other support areas;
- Reducing skidding trails to a minimum by careful planning;
- Road construction always follows the crest of the hills;
- Skidding trails and roads perpendicular to slopes;
- Leveling areas to make outflow easier;
- Using landfills transversally to water bodies will be avoided;
- Management in periods of heavy rain will be controlled;
- Complementary plantation using species that rapidly cover exposed soil due to forest operations may be done, as necessary;
- Construction of channels around large logging for timber areas.
- Post-exploratory activities:
 - Cutting vines, if they are compromising the development of the remaining trees or natural regeneration;
 - Cleaning of the understory, if the clearings opened during the cutting/felling activity tend to turn into “shrubbery forest”, hindering the development of regeneration of desirable species;
 - Permanent plots: Instrument used to monitor the dynamics of managed forests over time in relation to composition, growth, recruitment of new plants and mortality, in order to understand how post-harvest forest recovery is taking place. The first assessment is done together with the 100% inventory.

Besides the activities foreseen in the PMFS and in the POA, with some mentioned above, it is also possible to mention some changes that occurred during the forest exploitation, such as the re-planning of roads and yards (in order to follow the level curves, and prioritize more flat and with less dense vegetation areas) and the replanning of trees to be harvested, taking into account 3 possible risks: opening clearings in the forest, risks to the safety of employees and the risk of falling Brazil nut trees. The observation of these 3 risks generated a map with individuals not to be harvested. This map was made available to the VVB.

In this way, spared trees (of 13 different species, in addition to the Brazil nut tree) are also related to forest management mitigation activities, even though the maintenance of Brazil nut trees has occurred not only due to the legal restriction [of cutting the Brazil nut tree], but mainly for the value that the specie has for communities surrounding the exploited Forest Management Unit. Further details on these spared trees, as well as their location in UPA1 are presented in Section 4.1.4.

Despite these possible negative impacts that can be generated, the mitigation procedures have been efficient. According to the Biodiversity Monitoring Report, the existence of primary forests associated with forest management areas proved to be an excellent arrangement for maintaining fauna biodiversity,

especially for species that are poorly tolerant of human presence or forest disturbance. Likewise, the similarities found between native and managed forests indicate that the management protocols have been efficient and fulfill the main role of contributing to the sustainable development of the region and preserving local biodiversity.

Complementarily, it is pointed out that “the similarity between the bird communities found in the primary forest and in the forest managed for logging indicates that the management and selective logging protocols used in the study area have not rendered the managed forest uninhabitable for most characteristic species of primary forest”.

In order to mitigate negative impacts on biodiversity and maintain or improve the attributes of High Conservation Value (in this case, HCV 1, linked to the presence of threatened and endemic species), the following measures were adopted:

Predatory Hunting: Predatory hunting was prevented by premises security specialized teams that watched the area. The inspectors had vehicles to circulate the area (ground and water) and were trained to record infractions that later were informed to the governmental agency in charge.

Vegetation and Genetic Diversity: In the planning of Management activities the sizing and qualification of the selected area took into consideration the existing diversity so as to safeguard ecosystems with higher genetic potential by classifying them as areas of permanent protection. In terms of genetic conservation, the following procedures were used:

- Checking the existence and classification of genetic sites for conservation;
- Placing the forest Project in the regional or national context based on herbaria and book references.

To contribute to this activity Grupo Jari has a nursery of native tree species, which seedlings are used to restore degraded areas in the region. The maintenance of the nursery of native tree species was one of the activities proposed by the Project and the seedlings were also donated to local population to recover their own properties. More information about this activity can be found in section 5.3.

Buffer zone: The Project area contributes to the protection of the Rio Cajari Forest Management Reserve (Resex Cajari) Buffer Zone located on the east side and the Rio Iratapuru Sustainable Development Reserve (RDS Iratapuru) located on the north, besides being a key factor for the conservation and maintenance of water resources as there are three important river basins located in the area – Jari, and Maracá. With the implementation of the Project, areas that were not effectively protected, suffered less pressure from deforestation and degradation.

5.1.3. Net Positive Biodiversity Impacts (B2.2, GL1.4)

The activities proposed by the Jari/Amapá REDD+ Project seek to generate diverse benefits to the climate, communities and biodiversity. The main benefits to biodiversity were linked to the reduction of deforestation and forest degradation and the conservation of biodiversity and habitats.

The implementation of the Project activities, has a direct and positive impact on biodiversity, such as the maintenance of vegetation cover and the conservation of biodiversity, acting directly against the loss of habitats and also against the fragmentation of the local vegetation cover. These positive impacts are mostly due to avoided deforestation, monitoring of deforestation and biodiversity, technical assistance and rural extension, patrimonial surveillance and environmental education workshops

The area deforested between 2014 and 2019 in Project Area was 87% less than predicted in the baseline scenario. In the Leakage Belt, an area also belonging to the Grupo Jari, the reduction was 88%.

Deforestation not only directly reduces the plant specimens' number, including endangered species, but it also threatens the fauna diversity, due to habitat loss and degradation. Most animal species have a close and specific relationship with the environment in which they live, and the loss of habitats can lead to the extinction not only of species directly dependent on this environment, but also of species related to it, causing a cascade effect. If not extinct, genetic erosion of the species still poses a risk. In extreme cases, habitat loss can lead to the extinction of key ecosystem processes (GROOM & VYNNE, 2006). Habitat loss, degradation and fragmentation can also lead to edge effects, dominance of invasive species and greater susceptibility to climate change effects. All these combined effects would enhance the process of extinction of more sensitive and endemic species.

It is in this sense that the reduction in deforestation and the positive results found in the Biodiversity Monitoring Report (detailed in Section 5.3 and in the full version made available to the VVB) are so important and that is why it is assumed that all negative impacts not generated on the ecosystem are considered benefits generated or at least maintained by the Project.

Besides giving the forest a high biological and conservation value, typical of undisturbed natural forests, it was identified in the biodiversity monitoring study, as mentioned in Section 5.1.4 below, that several species found are endemic to the region, as well as many are on the Red List of species threatened by the IUCN. Corroborating Groom & Vynne (2006), it was found that 89% of registered mammal species are dependent on forest formations and less than 20% of all bird species found in primary forest and forest management areas have low sensitivity to environmental changes (that is, more than 80% have medium to high dependency)

Other socio-environmental actions developed by the Project reflect positive impacts on biodiversity (and consequently less deforestation), such as the donation of seedlings, the installation of Demonstration Units, the environmental education workshops and the technical and rural extension assistance, carried out mostly by the Fundação Jari. All of these activities developed are covered throughout this Monitoring Report in other sections (Section 5.3, Section 4.1.3 and Section 4.3.1)

It can be said, therefore, that there are several positive impacts generated and / or maintained related to biodiversity, which go beyond reducing deforestation and forest degradation within the Project Area, covering all indirect positive impacts, related to both reducing deforestation as well as strengthening the socio-environmental component.

5.1.4. High Conservation Values Protected (B2.4)

The Project places its forest areas as a potential High Conservation Value Attribute, as it presents significant concentrations of biodiversity values globally, regionally or nationally. These values are reflected especially by the presence of endemic and/or threatened species.

It was presented as a justification for the potential inclusion of the Project Zone as an area with HCVA, therefore, the existence of threatened species (8 species of flora in the category “In Danger” (EN), 3 “In Critical Danger (CR)” and 23 in the “Vulnerable” category (VU), 2 fauna species in the “In Danger” category (EN) and 5 in the “Vulnerable” category (VU)) and the fact that Jari Valley is part of the “endemism zone of the Guyana Shield”.

In order for this probable attribute not to be negatively affected, the proposed actions for biodiversity (Table 6 of the PDD) should be followed, and, as presented throughout this report and mainly in this section of biodiversity, they were (even though some changes and deviations have occurred).

The Biodiversity Monitoring Report (more detailed in Section 5.3.1) shows that the forests in the Project Area have a high degree of conservation and balance, even in areas where Sustainable Forest Management has taken place. As expected, not all species found in the study of biodiversity carried out in the design of the project, in 2011, were found in the monitoring carried out in 2019, due to the different sampled areas and the dynamics and ecology of the species. However, this does not mean that the species no longer occurs at the site, only that it was not found in the survey.

It was detected in the study that 11.16% of the sampled bird species are endemic to the Guiana Shield and 2.03% are present on the IUCN Red List of threatened species. Regarding mastofauna, 89% of the identified species are dependent on primary forest formations and 22.2% are on the IUCN Red List.

In addition to endemic and / or threatened species, it is pointed out that the presence of species sensitive to environmental changes is also a strong indication that the fauna community is well established, given the presence of carnivorous species at the top of the food chain, (such as “onça-pintada” (*Panthera onca*) and “jaguaririca” (*Leopardus pardalis*)).

In relation to flora, studying only the Annual Productive Unit number 1 (using data from the pre-exploratory inventory), 10 threatened species were registered, 4 in the Official List of Brazil and 8 in the IUCN (2019-2), being 02 found in both lists.

As a conclusion of the report, it is stated that the floristic composition, the structure and diversity indexes presented in the studied areas allow to classify them as areas of very high biological value, representative of the natural (undisturbed) forests of the Amazonian dryland (*Terra Firme*, in Portuguese).

Additionally, it is pointed out that the presence of threatening and endemic species of fauna and flora are attributes for framing the Project area as High Conservation Value Forest, according to the HCVA attribute classification.

Thus, in view of the forest area conservation, as well as the results obtained in the Biodiversity Monitoring Report, the HCVA regarding the preservation of endemic and endangered species was not negatively affected throughout the Project.

5.1.5. Invasive Species (B2.5)

Despite the project encouragement to use native species by rural communities, such as açaí, banana, cassava and cupuaçu, some non-native species are used by the farming families, such as corn, rice, watermelon and beans. These agricultural species are worldwide-domesticated food species and were introduced into the region during the past century (not due to the project's activities) and are an important source of food and income to rural and urban communities in the region as part of the local culture. Widely grown in other regions of Brazil, these species are not recognized for threatening any native species.

As presented in the CCB's PDD (Section B2.5-6 - Invasive Species), these agricultural species cited are globally domesticated and are not listed as invasive species by the IUCN Global Invasive Species Programme (GISP). Thus, they do not represent a direct threat to natural ecosystems, being species that require cultural treatments carried out by man, such as soil management, irrigation and weed control. Furthermore, these species are not adapted to the climatic conditions of the Amazon region, just as they have been cultivated in the region for hundreds of years without an invasive characteristic being detected.

Additionally, according with Pimentel et al (2001), some of the main introduced (non-native) agricultural species, such as corn (*Zea mays L.*), wheat (*Triticum spp.*), rice (*Oryza sativa L.*), plantation forest, domestic chicken (*Gallus spp.*), cattle (*Bos Taurus*), among others, became essential to the contemporary agricultural and are responsible for 98% of the world's food supply, highlighting the net benefits of this cultures compared with the potential negative effects of such long domesticated species. The same author complements that the "real challenge lies in preventing further damage from invading alien species to natural and managed ecosystems worldwide, especially with current rapid human population growth and related activities".

In summary, the main adverse effects of non-native (agricultural worldwide-domesticated) species used by the producers engaged with the project are the potential behavior as drivers of other species with invasive characteristics, that in turn may alter the native ecosystem structure and species composition.

The use of these non-native species is justified by both the importance they attach to the communities, being sources of food and income, as at low risk of causing negative impacts on native species and/or introducing and facilitating the spread of diseases.

Furthermore, it is important to note that the areas in which these non-native species are cultivated are not located within the Project Area, next to the forest, but in previously degraded areas that today are managed by family farmers, as well as the species worked in the Priority Projects are açaí, banana, cassava and vegetable farming, as placed in Section 4.1.1.

5.1.6. Impacts of Non-native Species (B2.6)

As specified above (section 5.1.5 Invasive Species), the Jari/Amapá REDD+ Project encourages the use of native species by local communities. In addition, approximately 75% of the main crops and

sources of income of the producers assisted by the Project are based on the development and production of native species (Brazil nut, açai berry, flour, cassava, cupuaçu, among others)

The few non-native species are however used by local communities, i.e., small-scale use and do not have an adverse impact on the environment. Again, quoting the text above, these species have been cultivated for years, being part of the cultural history of the region and serving as a source of subsistence for these communities and not being encouraged their use by the Jari/Amapá REDD+ Project.

In addition, in order to increase food security, the income of the small producer and the sustainability and diversification of food production systems (and, consequently, reduce dependence on forest resources, such as wood and game), the Project has been working with Agroforestry Systems with farmers.

Some exotic species, including those produced and donated by the Grupo Jari Nursery, are planted in these SAF's, such as mango, orange and lemon trees. However, it is important to note that the cultivation of these exotic species is not carried out within the forests of the Project Area, but in these previously degraded areas that are occupied by farming families.

5.1.7. GMO Exclusion (B2.7)

Through the Jari/Amapá REDD+ Project it was guaranteed that no genetically modified organisms (GMOs) were used. It is also ensured that the seeds and seedlings of forest and agricultural species provided to communities are not GMOs. The reduction or removal of greenhouse gas emissions was achieved through reduction of deforestation and forest degradation.

The Fundação Jari, in its role of rural technical assistance in the Project region, does not recommend or encourage the use of genetically modified species.

During this monitoring period, only pure species were distributed or, in the case of species developed by Embrapa, genetically improved (not modified): Banana BRS Conquista, Banana Pacová (Terra Maranhão), Banana Pacovan Ken, Banana Anã Prata, Cupuaçu BRS Carimbó and Açai BRS Pará.

In addition to the fact that seedlings or seeds of genetically modified species (both forest and agricultural) were not distributed during this monitoring period (April 2014 to April 2020), it is also not part of the Project's scope to stimulate, produce or donate GMO seedlings and/or seeds in the other future years of the Project. If used, this will be reported in the corresponding MR, as well as evidence to prove this use will be sent.

5.1.8. Inputs Justification (B2.8)

The main fertilizer used for the project was the organic compost. In addition to avoiding the anaerobic decomposition of organic waste available in rural properties as manure and straw, emit greenhouse gases and contaminate the water, the composting process, if properly conducted, results in organic fertilizer of excellent quality, with ideal rates carbon and nitrogen

Chemical fertilizers were used minimally, with their recommendation based on the soil analyses performed and focused on each type of productive system developed by the producers. Moreover, the recommended fertilization did not contain nitrogen in the formulation, being this nutrient supplied through the organic compound, as mentioned in the table below.

With this, it was possible to avoid adverse effects such as pollution and eutrophication of water bodies and ground water and emissions of gases that cause the greenhouse effect.

Name	Organic Compost
Justification of Use	The composting process, when done properly, provides a remarkable organic fertilizer with ideal carbon and nitrogen rates, and prevents the anaerobic decomposition of organic waste available on farms, such as straw and manure, from emitting greenhouse gases and contaminating water.
Adverse Effect	Unknown

5.2. Offsite Biodiversity Impacts

5.2.1. Negative Offsite Biodiversity Impacts (B3.1) and Mitigation Actions (B3.2)

As expected, no negative offsite biodiversity impacts caused by the activities developed were detected, and no leakages were detected during the monitored period, therefore the suggested table for this section with negative offsite biodiversity impacts and mitigation actions was not completed. The only impacts identified caused to biodiversity in the monitored period are related mainly to Forest Management activities, but these occurred within the Project Area, and the description of the mitigation actions carried out was added to section 4.1.4.

This absence of negative impacts derives mainly from the fact that the offsite of Project Zone is surrounded by protected areas (Conservation Units) and, because the social activities carried out are designed to mitigate possible leakages that may occur, keeping people in the field and in harmony with the forest, these actions were explained in Section 4. The main offsite biodiversity impacts observed were the maintenance of the Project Area and Zone as an ecological corridor and as a buffer zone to the risks and threats to the mosaic of protected areas in southern Amapá.

5.2.2. Net Offsite Biodiversity Benefits (B3.3)

As mentioned in the section above, no negative offsite biodiversity impacts caused by the activities carried out were detected, just as no leakages were detected. Therefore, mitigating actions were not necessary. Even so, the monitoring activities of the forest cover by satellite images, frequent patrols by the patrimonial surveillance team, the good practices performed in Sustainable Forest Management, strengthening the governance of the property and seeking the minimum impact to biodiversity, the improvement of communication channels with other stakeholders, and the greater alignment with local

communities in technical assistance and rural extension activities, workshops, and training, focusing on the sustainable use of natural resources and forest maintenance, promoted the conservation of biodiversity in the region.

The impacts generated by these activities have promoted the conservation of biodiversity in the area that serves as an ecological corridor for the Conservation Units in the region, as demonstrated in the biodiversity monitoring carried out in the monitored period. This connectivity between fragments constitutes a large and resilient conservation system, making significant improvements in the quality of life of local populations and acting as a buffer zone from risks and threats to the mosaic of protected areas in the Jari Valey.

Furthermore, in the biodiversity monitoring carried out, it was indicated that the connectivity between the areas allows the gene flow between species, ensuring greater genetic variability, especially when it comes to medium and large mammals, which need large areas to live. During the monitoring it was possible to verify that the individuals detected move through the landscape, migrating between areas.

5.3. Biodiversity Impact Monitoring

5.3.1. Biodiversity Monitoring Plan (B4.1, B4.2, GL1.4, GL3.4)

Biodiversity Monitoring and Scientific Research

The biodiversity monitoring allows assessing the impact of project activities on biodiversity and detects unforeseen changes, enabling necessary adjustments to achieve the objectives and desired impacts.

To this end, in 2019 the monitoring of the local fauna and analysis of flora data obtained in the forest inventory in 2011 was carried out. The species found in the IUCN, CITES and IBAMA Red Lists were highlighted. The complete study, with details on the methodology applied and the results obtained, was made available to the VBB.

a. Fauna

The methodologies applied in surveying fauna biodiversity in the Project Zone are widely used and recognized by the scientific community and environmental agencies. They allow the collection of information about large areas in less time and with reliable results, in addition to fully meeting the requirements and guidelines established in the forest certification standards.

The data obtained on the structure and dynamics of medium and large mammal communities have demonstrated the importance of these animals in processes within forest ecosystems (WALKER et al, 2000, PARDINI et al, 2003, SCOSS et al, 2004). Frugivorous and herbivorous species act to maintain the tree diversity of habitats through the dispersion and predation of seeds and fruits and the predation of seedlings (PARDINI et al, 2003). Other medium and large mammals are the carnivores that regulate the population of herbivores and frugivores (REDFORD, 1992). In addition, severe changes in the mammal community

directly affect the livelihoods of human populations, as some mammals are hunting species (PARRY et al. 2009), environmental quality indicators (ZOCHE et al, 2010) and vectors of tropical diseases (MAIA DA SILVA et al, 2008, THOISY et al, 2009).

Since 2004, several studies have been developed in the properties of Jari Celulose and surrounding areas in order to quantify the effects of secondary forests, managed forests, native forest corridors and eucalyptus plantation on the composition and diversity of the local biota (LOUZADA et al., 2014; BARLOW et al., 2007). The studies involved 15 taxa, of which three were listed as indicators of environmental quality: scarab beetles (COLEOPTERA: SCARABAEIDAE), trees and birds. In this study, birds were considered satisfactory environmental indicators, since they present clear responses to perturbations, have a response correlation with the other groups and lower sampling cost compared to the other groups (LOUZADA et al., 2014).

Thus, it was established to monitor avifauna and medium and large mammals. It should be noted that this was the first campaign to monitor medium and large wild mammals in the Project Zone REDD + Jari-Amapá.

I. Avifauna

The avifauna sampling took place between November 22 and December 4, 2019, at Jari Celulose properties located in the municipality of Laranjal do Jari, Amapá. Based on previous studies carried out in the areas of Jari Celulose and Jari Florestal, three types of environment (treatments) were selected to compare avifauna communities: primary forest, forest with selective logging (forest management) and eucalyptus plantation. The avifauna of each environment was sampled along two paths with a minimum of 2200 m in length, spaced at least 2 km apart, totaling six paths.

The technique of counting by points was used during sampling (VIELLIARD, 2000). The points counting technique can provide useful estimates of abundance to compare areas and to assess temporal trends of populations and communities. In addition, this method allows the collection of information on wider areas and in less time than would be necessary for the fog-net capture method, with the advantage of being a non-invasive and less selective method. That is, it can contemplate most of the terrestrial bird community.

Quantitative samplings were carried out at 72 counting points, allocated at a minimum distance of 200 meters from each other. In each of the six paths, 12 counting points were distributed. The point counts were performed in the morning, up to four hours after sunrise, the peak period of bird activity. (SICK, 1997). Each point was sampled two to four times, always on different mornings. Two observers performed the counts simultaneously, but on different routes. It was tried to divide the counts so that all points were visited by both observers.

It was used 10x42 binoculars for viewing specimens in the field, digital recorders for recording sound events and performing playback for identification purposes, and digital cameras for visual recording of as many species as possible. Whenever possible, additional information was recorded, such as registration time, number of individuals, foraging items and habitat for the species identified by sighting or by sound.



Figure 13 - Gavião-real (*Harpy harpyja*), recorded in a camera trap, in the Forest Management area

Results

It was obtained 3619 bird records, resulting in 197 recorded species, distributed in 40 families.

Four species recorded in the field are listed on the IUCN Red List of endangered species, classified as "Vulnerable": the mutum-poranga (*Crax alector*), the pomba-botafogo (*Patagioenas subvinacea*), the tucano-de-papo-branco (*Ramphastos tucanus*) and the tucano-de-bico-preto (*Ramphastos vitellinus*). These are four species of medium or large birds that are characteristic of forest environments and predominantly frugivorous diet.

Besides, the endangered species, twenty-two of the species recorded in the field are endemic to the Guiana shield. These are species characteristic of the forest environment, but of varying size and guilds. These species endemic to the Guiana Shield were registered only in the management areas, in the primary forest, or in both, and are not registered in eucalyptus forestry areas.

The avifauna of primary forests had 1.8 times more species than the avifauna of eucalyptus plantation areas, and a number of species equivalent to that of managed forests, but slightly lower. On the other hand, the total abundance in the management area was higher (14.7 contacts per point) than in the primary forest (11.2 contacts per point) and in eucalyptus plantation (10.2 contacts per point). In addition, the composition of bird species from the primary and managed forest was very similar, and the avifauna found in eucalyptus plantation had a species composition different from the other two areas. Thus, the data indicate that i) selective logging would be accompanied by a slight increase in species richness, by an increase in total bird abundance, but without abrupt changes in species composition; and that ii) the replacement of native forests by eucalyptus plantation would reduce the total abundance of avifauna and drastically reduce the richness of species, markedly altering its composition.

The results of this study and previous studies carried out at Jari show that the presence of large areas of native forests in the landscape promotes the maintenance of bird communities on a regional scale. Managed forests seem to maintain a species diversity similar to that of primary forests, but with some differences in the relative abundance of some species groups. Maintaining primary forests appears to be

essential for some species, mainly for insectivorous and frugivorous understory and highly sensitive species.



Figure 14 - Cacaué (*Aratinga maculate*), on the left, and Tucano-de-papo-branco (*Ramphastos tucanus*), on the right

II. Medium and large mammals

Three sampling techniques were used: i) visual observation; ii) trace analysis; and iii) camera traps.

Most of the visual records of mammals in fauna surveys refer to arboreal species, such as monkeys or caxinguelês, who have daytime habits. For other species, mainly medium and large mammals, only traces, such as footprints, feces and snails, make identification possible and often represent the only tool available to researchers to detect their presence in the field. According to Becker & Dalponte (1999), footprints are the most found signs and the most reliable interpretation, and can be used for studies of ecology and inventories.

The identification of traces, such as burrows, snails, footprints and excrement are the most common procedures for registering medium and large mammals. The footprints found were measured, photographed and identified according to Becker & Dalponte (2013), Reis et al. (2014) and Lima Borges & Tomás (2008). This method is very efficient in registering mammal species, including the rarest ones, such as large carnivores, and has the advantage of being non-invasive.

Unlike environmental prerequisites that can limit sampling by trace, camera traps represent an efficient and non-intrusive method in almost all climatic and soil conditions. The advantages also involve precision in determining the species and the possibility to assess age, sex, structure and density in extensive study areas (SEYDACK, 1984; KELLY et al., 1998; MACE et al., 1994).

The camera traps were placed perpendicularly or transversely to animal tracks found within areas with vegetation or on the edge of forest fragments.

The sampling methods used are complementary and, when applied together, make it possible not only to maximize the fauna inventory of an area in a relatively short time, but also to make more realistic comparisons between different sampled areas.

Three treatments were sampled, with two sample modules per treatment. The sampled treatments were: primary forest, forest with selective cutting of wood (forest management) and eucalyptus plantation, with the duration of monitoring in each treatment lasting 5 days (4 nights). Active search techniques were used, covering the marked trails, and the installation of camera traps in the selected areas for each treatment.

Six digital camera traps with infrared were used for treatment, activated by movement, Bushnell Trophy Cam® model, with 8 megapixel resolution and built-in flash.

The method of active search through paths was used aiming at the direct visual contact of individuals or visualization of traces such as footprints, feces, burrows and snails. The work was carried out from 6 am to 11 am and from 3:30 pm to 8 pm. Trails proportional to the types of environments present in the study areas were established, taking advantage, as far as possible, of roads, stream banks and pre-existing trails. These trails were all georeferenced with a manual GPS device. The paths were covered by slow steps with a constant speed of approximately 2 km/h, four repetitions were made for each route.

Results

In this first monitoring campaign, 18 species of medium and large wild mammals were registered, distributed in 10 families and 6 orders. Of these, ten species were found in the eucalyptus plantation areas, ten species in the management areas and 15 species in the native forest areas. Four species were registered exclusively in the eucalyptus plantation areas: gambá (*Didelphis marsupialis*), tatu-canastra (*Priodontes maximus*), cairara (*Cebus olivaceus*) and macaco-prego (*Sapajus apella*). Another four species of medium and large mammals were found exclusively in the native forest areas: macaco-aranha (*Ateles paniscus*), irara (*Eira barbara*), mão-pelada (*Procyon cancrivorus*) and cotiara (*Myoprocta acouchy*). The areas related to forest management did not register exclusive species in this monitoring campaign.

The native forest treatment showed higher species richness than the others, since with the same sampling effort was obtained a greater number of species in relation to eucalyptus plantation and management forest. Greater biodiversity was expected in native forest areas, since it is a site with less anthropogenic disturbances when compared to eucalyptus plantation and forest management areas. In addition, areas with little or no anthropogenic disturbance have a greater capacity to provide food, reproductive partners and shelter sites. According to some studies, the medium and large mammal community reflects the availability of food provided by the environment, so that frugivorous and granivorous species are more frequent in places with little or no anthropic changes (PERRY, BARLOW & PERES, 2007).

Most of the registered species have low tolerance to environmental changes and are dependent on forest formations. Thus, it is worth reinforcing the need to maintain areas with native vegetation in order to provide a favorable location for maintaining biodiversity. Another important point is that the presence of

species sensitive to environmental changes is a strong indication that the fauna community is well established, since we observe the presence of carnivorous species at the top of the food chain, such as the onça-pintada (*Panthera onca*) and jaguatirica (*Leopardus pardalis*). In addition, several potential seed dispersing species have been recorded, such as cutia (*Dasyprocta leporina*), paca (*Cuniculus paca*), cotiara (*Myoprocta acouchy*), as well as the primatas: macaco-aranha (*Ateles paniscus*), bugio-vermelho-das-guianas (*Alouatta macconnelli*), sagui-de-mãos-douradas (*Saguinus midas*), macaco-prego (*Sapajus apela*) and cairara (*Cebus olivaceus*).

Mammals play an important role in the recovery of altered areas, due to their ability to disperse and predate seeds and seedlings of different plant species (BASCOMPTE & JORDANO, 2007). Medium and large mammals can disperse a large number of seeds over long distances (STONER et al., 2007). These plant-animal interactions are fundamental to the biodiversity of the Amazon forest, helping to recover the diversity of fauna and associated ecosystem services, which are fundamental to the processes of natural regeneration in degraded forests (BOWEN et al., 2007).

Another important factor is the presence of endangered species registered during this campaign, such as the onça-pintada (*Panthera onca*), classified as “Vulnerable (VU)” in the state and national list and “Near threatened (NT)” in the IUCN Red List. Another specie present in the three lists is the tatu-canastra (*Prionomys maximus*) classified as “Vulnerable (VU)” in all lists. The macaco-aranha (*Ateles paniscus*) is only present on the IUCN Red List as “Vulnerable (VU)”. Finally, the veado-mateiro (*Mazama americana*) was classified as “Data Deficient (DD)” by the IUCN Red List.

In general, evidence was presented that forest management did not affect the species composition and the relative abundance of most medium and large mammals. The apparent similarity in the composition and abundance of species can be explained by characteristics of the life history of the species recorded. Medium and large mammals generally have large areas of life and, in the study area in question, it is possible that they can move around the landscape, migrating between the most preserved areas and those of forest management and eucalyptus plantation. Another extremely important factor is the connectivity between the areas, as they enable gene flow between species, ensuring greater genetic variability.

In addition, the presence of native areas close to forest management and eucalyptus plantation areas allows them to act as a relatively well-preserved matrix. Areas without any disturbance of anthropogenic activities can become a refuge for vertebrates during exploration operations, later acting as a source of recolonization for the harvested areas (JOHNS, 1996; WILLOTT et al., 2000).



Figure 15 - Anta (*Tapirus terrestris*), on the left, and Veado-roxo (*Mazama nemorivaga*), on the right, recorded in the native forest area

b. Flora

As pointed out in Section 2.2.4, the study of flora biodiversity was carried out through the analysis of pre-exploratory data from UPA01, since there is no post-exploratory data (once the forest management in this UPA01 has not yet been finalized). Thus, even though the analysis was carried out in 2019, as it was done with pre-exploratory data, the values of indicators “Diversity of plant community in Permanent Plots” and “Richness of the plant community in Permanent Plots” in Appendix are 0 (zero).

The study on the Project’s flora biodiversity was carried out in a Dryland Dense Ombrophylous Florest area of Grupo Jari, in the municipality of Laranjal de Jari, state of Amapá, where the activities of the Sustainable Forest Management Plan are carried out. The area of Annual Production Unit No. 1 (UPA1) was selected as the sample unit. This area was divided into 2 blocks, with 158 plots of 100 x 100m, totaling 158 hectares.

Using the method described by Silva et al. (2005), permanent plots of 1 ha each (100 x 100 m) were randomly installed. Each permanent plot was subdivided into 100 10 x 10 m subplots, where all trees with DBH $\geq$ 30 cm were measured and identified botanically.

The data obtained in the field were ordered and processed in the FITOPAC program, authored by Shepherd (1988), resulting in the analysis of several phytosociological parameters, such as density, frequency, dominance, and indexes of importance and coverage value. In addition, this package of programs still provides Shannon's diversity indexes (H'), Pielou (J) and equability (E).

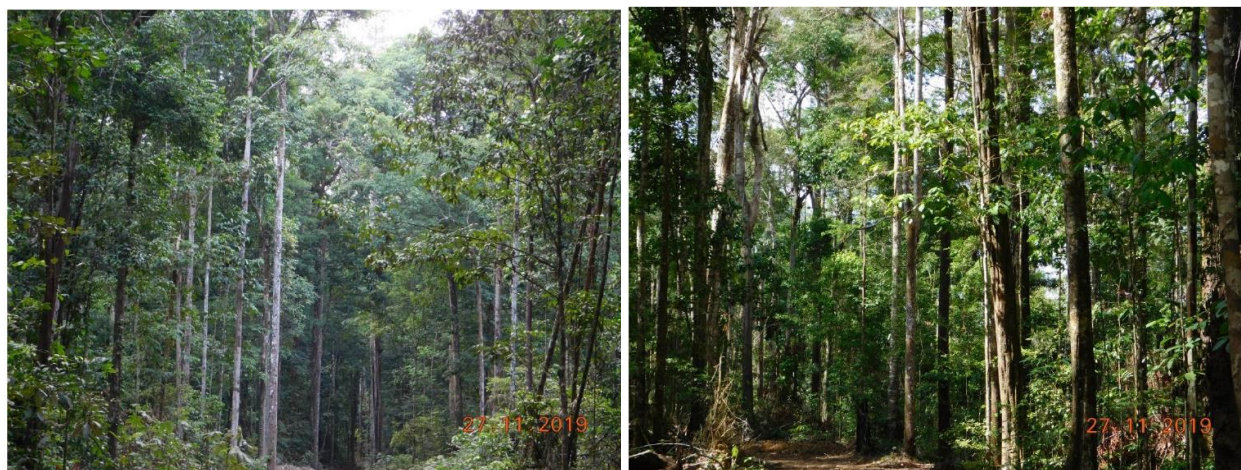


Figure 16 - Submontane Dense Ombrophylous Forest: image captured at the Annual Production Unit number 1 (UPA1)

Results

I. Floristic analysis

24,200 tree individuals were identified (153 ind.ha⁻¹). These are distributed in 40 botanical families and 149 species.

Among the registered families, regarding species richness, those that predominated were: Fabaceae (30.67%), Lecythidaceae (7.33%) Sapotaceae (6%), Vochysiaceae (4.67%), Apocynaceae (4%), Myristicaceae (4%), Burseraceae (3.33%) and Lauraceae (3.33%). Together, these families accounted for approximately 63.33% of the total species sampled.

In this study, the Fabaceae family was responsible for about 48.2% of the total number of individuals sampled, guaranteeing the sovereignty of this family in forest ecosystems, as mentioned by Carim et al. (2013), Ter Steege et al., (2013), Condé & Tonini (2013), Pereira, et al., (2011), Guimarães and Carim (2008) and Carim et al (2007).

Nine species, considered to have the highest absolute densities, were responsible for 59.38% of the total of sampled individuals: *Vouacapoua americana* (27.4 ind./ha), *Dipteryx odorata* (14.8 ind./ha), *Tetragastris panamensis* (11.6 ind./ha), *Goupia glabra* (9.5 ind./ha), *Tachigali myrmecophila* (8 ind./ha), *Qualea paraensis* (6 ind./ha), *Manilkara huberi* (5.7 ind./ha), *Qualea albiflora* (4.6 ind./ha) e *Lecythis pisonis* (3.4 ind./ha).

It is important to note that 28% of the species had only one individual, among them: *Laetia procera*, *Sclerolobium guianensis*, *Rheedia macrophylla* and *Toulicia guianensis*. These species are considered by Oliveira et al. (2008) as “locally rare” and deserve attention from a conservationist point of view. Species with low local abundance are at greater risk of extinction due to demographic, environmental or genetic stochasticity (ALVES & MIRANDA, 2008), becoming more vulnerable to extinction because, in general, they are specialized to a restricted set of environmental factors or have limited powers to spread to other areas.

The Shannon Diversity Index (H') value obtained for the present study was 3.42 nats/ind. As much as this value is below those commonly found for the region, results above 3.11 nats/ind. indicate well-

preserved plant formations (SAPORETTI JUNIOR et al., 2003 apud FERREIRA JUNIOR et al., 2008). The low value found may be associated with the diametric class included in the study (DBH ≥ 30 cm), which is higher than that of the other studies analyzed. Thus, it can be said that the forest of the study in question has high local diversity.

The Pielou equability value ($J = 0.68$) can be considered relatively low, compared to other studies carried out in the Amazon where the values are between 0.75 to 0.92 (KUNZ et al. 2008; ALVES & MIRANDA, 2008; OLIVEIRA et al. 2008). The low equability can be attributed to the few species that occurred with a high number of individuals, with emphasis on *Vouacapoua americana*.

Finally, it appears that the floristic composition and the horizontal structure of these communities revealed tree vegetation extremely rich in number of families, genera and species, comparing with other works developed in the Amazon (MACIEL et al., 2000; OLIVEIRA & AMARAL, 2004; PEREIRA et al., 2005).

II. Phytosociological aspects

The ten families that presented the most significant importance index (IVI) in the studied area, in decreasing order, were: Fabaceae (99.94), Vochysiaceae (30.94), Burseraceae (23.4), Goupiaceae (18, 96), Lecythidaceae (15.98), Caryocaraceae (15.86), Sapotaceae (15.74), Anacardiaceae (10.03), Simaroubaceae (9.72) and Olacaceae (8.87). These families represent 58% of all species richness, also representing 92.8% of all individuals sampled.

The Importance Value Index (IVI) estimated for plant species can be used in management plans as a tool for forest management, as it acts as an indicator of ecological importance. The Index reflects the influence of the most frequent and dominant species on the basic processes of flora balance and fauna maintenance, providing shelter and food to the group of living beings present in the habitat. (OLIVEIRA; AMARAL, 2003).

The ten species that stood out the most by the Importance Value Index (IVI), in decreasing order, were: *Vouacapoua americana* (34.1), *Dipteryx odorata* (20.8), *Tetragastris panamensis* (16.5), *Goupia glabra* (14.88), *Tachigali myrmecophila* (13.41), *Qualea paraensis* (10.05), *Qualea albiflora* (9.7), *Manilkara huberi* (9.3), *Caryocar villosum* (9.21) and *Lecythis pisonis* (8.16). These species represent 61.40% of all individuals sampled. If they do not suffer anthropic action (considered as the main threat), they will continue ensuring the predominance in the natural composition of the vegetation.

III. Diametric structure

The diametric distribution of the studied forest shows the formation of an inverted J, typical behavior of balanced natural forests, presenting a greater number of individuals in the smaller diameter classes (59.68% of the individuals are in the class between 40 and 60 cm), progressively reducing to larger class ranges. Thus, it can be said that the studied forest is well preserved.

The total basal area was 45.96 m² per hectare, with a density of 153 individuals. The result presented in this work is close to the patterns found in the Amazon in studies that include the same diametric classes in the sampling.

IV. Endangered species

According to the IUCN Red List of Threatened Species, there are: one species included in the “Critically endangered” (CR) category: *Vouacapoua americana*; three species in the “Vulnerable” (VU) category: *Couratari guianensis*, *Cedrela odorata* and *Pouteria oppositifolia*; one species in the “Near Threatened” (NT) category: *Minuartia guianensis*; one species in the “Least Concern” (LC) category: *Eschweilera obversa*; and two species in the “Data Deficient” (DD) category: *Dipteryx odorata* and *Luehea divaricata*.

In the Brazilian federal official list of flora’s threatened species (MMA, 2014), one species is classified as “Endangered” (*Vouacapoua americana*) and three as “Vulnerable” (*Hymenolobium excelsum*, *Cedrela odorata* and *Mezilaurus itauba*).

V. Final considerations

The floristic composition, the horizontal structure and the diversity indexes obtained in the studied community allow to classify it as an area of very high biological value, representative of the natural (undisturbed) forests of the Amazonian dryland.

The families Fabaceae, Vochysiaceae, Burseraceae, Goupiaceae, Sapotaceae and Lecythidaceae were the most important in the studied population. The occurrence and high importance of these families corresponds to the high degree of conservation of the analyzed forest.

The values of the Shannon index and the similarity of Pielou were considered satisfactory, as they fit within the standards for tropical forests in the Amazon, giving the studied environment a status of a well-preserved area.

In view of the results obtained, it is of great interest to recognize ecological communities as a work unit in the areas of forest management, as it represents the possibility of adapting management practices to ecological aspects, resulting in better efficiency from a commercial and environmental point of view.

The adoption of differentiated silvicultural practices, consequently more efficient, based on the floristic composition, structure and ecological processes present in the different communities of an annual production area can guarantee the balance and maintenance of ecological diversity and the productivity of these areas in the long term.



Figure 17 - Flowering of Jeniparana (*Gustavia augusta*), on the left, and of Quaruba-cedro-da-terra-firme (*Vochysia vismiaefolia*), on the right, recorded in the forest management area

c. Seedling Nursery

As a condition of the Single Environmental License (*Licença Ambiental Única* - LAU, in Portuguese), the Grupo Jari "shall provide 70,000 seedlings/year to IMAP/SEMA and the Municipality of Vitória do Jari for use in the implementation of urban afforestation projects and the recovery of degraded areas". It is through this commitment that there is the production and distribution of seedlings from Grupo Jari's nursery to the region, mainly for producers in the communities in the Project Zone, but also for communities located in Pará.

Seedlings are donated both directly to State Secretariat for the Environment (*Secretaria Estadual de Meio Ambiente* – SEMA, in Portuguese) and directly to the producer. To deliver to the producer, however, SEMA authorization and awareness is also required. Thus, the producer must first fill in a form with SEMA with personal information, address and number of seedlings per species. These forms, however, are stored at SEMA, which does not have enough staff to catalog and record the information of all orders placed. Thus, it was not possible to respond faithfully to the indicators, being placed only values in which the forms reached the nursery in some way (in cases where the producer takes a copy with him, for example) or which correspond to orders made directly by SEMA. In other words, the values answered in the indicator table are lower than those actually practiced, due to the absence of concrete evidence.

In general, the conservation areas (recovery of degraded areas) and production areas occur together in the properties of the families involved in the project, mainly through the Agroforestry Systems, and it is not possible to accurately separate the seedlings for restoration purposes and those for productive purposes. Thus, as there was only one evidence on the use of seedlings precisely for the recovery of degraded areas, the corresponding indicator - as much as monitored by the available forms and evidence - was the one with the most null values.

The idea, therefore, is to work with SEMA (for the next verification, or at least for the revalidation of the Project), options for more effective control of the number of seedlings distributed to producers in the

region. Another point initially thought to be included in the form (and asked to the producer) is about the purpose of planting the seedlings, if for recovering degraded areas or for productive purposes.

It's noted that in addition to the seedlings produced in the Grupo Jari nursery, seedlings were produced in the 6 Açaí Seedling Production Units (*Unidade Demonstrativa de Produção de Mudás*, in Portuguese) and in the 2 Banana Seedling Multiplication Fields (*Campos de Multiplicação de Mudás de Banana*, also in Portuguese), installed through Project activities in 6 surrounding communities: Nova Conquista, Tira Couro, Santo Antônio, São José, Padaria and São Francisco do Iratapuru, but these seedlings were also not included in the indicator table, due to the lack of evidence of the exact number of seedlings produced and distributed.



Figure 18 - Distribution of seedlings produced at Grupo Jari nursery

d. Xylotheque

The Jari Xylotheque was created in 1968 and, although the name “Xylotheque” refers to the collection of wood samples, there are also entomological and botanical collections on site.

The monitoring of this activity was established due to the importance of these collections from the Amazon region, both for scientific purposes and for environmental education (stimulating awareness and dissemination of the importance of the biodiversity of Jari Valley, the preservation of forests and their existing species).

In addition to the maintenance of the Xylotheque, the indicators monitored through the REDD+ Project included the annual registration (and counting) of new samples included in the collection and the visits made (for educational purposes, general visits and by the communities involved in the project).

The only increase in the number of samples occurred due to the receipt of an insectarium from Itapeva (State of São Paulo) in 2018. In 2020, there was a decrease in the number of samples of exsiccates and insects, as they were not perfectly preserved.

As for visitation, the number of visits was monitored by the Visitors Registration Book, both to quantify the number of general visits (in addition to visits by residents of the region and tourists) and

students, by filling in "Name" and "Origin" in the book. During the period, visits were made by schools in the region, Universities and Research Institutes.

It's understood, therefore, that the Xylotheque has been fulfilling the initial objective of preserving and increasing knowledge about the Amazon Forest heritage.



Figure 19 - Visitation held in Jari Museum Xylotheque

Table 33 - Monitored activities applied to biodiversity

Activities	Indicator	Justification/Description	Type of measurement/Unit	Sampling Methods/Source	Frequency of Monitoring
Biodiversity Monitoring and Scientific Research	Number of expeditions for the sampling at each monitoring event	Related to the biodiversity conservation focal issue, allowing the proponents to monitor the efficacy of project's activities on maintaining regional biodiversity and efficiency of the biodiversity monitoring.	Number	Fauna Monitoring Report	Biannual
	Intensity of expeditions for the sampling at each monitoring event		Days		
	No. of monitored taxa at each monitoring event		Number		
	No. of monitored species at each monitoring event		Number		
	Diversity of the monitored fauna		Not applicable		

	taxon at each monitoring event				
	Richness of the monitored fauna taxon at each monitoring event		Number		
	Diversity of plant community in Permanent Plots	Related to the biodiversity conservation focal issue, allowing the proponents to monitor the efficacy of project's activities, especially SFM, on maintaining regional biodiversity.	Not applicable	Post Exploratory Report	
	Richness of the plant community in Permanent Plots		Number		
	Presence of endangered species in the Project Area	Related to the biodiversity conservation focal issue, allowing the proponents to monitor the efficacy of project's activities on maintaining regional biodiversity.	Number and list	Fauna Monitoring Report	
	Status of species of relevance on IUCN's red list of endangered species		Not applicable		
	Number of studies and research projects developed	Related to the biodiversity conservation focal issue, allowing the proponents to monitor the efficacy of project's activities on maintaining regional biodiversity, and to environmental	Number	Fauna Monitoring Report and published scientific papers.	
	Number of scientific papers		Number		
	Number of institutions engaged		Number	Project's Annual Monitoring report	
	Amount invested in research		R\$		

	Validation workshops/knowledge return events	education focal issue, allowing society to build awareness about Jari Valley's biodiversity imporance and relevance.	Number		
Seedling Nursery	Number of seedlings	Related to biodiversity conservation focal issue, allowing the mantainance of native tree species variety, and related to environmental education focal issue, allowing produces to know and maintain local tree species.	Number	Assessment with the Forestry Department	Annual
	Number of species produced		Number		
	Number of seedlings distributed to communities in the Project Zone		Number	Assessment with Fundação Jari and Fundação Social Activities report	
	Number od seedling distributed to communities engaged by the Project		Number		
	Number of seedling distributed to families engaged		Number		
	Number of seedlings used for restoration of degraded lands		Number		
	Number of seedling used for productive ends		Number		
Xylotheque (Wood Collection)	Number of Wood samples	Related to environmental education focal issue, allowing general public to see and understand the high diversity of biodiversity on Jari Valley.	Number	Assessment with Environment, Quality and Certification Department	Annual
	Number of botanical samples		Number		
	Number of insects samples		Number		
	Number of general visits		Number		
	Number of visits with educational ends		Number		

5.3.2. Biodiversity Monitoring Plan Dissemination (B4.3)

As already described in item 2.3.1, the Jari/Amapá REDD+ Project has implemented three methods of communication, aiming to guarantee access to documents and all other information of the Project to the communities and other stakeholders through oral, written and virtual form.

The results were disseminated in a printed version, where each document related to the monitoring were made available for consultation at the Fundação Jari office, in a virtual version where the documents related to the monitoring were available through the Verra website and website, newsletter and social media of Biofílica, and orally through the REDD+ Technical Chambers (CT), meetings between the community council of agricultural communities and technicians, during the Technical Assistance and Rural Extension (TARE) process, as well as other opportunities for contact between stakeholders and project proponents.

5.4. Optional Criterion: Exceptional Biodiversity Benefits

5.4.1. Trigger Species Population Trends (GL3.3)

Trigger Species	<i>Vouacapoua americana</i> Aubl. (Acapú)
With-project Scenario	As presented in the PDD, the species is classified as "endangered" in IBAMA's official list of threatened species (IBAMA Ordinance No. 37, of April 3, 1992). However, due to its commercial importance, sustainable harvesting is allowed, provided that the good practices recommended by Normative Instruction No. 5 of December 11, 2006 are met. The measures that are already being adopted are: measurement of each tree of this species during the inventory operations; adoption of the minimum harvest diameter at breast height of 50 cm, with 10% of trees above this diameter not being able to be harvested; and among the trees that can be harvested, 3 individuals must be preserved for every 100 hectares. All individuals mapped and to be harvested must be reported in the Annual Operational Plan (AOP) and approved by the competent authority (in this case, IBAMA). After the completion of the harvesting operations, a post-exploratory report must also be sent for IBAMA's evaluation. As the Annual Productive Unit 01 (the only APU managed since the validation of the CCB's PDD and since the last VCS verification) is still being explored, the data used in the Biodiversity Report come from the total pre-exploratory inventory carried out at that APU. In this Biodiversity Report, the following phytosociological values and parameters were obtained: - Absolute Density: 27.4 ind/ha - Relative density: 17.86% - Absolute Frequency: 62.66% - Relative Frequency: 1.99%

	- Absolute Dominance: 6.55 m²/ha - Relative Dominance: 14.24% - Importance Value Index (IVI): 34.1% - Coverage Value Index (CVI): 32.11% Although there is still no Post-Exploratory Report, the maintenance of the species is legally guaranteed as it is not a species contained in the POA. In other words, as the species was not mentioned in the POA as a species to be exploited, its harvesting is not authorized in this exploration cycle of UPA01. Additionally, the list of exploited individuals and invoices for the sale of wood (evidence made available to the VVB) does not include the species in question. Thus, with the actions to contain deforestation, the mitigation measures taken during the management operation and the results obtained in the biodiversity report under the state of forest conservation (all mentioned in more detail throughout this section of biodiversity), the conservation of the population of <i>Vouacapoua americana</i> in the Project Area is maintained.
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Trigger Species	<i>Bertholletia excelsa</i> Bonpl. (Brazil Nut Tree)
With-project Scenario	Brazil nut trees are protected by law (Decree No. 5,975 of November 2006) and are of great importance to communities. For these reasons, protection measures are already adopted in Sustainable Forest Management, which include the objective of preserving 100% of individuals of the species. In order to monitor and guarantee the maintenance of the population in the area, a mapping and reporting of all individuals found during the inventory activities of the Sustainable Forest Management is carried out. This measure thus allows the exploitation activity to avoid damage to individuals, in addition to providing spatial subsidies for conservation actions. The spreadsheet with Brazil Nut trees measured during the UPA01 forest census was made available to the VVB. As stated above, cutting Brazil nut tree is prohibited in Brazil. In order to protect the species from damage or falls, other individuals from 13 commercial species (authorized to be harvested in the POA) were also spared from the cut, due to the proximity of these individuals to the Brazil nut trees. Map and shapefiles containing the locations of Brazil nut trees and other spared individuals were made available to the VVB. Even though trees were spared to avoid damage to the Brazil nut trees, some damage still occurred and, as it is a species of economic and cultural importance, there was an assessment of the damage to the Brazil nut trees that are managed by residents

	of the Ramal do Retiro community. In this survey, of the 4,807 Brazil nut trees existing within the limits of community <i>castanhais</i>, 376 suffered some type of damage, but only 28 suffered irreversible damage. In other words, only 0.6% of the Brazil nut trees were irreversibly damaged. The spreadsheets of the assessment sheets and maps of the Brazil Nut trees were made available to the VVB. The conservation of the species, therefore, was guaranteed in the period monitored by the legal restriction of the harvest (added to the fact that the species is not mentioned in the POA as a species to be exploited) and by the mitigation actions of forest management, even saving the close individuals who could affect the Brazil Nut tree when they are exploited, in addition to the other activities developed in the Project that result in the reduction of deforestation and the conservation of the forest and the existing ecological functions.
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Trigger Species	<i>Aratinga solstitialis</i> (Jandaia Amarela)
With-project Scenario	No illegal activities are permitted in the Project Area, including unauthorized hunting and the capture of wild animals. The patrimonial surveillance team is trained to identify these situations and forward the cases to the responsible authorities. The species classified as <i>Aratinga solstitialis</i> at the time of conception and validation of the Project underwent a reclassification (published in 2015 in the Revista Brasileira de Ornitologia). This reclassification implied a change in the name of the species found in the Project Area, which became <i>Aratinga maculata</i>, found again in the fauna biodiversity monitoring campaign carried out in 2019. <i>Aratinga maculata</i> was found by the Ambiens team in the three areas studied: primary forest, managed forest and eucalyptus forestry. Additionally, the report states that: i) the species is one of the 22 bird species found in the campaign and which are endemic to the Guiana Shield; ii) has average sensitivity to environmental changes; and iii) it has forest areas as its preferred habitat. Thus, as previously mentioned in this Biodiversity Monitoring Section, “the existence of primary forests associated with forest management areas has proved to be an excellent arrangement for maintaining fauna biodiversity, especially for species that are not tolerant of human presence or forest disturbance. Likewise, the similarities found between native and managed forests indicate that the management protocols have been efficient and fulfill the main role of contributing to the sustainable development of the region and preserving local biodiversity”.

	It is understood, therefore, that as placed for the two other trigger species above, all Project activities, which result in a common goal of reducing deforestation, forest conservation and socioeconomic development (mainly through sustainable forest management and forestry actions). rural technical assistance developed with the communities of the region) have been efficient in maintaining populations of trigger species.
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6 ADDITIONAL PROJECT IMPLEMENTATION INFORMATION

6.1 Analysis of land use and land cover changes during the monitoring period

The analysis of changes in land use and land cover during the monitoring period was carried out for the PRODES data. Data were available in vector format (shapefile) and matrix (raster) with spatial resolution of 30 meters. According to the methodology of PRODES Câmara et al. (2006), these images undergo a geometric correction with displacement error of less than 1 pixel (30 x 30 m). These images cover the reference period (2014 to 2019) and can be located through four Path/Row in the Landsat scene 226/60 e 226/61. The main activities carried out by the PRODES system to monitor the forest cover of the Brazilian Amazon will be detailed below.

Preprocessing

The procedures of imagery preprocessing performed by the PRODES Project are constituted in the following steps (CÂMARA et al., 2006):

- Selection of images with lower cloud cover and acquisition date closer to dry season in the Amazon and with adequate radiometric quality.
- Georeferencing of 30-meter spatial resolution images in 1:100,000 scale maps and NASA Ortho-rectified MrSID format images.

Interpretation and classification

The method of classification of satellite images used by PRODES follows four main steps. First a spectral mixing model is generated identifying the components of vegetation, soil and shade. This technique is known as a linear spectral mixture model (MLME) that aims to estimate the percentage of vegetation, soil and shade components for each cell (pixel) of the satellite image. The second step is the application of the segmentation technique, which identifies in the satellite image spatially adjacent regions (segments) with similar spectral characteristics. After segmentation, the segments are categorized individually to identify the forest, non-forest vegetation, hydrography, and deforestation classes (anthropic vegetation). Finally, the result of classified segmentation is submitted to the process of editing or auditing the classification, performed by a specialist, and ending with the creation of state mosaics.

Map accuracy assessment

The PRODES data were validated by comparing the Sentinel-2¹ images with the 10-meter resolution and the ground cover map generated by INPE for the year 2018 and 2019. 220 points and 254 points were randomly distributed for the years 2018 and 2019, respectively, in the monitored area (Project Area and Leakage Belt). For each point, a visual interpretation was made of the predominant class in the point (classes: Forest, Non-forest, Water and Deforestation). Figure 20 and Figure 21 demonstrates the methodology adopted to execute the evaluation of the accuracy of the PRODES mapping in the 2 years.

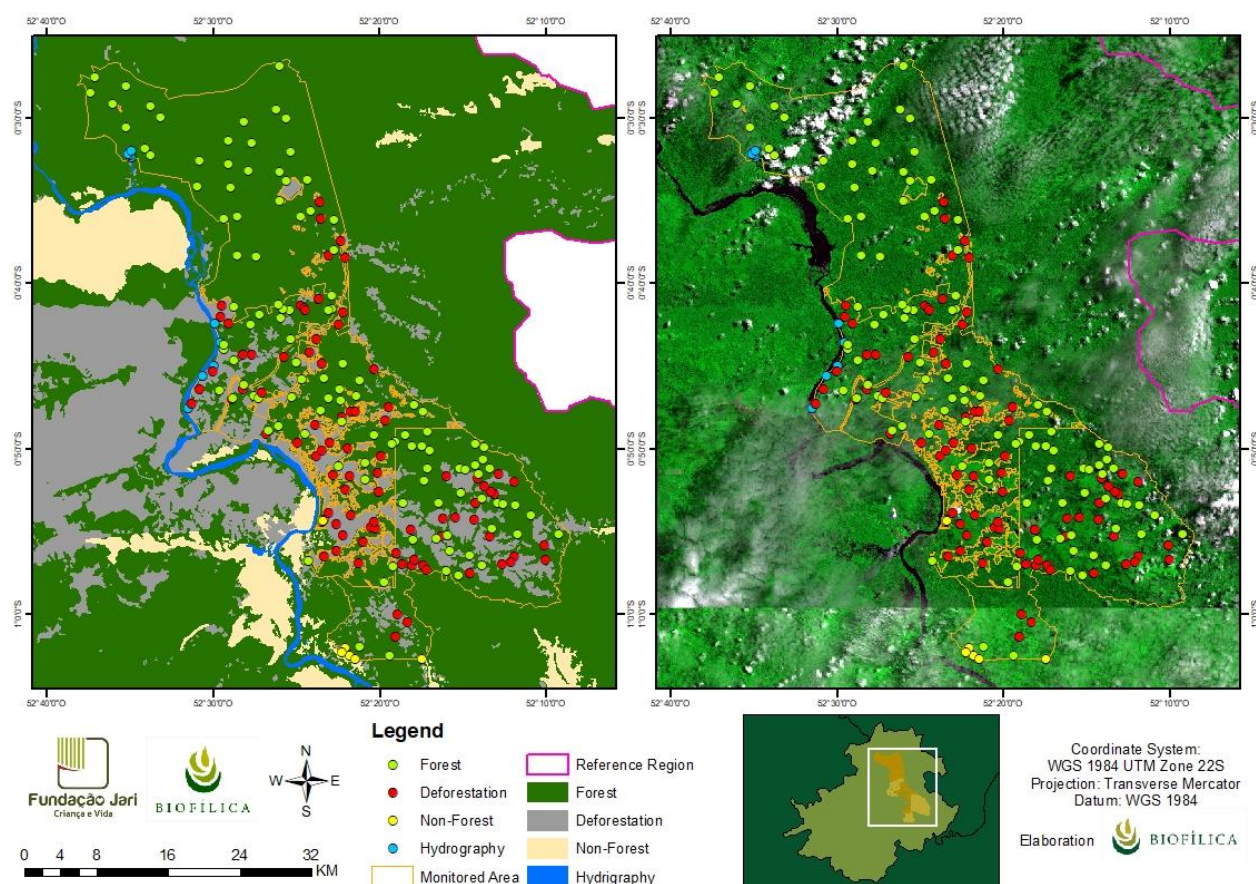


Figure 20 - Assessment points for the accuracy of PRODES data in 2018

¹ The Sentinels are part of a set of satellite families developed by the Space Component Program, to Copernicus' requirements. Composed by the Sentinel missions 1, 2, 3, 4, 5, 5-Precursor and 6. The information used in this analysis was obtained from the Sentinel-2 mission that operates in the visible and infrared regions of the electromagnetic spectrum, being dedicated to monitoring the terrestrial environment. The Sentinel-2 mission has a quasi-polar orbit and has an MSI (MultiSpectral Instrument) sensor with 13 spectral bands, with high spatial resolution (10, 20 or 60 m, depending on the band) and a time resolution of 10 days with one satellite and 5 days with both satellites operational. (Source: DGTERRITÓRIO; ENGESAT).

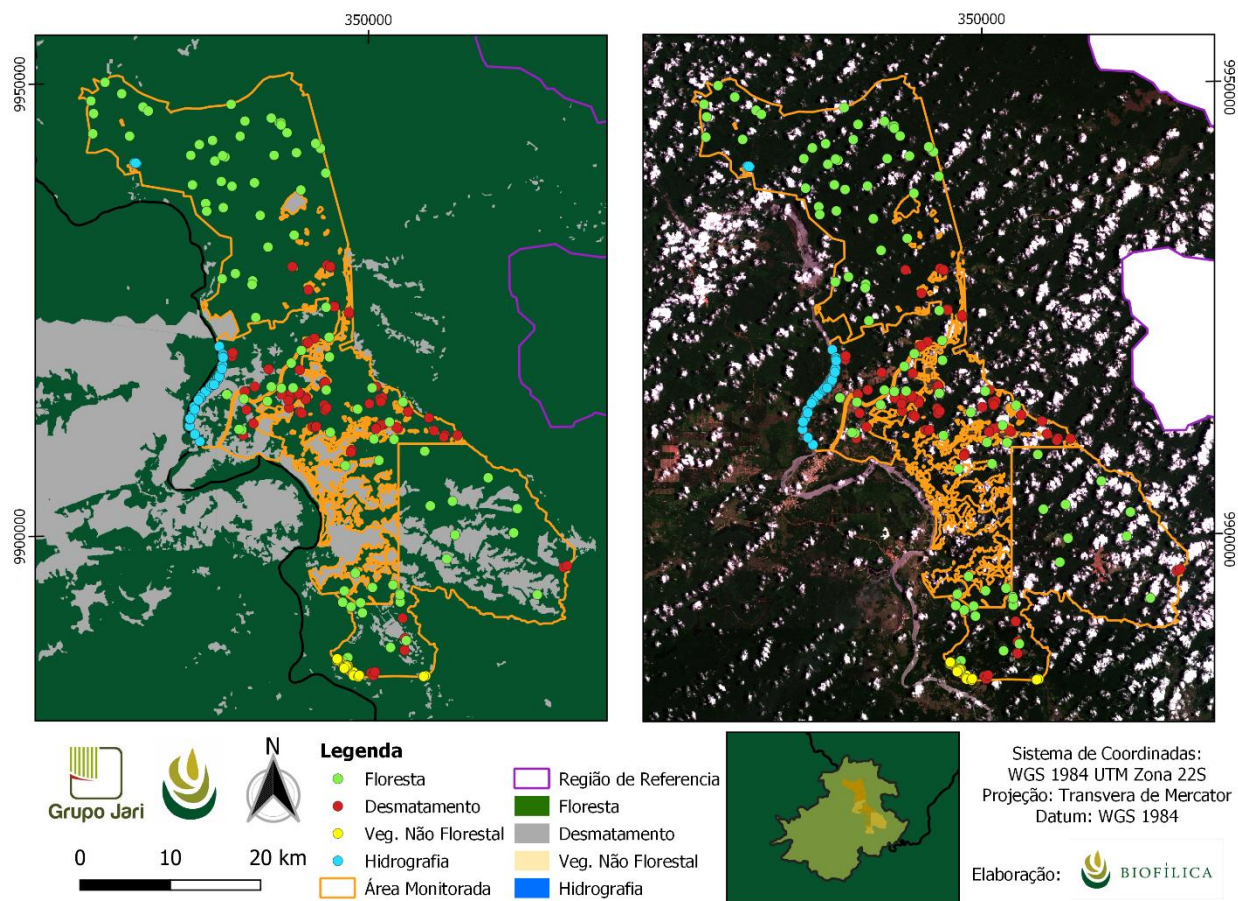


Figure 21 - Assessment points for the accuracy of PRODES data in 2019

With the reference points and the land use and land cover map of the monitoring period, it was possible to evaluate the performance of the monitoring process through the analysis of the confusion matrix (Table 34) according to Congalton and Green (2008)². The overall accuracy of the monitoring process for the land use and land cover classes in the monitored area showed values above 80%, being 83% for 2018 (Table 34) and 91% for 2019 (Table 35).

Table 34 - Confusion matrix of the 2018 evaluation

		Reference				Total	User accuracy	Omission Error
		Forest	Deforestation	Non-Forest	Water			
Classified	Forest	107	7	0	0	114	94%	6%
	Deforestation	25	59	1	0	85	69%	31%
	Non-Forest	2	0	9	0	11	82%	18%
	Water	2	1	0	7	10	70%	30%
Total		136	67	10	7	220		
Producer accuracy		79%	88%	90%	100%			
Omission Error		21%	12%	10%	0%			

² CONGALTON, R. G.; GREEN, K. Assessing the accuracy of remotely sensed data: Principles and practices. 2. ed. CRC Press, 2008. 183 p. ISBN 78-1-4200-5512-2.

Map Accuracy	83%
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Table 35 - Confusion matrix of the 2019 evaluation

		Reference				Total	User accuracy	Omission Error
		Forest	Deforestation	Non-Forest	Water			
Classified	Forest	89	1	0	0	90	99%	1%
	Deforestation	8	136	0	0	144	94%	6%
	Non-Forest	12	0	38	0	50	76%	24%
	Water	3	0	0	35	38	92%	8%
Total		112	137	38	35	322		
Producer accuracy		79%	99%	100%	100%			
Omission Error		21%	1%	0%	0%			
Map Accuracy								93%

The confusion matrix was made based on a stratified random point allocation to sample all classes of land use and land cover. For 2018, a total of 220 points were used in the accuracy evaluation, being 114 points randomly distributed in the Forest class and 85 points randomly distributed in the Deforestation class, and 21 additional points randomly distributed in the Hydrography and Non-forest classes. And, for 2019, a total of 322 points were used in the accuracy evaluation, being 90 points randomly distributed in the Forest class and 144 points randomly distributed in the Deforestation class, and 88 additional points randomly distributed in the Hydrography and Non-forest classes.

During the monitoring period, together with the patrolling activities within Gleba Jari II, the patrimonial vigilance team held a field conference on the data gathered by the PRODES project, which were forwarded through the annual monitoring bulletins prepared by Biofíllica. The bulletins include the coordinates of the areas deforested during the year analyzed, and with these points the Grupo Jari team generates a map to assist in field actions, where they use GPS navigation.

The 2014, 2015/2016, and 2017 Biofíllica monitoring bulletins were produced respectively in January 2016, May 2018 and June 2018. However, field conference was carried out in May 2018 for 2014 and 2015/2016, and in August 2018 for the 2017 bulletin. Delay cause was mainly because of the crisis that occurred in Grupo Jari in 2016, affecting actions promoted by patrimonial vigilance team. So, in 2016 and 2017 there was a decrease in project's actions, consequently causing a delay in the field conference. The 2018 Biofíllica monitoring bulletin was produced in September 2019n because of the publication interval of the PRODES data, and field conference happened in February 2020. The same occurred for the 2019 bulletin, which by the end of the monitored period, had not yet been field verified.

The field checking is not carried out right when Biofíllica monitoring reports are delivered, because it is influenced by several external factors. So, for example, during periods with a lot of rain, field conference is impaired and, therefore, postponed. The field conference of 2018 Biofíllica monitoring bulletin, for example, was postponed due to intense periods of rainfall.

When the deforested areas were identified in field, the security team collected all the information pertinent to the problems, such as description of the deforested area and name of the person possibly involved. This information, together with photographic records, are then passed on to the Infrastructure Manager who evaluated the fact. If the need for immediate action was verified during the inspection, the patrol members activated the competent agencies, police, state agencies (Environmental Secretariat) and federal agencies (IBAMA), to take the necessary corrective actions. In addition, all occurrences were recorded for planning future actions, the flow chart below illustrates this process (Figure 22).

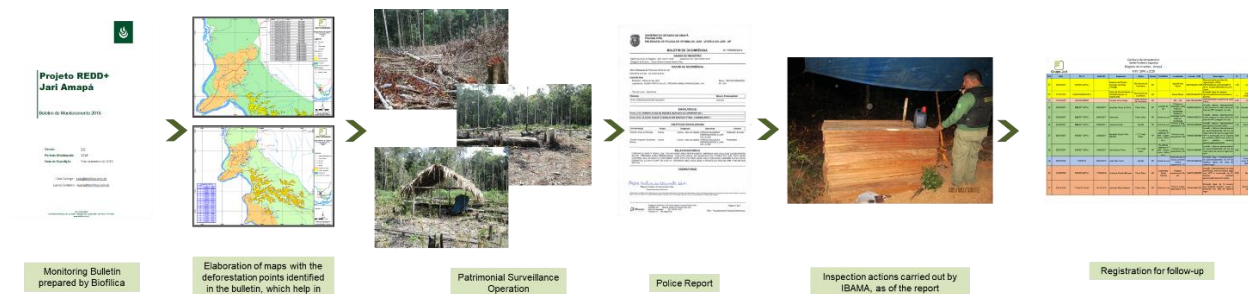


Figure 22 - Flow chart of the deforestation verification process

7 ADDITIONAL PROJECT IMPACT INFORMATION

7.1 Net Positive Climate Impacts

Complementary to the analysis performed with PRODES (2019) data, which served to perform the calculation of avoided emissions in the VCS scope, a preliminary assessment was performed within the project area and leakage belt between October 2019 and April 2020, covering the period not covered by the VCS, to demonstrate the net benefits on climate maintained by the project.

The assessment was conducted via geoprocessing software using three information sources: shapefile data from the project area and leakage belt, 2019 PRODES shapefile data representing existing deforestation from 1988 to October 2019, and satellite imagens generated between April and May 2020.

Based on the PRODES classification (2019), it was possible to identify other deforestation areas in the region of the project area and the leakage belt through satellite images. As the month of April is characterized by rainfall phenomena in the region, clouds become a frequent element in satellite images at this time of year. Thus, to ensure the quality of deforestation detection and to increase the range of the areas analyzed, a main image from Sentinel-2 satellite (dated April 21th, 2020) was used with the complementary support of imagens from the satellites1 LandSat-7 (May 8th, 2020), LandSat-8 (April 30th, 2020), and Sentinel-2 (May 1st, 2020).

The Sentinel-2 satellite image from April 21th, 2020, was chosen as the main image for analysis because it has the highest resolution (10m) compared to the images from the LandSats 7 and 8 satellites (30m) and because it is the image with the least interference from clouds close to the date October 16th, 2020, which represents the end of the VCS monitoring period. The images from the satellites LandSat-7

and LandSat-8 were prioritized for complementary analysis because they are the same satellites used by the PRODES Project.

The analysis followed the following steps:

1. Considering the analysis in the geoprocessing software, first the PRODES data was overlaid with the boundaries of the project area and leakage belt to understand the identified deforestation locations by the date of October 16th, 2020;

2. After, the Sentinel-2 image (April 21th, 2020) was inserted in the analysis, and from this image the identification and delimitation of other deforested areas not covered by the data for the period between 10/16/2020 and 04/21/2020 was made.

3. As not every area present within the limits of the project area and leakage belt could be analyzed due to the presence of clouds at the site, to fill this gap, the images LandSat-7 (May 8th, 2020), LandSat-8 (April 30th, 2020), and Sentinel-2 (May 1st, 2020), were used to complete the deforestation delimitation and to assess whether the initially selected areas were in fact area where land use change occurred;

4. The identified deforestation areas were registered in the shapefile for later calculation of area extension. The Figure 23 illustrates a sample of the results found, with the overlay of the Sentinel-2 satellite images used.

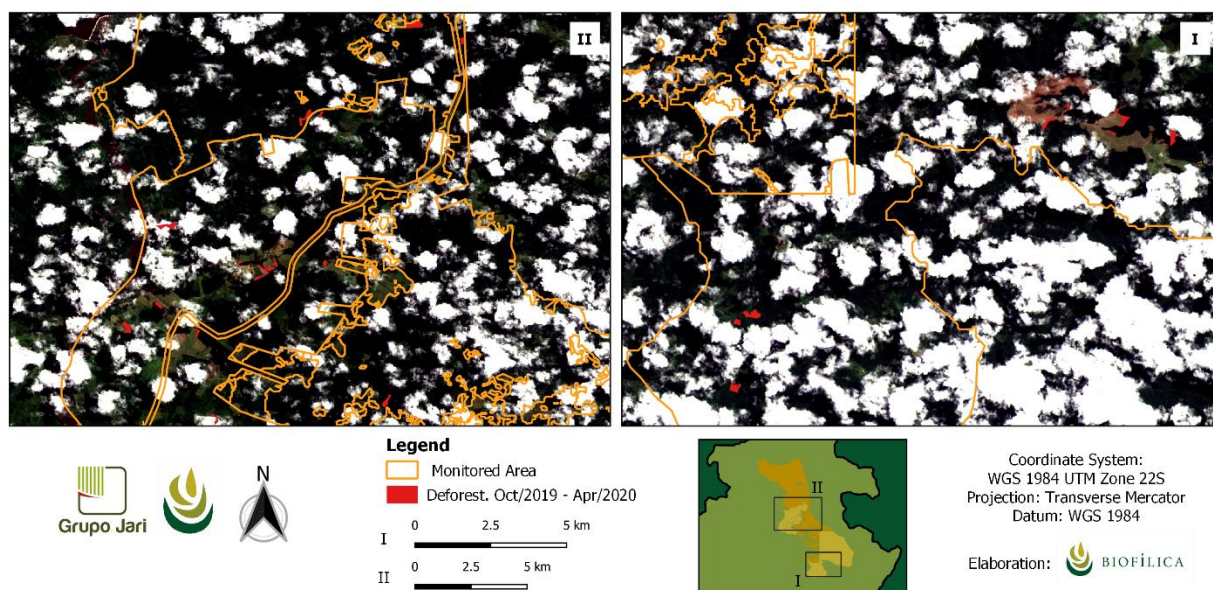


Figure 23 - Sample of the location of deforestation areas identified in the analysis of Sentinel-2 satellite images (04/21/2020)

The preliminary estimate of the areas deforested through these procedures showed that there were no impacts during this period. A total of 71 hectares were accounted for the project area and 115 hectares for the leakage belt. In a comparison with the expected deforestation for the baseline, in the preliminary analysis for the year 2020, the areas found were 88% and 83% lower than expected, respectively, for the project area and the leakage belt.

When making an estimate of emissions, when compared to the previous periods that will be verified VCS in this report, it is shown that the data are within the expected, being even below the average of previous years. The table below shows the comparison between the baseline, the VCS monitoring period that will be verified, and the period covered only by CCB, demonstrating that in fact, during the entire period monitored by VCS and CCB, there were no negative climate impacts for the project and no significant losses.

It is important to emphasize that this analysis is a preliminary survey of deforestation in the area, with the exclusive objective of demonstrating that no impacts occurred in the CCB period, which was not covered by the VCS (10/16/2019 to 04/16/2020), and that there clearly were no significant losses in the areas. At the next verification of the project, these figures will be reviewed and complemented with more accurate assessments.

Table 36 - Comparison of carbon stock change data between baseline, VCS verified years, and preliminary analysis for CCB coverage

Project Year	Baseline carbon stock changes	Project carbon stock changes	Leakage carbon stock changes
2014	274,059	61,625	0.0
2015	381,495	30,538	0.0
2016	336,148	11,263	0.0
2017	362,030	47,018	0.0
2018	358,795	55,436	0.0
2019	313,874	39,363	0.0
2020	294,871	36,286	-
Average*	-	40,874	0.0
Legend: 2020 in blue represents the preliminary analysis performed, and the other years refer to the vintages verified by the project in this report *The average was calculated based on the verified VCS period between 2014 and 2019			

8 APPENDIX

The tables with the results of the community and biodiversity indicators are presented below.

Appendix

Table of indicators with results for the monitored period to community (2014 - 2020)

Activities	Indicator	Justification/Description	Type of measurement/Unit	Sampling Methods	Frequency of Monitoring	Value monitored	References/ Evidences	Comments
Sustainable Forest Management, FSC-certified	Number of communities affected by the SFM	Related to the forest cover maintenance focal issue, and to communication focal issue (G1.8), allowing to better access impacts of the SFM in the communities, to monitor communication regarding SFM activities, and to monitor maintenance of important resources to the communities.	Number	Analyses of the post-harvest report, assessment with the forestry department and assessment with the environment, quality and certification department.	Annual	2014: n/a		
						2015: n/a		
						2016: n/a		
						2017: n/a		
						2018: 1	AGREGUE MF - COLABORADORES POA 01	
						2019: 1	SAFRA 2020.2.xlsx	
						2020: 1	02-treinamentos.rar	
	Number of workshops regarding SFM activities implemented prior to the operation		Number			2014: 2	Relatorio de Visita as Comunidades_Cajari 10072014.pdf (p. 2-4) Relatorio de Visita as Comunidades_Cajari2 28112014.pdf (p. 3-6)	
						2015: n/a		
						2016: n/a		
						2017: n/a		
						2018: 1	Relatorio de Palestra IFAP_2018.pdf (p. 2-3)	
						2019: n/a		
						2020: n/a		
						2014: n/a		
						2015: n/a		
						2016: n/a		
						2017: n/a		
	Number and location of trees important to the communities mapped		Number			2018: Total number of Brazil nuts tree counted in the POA01 census: 8,394	Nº of Trees in POA 01: 05-shapefile.rar > Castanheiras.shp	
						2019: 0		
						2020: Number of trees located in the Brazil nuts groves identified: 4,807	Nº of Thees in Brazil nuts groves: 05-shapefile.rar > Castanheiras_CastRetiro.shp Location: 01-mapa-castanhais-retiro.rar > Castanhais Comunidade Retiro; Castanhais Comunidade Retiro-Daizia Moreira de Sousa; Castanhais Comunidade Retiro-Francisco Lopes de Aquino; Castanhais Comunidade Retiro-Izanor Braga; Castanhais Comunidade Retiro-Luiz Alves; Castanhais Comunidade Retiro-Odecias Moreira da Silva; Castanhais Comunidade Retiro-Oseias Moreira da Silva; Castanhais Comunidade Retiro-Renan Almeida; Castanhais Comunidade Retiro-Rosi da Silva Sousa; Castanhais Comunidade Retiro-Sergio Almeida; Castanhais Comunidade Retiro-Sobreposição Wilson e Odecias; Castanhais Comunidade Retiro-Wilson Carneiro	
						2014: 22	Relatorio de Visita as Comunidades_Cajari2 28112014.pdf (p. 6 - 9)	
						2015: n/a		
						2016: n/a		
						2017: n/a		
						2018: n/a		
	Number of complains and demands regarding the SFM activities		Number			2019: 1	Relatório Entrega de madeiras em toras_AGREGUE_COOPMOVEIS_PREFEITURA LARANJAL DO JARI.pdf termo-concessao-uso-bem-publico-07-2019.pdf	
						2020: 04/01: 4 30/04: 5 Action Plan: 7 Total: 16	Fwd Reunião no Ramal do Retiro.msg ConselhoRetiro_ATA01.pdf ConselhoRetiro_ATA02.pdf RELATÓRIO DE REGISTRO DE DEMANDAS DE PARTES INTERESSADAS 24.06.20.pdf Plano de Ação.pdf	
						2014: n/a		
						2015: n/a		
						2016: n/a		
						2017: n/a		

Appendix

Table of indicators with results for the monitored period to community (2014 - 2020)

	Extension of roads opened		Kilometers			2018: Main: 19.74 Secondary: 42.94 Total: 62.68	01-shapefile-estradas.rar > Estradas_em_linha.shp mapa-POA01-microzoneamento.pdf autorizacao-ambiental-207-2018.pdf POA-AGREGUE-FINAL.pdf
						2019: n/a	
						2020: n/a	
	Area deforested per engaged community						
	FRANÇA ROCHA					2014: 9,26	
						2015: 8,27	
						2016: 0,00	
						2017: 0,00	
						2018: 15,89	
						2019: 18,17	
						2020: n/a	
	FÉ EM DEUS					2014: 33,84	
						2015: 70,74	
						2016: 0,00	
						2017: 61,33	
						2018: 0,00	
						2019: 0,00	
						2020: n/a	
	TIRA COURO					2014: 135,46	
						2015: 21,28	
						2016: 7,78	
						2017: 33,51	
						2018: 64,84	
						2019: 29,20	
						2020: n/a	
	ÁGUA AZUL					2014: 0,00	
						2015: 0,00	
						2016: 6,69	
						2017: 27,85	
						2018: 34,09	
						2019: 0,00	
						2020: n/a	
	IGARAPÉ DAS PACAS					2014: 24,05	
						2015: 0,00	
						2016: 6,48	
						2017: 23,72	
						2018: 6,91	
						2019: 39,34	
						2020: n/a	
	NOVA CONQUISTA					2014: 10,06	
						2015: 0,00	
						2016: 6,66	
						2017: 0,00	
						2018: 0,00	
						2019: 0,00	
						2020: n/a	
	Area deforested per family attended						
	FRANCISCO DOS SANTOS CARDOSO					2014: 0,00	
						2015: 0,00	
						2016: 0,00	
						2017: 0,01	
						2018: 0,00	
						2019: 0,00	
						2020: n/a	
	HUMBERTO					2014: 5,32	
						2015: 0,00	
						2016: 0,00	

Table of indicators with results for the monitored period to community (2014 - 2020)

CCB v3.0, VCS v3.4

Appendix

Table of indicators with results for the monitored period to community (2014 - 2020)

	environmental agencies					2018: 1			
						2019: 22			
						2020: 0			
Property Surveillance	Number of complaints/demand s regarding the surveillance action	Related to external invasions focal issue, "slash and burn" practices focal issue and communication focal issue (G1.8), allowing to monitor the communication regarding Property Surveillance activities.	Number	Assessment with the Surveillance Department	Annual	2014: n/a	fiscalizacao_area_fundiaria.doc enc_revisao_procedimento_fiscalizaçã_o_area_fun diaria.msg		
						2015: n/a			
						2016: n/a			
						2017: n/a			
						2018: n/a			
						2019: n/a			
						2020: n/a			
									palestras_incendio_florestal_2018_09_19.pdf palestras_incendio_florestal_2019.pdf cartaz_incendios_florestais.pdf AUD-20201001-WA0127_1.mp3 AUD-20201001-WA0127_2.mp3

Appendix

Table of indicators with results for the monitored period to community (2014 - 2020)

	Number of Institutions that attended		Number	1ºsem 2014: 3	AtaCTREDD_13032014-v2 (highlighted in dark blue and annotated) OrganizacaoDadosCTs-v2.xlsx
				2ºsem 2014: 7	ListaFrequenciaCT_20082014-v2 (highlighted in light blue) AtaCTREDD_20082014-v2 (highlighted in green) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2015: 0	
				2ºsem 2015: 4	AtaCTREDD_25082015-v2 (highlighted in yellow) ListaFrequenciaCT_25082015-v2 (highlighted in yellow) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2016: 0	
				2ºsem 2016: 0	
				1ºsem 2017: 0	
				2ºsem 2017: 0	
				1ºsem 2018: 0	
				2ºsem 2018: 10	ListaFrequenciaCT_09082018-v2 (highlighted in yellow) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2019: 0	
				2ºsem 2019: 10	AtaCTREDD_24072019-v2 (highlighted in yellow) ListaFrequenciaCT_24072019-v2 (highlighted in yellow) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2020: 0	
				1ºsem 2014: 7	Tira Couro - MobilizacaoCT_13032014-v2 (pg. 1 - 9; pg. 16 - 17) Sombra da Mata - MobilizacaoCT_13032014-v2 (pg. 10 - 12) Igarapé das Pacas - MobilizacaoCT_13032014-v2 (pg. 13) Ramal Nova Conquista - MobilizacaoCT_13032014-v2 (pg. 14) Água Azul - MobilizacaoCT_13032014-v2 (pg. 15) Ramal Fé em Deus - MobilizacaoCT_13032014-v2 (pg. 18 - 22) Ramal França Rocha - MobilizacaoCT_13032014-v2 (pg. 23 - 26) OrganizacaoDadosCTs-v2.xlsx
	Number of communities invited		Number	2ºsem 2014: 4	Nova Conquista - MobilizacaoCT_20082014-v2 (pg. 1 - 6) Fé em Deus - MobilizacaoCT_20082014-v2 (pg. 7) Tira Couro - MobilizacaoCT_20082014-v2 (pg. 8, 9 e 12) Água Azul - MobilizacaoCT_20082014-v2 (pg. 10, 11, 13 e 14) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2015: 0	
				2ºsem 2015: 0	
				1ºsem 2016: 0	
				2ºsem 2016: 0	
				1ºsem 2017: 0	
				2ºsem 2017: 0	
				1ºsem 2018: 0	

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Table of indicators with results for the monitored period to community (2014 - 2020)

						2ºsem 2018: 6	Igarapé das Pacas - MobilizacaoCT_09082018-v2-pt2 (p. 1) Nova Conquista - MobilizacaoCT_09082018-v2-pt2 (p. 1 - 2) Ramal França Rocha - MobilizacaoCT_09082018-v2-pt2 (p. 3) Ramal Fé em Deus - MobilizacaoCT_09082018-v2-pt2 (p. 3) Tira Couro - MobilizacaoCT_09082018-v2-pt2 (p. 3) Água Azul - MobilizacaoCT_09082018-v2-pt2 (p. 3) OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2019: 0	
						2ºsem 2019: 0	
						1ºsem 2020: 0	
						1ºsem 2014: 7	ListaFrequenciaCT_13032014-v2 OrganizacaoDadosCTs-v2.xlsx
						2ºsem 2014: 6	ListaFrequenciaCT_20082014-v2 OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2015: 0	
						2ºsem 2015: 4	ListaFrequenciaCT_25082015-v2 OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2016: 0	
						2ºsem 2016: 0	
						1ºsem 2017: 0	
						2ºsem 2017: 0	
						1ºsem 2018: 0	
						2ºsem 2018: 6	ListaFrequenciaCT_09082018-v2 OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2019: 0	
						2ºsem 2019: 6	ListaFrequenciaCT_24072019-v2 OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2020: 0	
						1ºsem 2014: Men: 3, Women: 2	ListaFrequenciaCT_13032014-v2 (highlighted in blue) OrganizacaoDadosCTs-v2.xlsx
						2ºsem 2014: Men: 0, Women: 0	ListaFrequenciaCT_20082014-v2 OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2015: 0	
						2ºsem 2015: Men: 0, Women: 0	ListaFrequenciaCT_25082015-v2 OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2016: 0	
						2ºsem 2016: 0	
						1ºsem 2017: 0	
						2ºsem 2017: 0	
						1ºsem 2018: 0	
						2ºsem 2018: Men: 1, Women: 3	ListaFrequenciaCT_09082018-v2 (highlighted in green) OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2019: 0	
						2ºsem 2019: Men: 1, Women: 1	ListaFrequenciaCT_24072019-v2 (highlighted in light rose) OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2020: 0	
						1ºsem 2014: Men: 1, Women: 0	ListaFrequenciaCT_13032014-v2 (highlighted in red) OrganizacaoDadosCTs-v2.xlsx
						2ºsem 2014: Men: 1, Women: 0	ListaFrequenciaCT_20082014-v2 (highlighted in yellow) OrganizacaoDadosCTs-v2.xlsx

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Table of indicators with results for the monitored period to community (2014 - 2020)

Technical Board Meetings	SOMBRA DA MATA	Related to access to public policies focal issue and to communication focal issue (G1.8), allowing to monitor the occurrence of the technical board meetings, the invitation effort and efficacy, communities' and stakeholders' engagement, gender and youth represnetativeness, to monitor time invested by the communities, and to monitor projetc's social outcames and impacts.	Assessment with Fundação Jari, Fundação Jari Social Activities report and Technical Board minutes	Every 6 months	1ºsem 2015:	0	
	2ºsem 2015:				Men: 0, Women: 0	ListaFrequenciaCT_25082015-v2 OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2016:				0		
	2ºsem 2016:				0		
	1ºsem 2017:				0		
	2ºsem 2017:				0		
	1ºsem 2018:				0		
	2ºsem 2018:				Men: 0, Women: 0	ListaFrequenciaCT_09082018-v2 OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2019:				0		
	2ºsem 2019:				Men: 0, Women: 0	ListaFrequenciaCT_24072019-v2 OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2020:				0		
	1ºsem 2014:				Men: 0, Women: 0	ListaFrequenciaCT_13032014-v2 OrganizacaoDadosCTs-v2.xlsx	
	2ºsem 2014:				Men: 0, Women: 0	ListaFrequenciaCT_20082014-v2 OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2015:				0		
	2ºsem 2015:				Men: 0, Women: 0	ListaFrequenciaCT_25082015-v2 OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2016:				0		
	2ºsem 2016:				0		
	1ºsem 2017:				0		
	2ºsem 2017:				0		
	1ºsem 2018:				0		
	2ºsem 2018:				Men: 0, Women: 0	ListaFrequenciaCT_09082018-v2 OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2019:				0		
	2ºsem 2019:				Men: 0, Women: 0	ListaFrequenciaCT_24072019-v2 OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2020:				0		
	1ºsem 2014:				Men: 3, Women: 1	ListaFrequenciaCT_13032014-v2 (highlighted in yellow) OrganizacaoDadosCTs-v2.xlsx	
	2ºsem 2014:				Men: 1, Women: 0	ListaFrequenciaCT_20082014-v2 (highlighted in red) OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2015:				0		
	2ºsem 2015:				Men: 2, Women: 0	ListaFrequenciaCT_25082015-v2 (highlighted in blue) OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2016:				0		
	2ºsem 2016:				0		
	1ºsem 2017:				0		
	2ºsem 2017:				0		
	1ºsem 2018:				0		
	2ºsem 2018:				Men: 1, Women: 0	ListaFrequenciaCT_09082018-v2 (highlighted in light rose) OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2019:				0		
	2ºsem 2019:				Men: 2, Women: 0	ListaFrequenciaCT_24072019-v2 (highlighted in rose) OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2020:				0		
	1ºsem 2014:				Men: 3, Women: 0	ListaFrequenciaCT_13032014-v2 (highlighted in green) OrganizacaoDadosCTs-v2.xlsx	
	2ºsem 2014:				Men: 2, Women: 2	ListaFrequenciaCT_20082014-v2 (highlighted in purple) OrganizacaoDadosCTs-v2.xlsx	
	1ºsem 2015:				0		
	2ºsem 2015:				Men: 0, Women: 0	ListaFrequenciaCT_25082015-v2 OrganizacaoDadosCTs-v2.xlsx	

Number

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Table of indicators with results for the monitored period to community (2014 - 2020)

	RAMAL FÉ EM DEUS					1ºsem 2016: 0		
						2ºsem 2016: 0		
						1ºsem 2017: 0		
						2ºsem 2017: 0		
						1ºsem 2018: 0		
						2ºsem 2018: Men: 5, Women: 1	ListaFrequenciaCT_09082018-v2 (highlighted in purple)	OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2019: 0		
						2ºsem 2019: Men: 3, Women: 0	ListaFrequenciaCT_24072019-v2 (highlighted in green)	OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2020: 0		
						1ºsem 2014: Men: 4, Women: 2	ListaFrequenciaCT_13032014-v2 (highlighted in orange)	OrganizacaoDadosCTs-v2.xlsx
						2ºsem 2014: Men: 5, Women: 0	ListaFrequenciaCT_20082014-v2 (highlighted in green)	OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2015: 0		
						2ºsem 2015: Men: 3, Women: 0	ListaFrequenciaCT_25082015-v2 (highlighted in purple)	OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2016: 0		
						2ºsem 2016: 0		
						1ºsem 2017: 0		
						2ºsem 2017: 0		
						1ºsem 2018: 0		
						2ºsem 2018: Men: 9, Women: 3	ListaFrequenciaCT_09082018-v2 (highlighted in rose)	OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2019: 0		
						2ºsem 2019: Men: 4, Women: 0	ListaFrequenciaCT_24072019-v2 (highlighted in purple)	OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2020: 0		
						1ºsem 2014: Men: 7, Women: 4	ListaFrequenciaCT_13032014-v2 (highlighted in purple)	OrganizacaoDadosCTs-v2.xlsx
						2ºsem 2014: Men: 2, Women: 2	ListaFrequenciaCT_20082014-v2 (highlighted in orange)	OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2015: 0		
						2ºsem 2015: Men: 1, Women: 1	ListaFrequenciaCT_25082015-v2 (highlighted in green)	OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2016: 0		
						2ºsem 2016: 0		
						1ºsem 2017: 0		
						2ºsem 2017: 0		
						1ºsem 2018: 0		
						2ºsem 2018: Men: 4, Women: 4	ListaFrequenciaCT_09082018-v2 (highlighted in orange)	OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2019: 0		
						2ºsem 2019: Men: 1, Women: 1	ListaFrequenciaCT_24072019-v2 (highlighted in orange)	OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2020: 0		
						1ºsem 2014: Men: 4, Women: 0	ListaFrequenciaCT_13032014-v2 (highlighted in light rose)	OrganizacaoDadosCTs-v2.xlsx

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Table of indicators with results for the monitored period to community (2014 - 2020)

	ÁGUA AZUL			2ºsem 2014:	Men: 3, Women: 1	ListaFrequenciaCT_20082014-v2 (highlighted in purple) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2015:	0	
				2ºsem 2015:	Men: 2, Women: 1	ListaFrequenciaCT_25082015-v2 (highlighted in orange) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2016:	0	
				2ºsem 2016:	0	
				1ºsem 2017:	0	
				2ºsem 2017:	0	
				1ºsem 2018:	0	
				2ºsem 2018:	Men: 6, Women: 2	ListaFrequenciaCT_09082018-v2 (highlighted in blue) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2019:	0	
				2ºsem 2019:	Men: 1, Women: 0	ListaFrequenciaCT_24072019-v2 (highlighted in blue) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2020:	0	
	Percentage of women participating		Percentage per event	1ºsem 2014:	33%	ListaFrequenciaCT_13032014-v2 AtaCTREDD_13032014-v2 (highlighted in dark blue) OrganizacaoDadosCTs-v2.xlsx
				2ºsem 2014:	36%	ListaFrequenciaCT_20082014-v2 AtaCTREDD_20082014-v2 (highlighted in green) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2015:	0%	
				2ºsem 2015:	31%	AtaCTREDD_25082015-v2 (highlighted in yellow) ListaFrequenciaCT_25082015-v2 OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2016:	0%	
				2ºsem 2016:	0%	
				1ºsem 2017:	0%	
				2ºsem 2017:	0%	
				1ºsem 2018:	0%	
	Percentage of youth participating		Percentage per event	2ºsem 2018:	32%	ListaFrequenciaCT_09082018-v2 OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2019:	0%	
				2ºsem 2019:	19%	ListaFrequenciaCT_24072019-v2 OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2020:	0%	
				1ºsem 2014:	3%	ListaFrequenciaCT_13032014-v2 (p. 1 - highlighted in blue and note) relacao-produtores-pps (highlighted in blue) OrganizacaoDadosCTs-v2.xlsx
				2ºsem 2014:	0%	
				1ºsem 2015:	0%	
				2ºsem 2015:	0%	
				1ºsem 2016:	0%	
				2ºsem 2016:	0%	
				1ºsem 2017:	0%	
				2ºsem 2017:	0%	
				1ºsem 2018:	0%	
				2ºsem 2018:	0%	
				1ºsem 2019:	0%	
				2ºsem 2019:	4%	ListaFrequenciaCT_24072019-v2 (p.1 - highlighted in light pink and note) relacao-produtores-pps (highlighted in blue) OrganizacaoDadosCTs-v2.xlsx
				1ºsem 2020:	0%	
				1ºsem 2014:	5	AtaCTREDD_13032014-v2 (highlighted in red) OrganizacaoDadosCTs-v2.xlsx

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Table of indicators with results for the monitored period to community (2014 - 2020)

	Number of issues addressed		Number			2ºsem 2014: 4	AtaCTREDD_20082014-v2 (highlighted in red) OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2015: 0	
						2ºsem 2015: 5	AtaCTREDD_25082015-v2 (highlighted in purple) OrganizacaoDadosCTs-v2.xlsx
	Time invested by the communities' members		Hours			1ºsem 2016: 0	
						2ºsem 2016: 0	
						1ºsem 2017: 0	
	Public Policies communities are accessing		Number	Family Assessment	Every 2 years	2ºsem 2017: 0	
						1ºsem 2018: 0	
						2ºsem 2018: 1	MobilizacaoCT_09082018-v2-pt1 (highlighted in yellow) OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2019: 0	
						2ºsem 2019: 4	AtaCTREDD_24072019-v2 (highlighted in green) OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2020: 0	
						1ºsem 2014: 8	ListaFrequenciaCT_13032014-v2 OrganizacaoDadosCTs-v2.xlsx
						2ºsem 2014: 5	MobilizacaoCT_20082014-v2 OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2015: 0	
						2ºsem 2015: 4	ListaFrequenciaCT_25082015-v2 OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2016: 0	
						2ºsem 2016: 0	
						1ºsem 2017: 0	
						2ºsem 2017: 0	
						1ºsem 2018: 0	
						2ºsem 2018: 4	MobilizacaoCT_09082018-v2-pt1 OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2019: 0	
						2ºsem 2019: 6	MobilizacaoCT_24072019-v2 (p.1) OrganizacaoDadosCTs-v2.xlsx
						1ºsem 2020: 0	
						2014: 4	PPTCTREDD_13032014-v2 (p. 6 - 8) AtaCTREDD_13032014-v2 (pg. 1 - highlighted in red) PPTCTREDD_20082014 (p. 12) PPTCTREDD_20082014 (p. 5 - 11) OrganizacaoDadosCTs-v2.xlsx
						2016: 1	AtaCTREDD_25082015-v2 (p1. - highlighted in purple) OrganizacaoDadosCTs-v2.xlsx
						2018: 0	
						2020: 1	PPTCTREDD_24072019-v2 (p. 14 - highlighted in purple) AtaCTREDD_24072019-v2 (p. 2 - highlighted in purple) OrganizacaoDadosCTs-v2.xlsx
	Number of families attended		Number			2014: 74	General data: LinhaTempo_ATER-v2
						2015: 75	
						2016: 8	
						2017: 366	Examples Producers: fichas-natalina-pereira-sousa.pdf fichas-nilson-pedreiro-torriel.pdf fichas-osvaldo-pinto-silva.pdf
						2018: 102	
						2019: 67	
						2020: 1067	General data: LinhaTempo_ATER-v2
						2014: 8	
						2015: 7	
	Number of communities engaged		Number	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months	2016: 3	Examples Producers: fichas-natalina-pereira-sousa.pdf fichas-nilson-pedreiro-torriel.pdf fichas-osvaldo-pinto-silva.pdf
						2017: 4	
						2018: 6	
						2019: 6	
						2020: 6	

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Table of indicators with results for the monitored period to community (2014 - 2020)

Frequency of visits	Number per month			2014: 420	General data: LinhaTempo_ATER-v2 Examples Producers: fichas-natalina-pereira-sousa.pdf fichas-nilson-pedreiro-torriel.pdf fichas-osvaldo-pinto-silva.pdf
				2015: 166	
				2016: 15	
				2017: 705	
Percentage of producers using the forest to grow crops	Percentage			2018: 183	
				2019: 168	
				2020: 3197	
				2014: 1. Brazil Nut - 16% 2. Açaí - 10% 3. Cupuaçu - 4%	indicador-diversidade-produtos.xlsx Dados 2014: 2014-diagnostico.rar Dados 2016 e 2018: 2016-2018-PAA.rar Dados 2020: 2020-questionario-dap.rar
Amount of cassava produced	tons			2016: 1. Brazil Nut - 59% 2. Cupuaçu - 20% 3. Pupunha - 20%	
				2018: 1. Brazil Nut - 62% 2. Cupuaçu - 9% 3. Pupunha - 45%	
				2020: 1. Brazil Nut - 29% 2. Açaí - 51% 3. Cupuaçu - 25% 4. Pupunha - 26% 5. Biribá - 3% 6. Camu Camu - 6% 7. Urucum - 3%	
				2014: 9,2 (Cassava root)	indicador-diversidade-produtos.xlsx Dados 2014: 2014-diagnostico.rar Dados 2016 e 2018: 2016-2018-PAA.rar Dados 2020: 2020-questionario-dap.rar
				2016: 10,5012 (Cassava root)	
				2018: 6,7 (Cassava root)	
				2020: 28,46 (Cassava)	
				2014: 24 CASTANHA-DO-BRASIL AÇAÍ IN NATURA CARVÃO VEGETAL FARINHA DE MANDIOCA FÉCULA TUCUPI RAIZ DE MACAXEIRA MILHO SECO ARROZ FEIJÃO CEBOLINHA COENTRO CHICÓRIA BANANA CUPUAÇU IN NATURA LARANJA ACEROLA IN NATURA GALINHA CAIPIRA PATO BOVIDEO SUÍNO CANA DE AÇUCAR ABACAXI FRUTO POLPA DE FRUTAS	

Appendix

Table of indicators with results for the monitored period to community (2014 - 2020)

Technical Assistance and Rural Extension (TARE)	Diversity of products produced	Related to "slash and burn" focal issue (G1.8), allowing to monitor coverage of the project, TARE implementation, TARE environmental results, communities' main source of income, communities' food security and market sustainability, communities' access to additional resources, familiar income, gender and youth representativeness, market access and time invested by the producers.	number	Family Assessment	Every 2 years	28 CASTANHA-DO-BRASIL FARINHA DE MANDIOCA FARINHA DE TAPIOCA FÉCULA RAIZ DE MACAXEIRA MILHO VERDE FEIJÃO VERDE CEBOLINHA COENTRO MAXIXI QUIABO ALFACE PEPINO 2016: COUVE PIMENTINHA DE CHEIRO CHICÓRIA BANANA CUPUAÇU IN NATURA PUPUNHA LIMÃO MELANCIA GALINHA CAPIRA BISCOITO DE CASTANHA MASSA DE MACAXEIRA ABOBORA BATATA DOCE COCO SECO COCO VERDE 33 CASTANHA-DO-BRASIL FARINHA DE MANDIOCA FARINHA DE TAPIOCA FÉCULA RAIZ DE MACAXEIRA MILHO VERDE FEIJÃO CAUPI FEIJÃO VERDE CEBOLINHA COENTRO MAXIXI QUIABO ALFACE PEPINO COUVE 2018: PIMENTINHA DE CHEIRO BANANA CUPUAÇU IN NATURA ABACATE PUPUNHA LIMÃO MAMÃO LARANJA MELANCIA BISCOITO DE CASTANHA ABACAXI MASSA DE MACAXEIRA ABOBORA BATATA DOCE COCO SECO COCO VERDE BATATA CARÁ TAMBAQUI	indicador-diversidade-produtos.xlsx Dados 2014: 2014-diagnostico.rar Dados 2016 e 2018:2016-2018-PAA.rar
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Table of indicators with results for the monitored period to community (2014 - 2020)

						51 CASTANHA-DO-BRASIL AÇAÍ IN NATURA FARINHA DE MANDIOCA FÉCULA TUCUPI MACAXEIRA MILHO SECO MILHO VERDE ARROZ FEIJÃO CEBOLINHA COENTRO MAXIXI QUIABO COUVE PIMENTÃO PIMENTINHA DE CHEIRO CHICÓRIA BANANA 2020: CUPUAÇU IN NATURA ABACATE PUPUNHA JACÁ DA BAHIA LIMÃO LARANJA MELANCIA TANGERINA BIRIBÁ GALINHA CAIPIRA BODE CARNEIRO BOVIDEO OVOS SUÍNO BISCOITO DE CASTANHA CUPUAÇU IN NATURA CAMU CAMU URUCUM CORANTE MASSA DE MACAXEIRA ABOBORA	
Percentage of families with access to loans		Percentage of families attended			2014: 0%	LinhaTempo_ATER-v2 relatorio-credito-rural-v2 (highlighted in yellow and purple)	
					2016: 0%		
					2018: 10%		
					2020: 0%		
Familiar Income		Reais (R\$)			2014: n/a		
					2016: n/a		
					2018: n/a		
					2020: n/a		
Gender and age of the producers attended							
YOUTH		Percentage of the total	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months	2014: 1%	General data: LinhaTempo_ATER-v2 relacao-produtores-pps.pdf	
	2015: 1%						
	2016: 0%						
	2017: 0%						
	2018: 1%				Examples Producers: fichas-natalina-pereira-sousa.pdf fichas-nilson-pedreiro-torriel.pdf fichas-osvaldo-pinto-silva.pdf		
	2019: 1%						
	2020: 0%						
	2014: 30%				General data: LinhaTempo_ATER-v2		
	2015: 28%						
	2016: 0%						
	2017: 32%						
WOMEN					2018: 33%	Examples Producers: fichas-natalina-pereira-sousa.pdf fichas-nilson-pedreiro-torriel.pdf fichas-osvaldo-pinto-silva.pdf	
					2019: 33%		

Appendix

Table of indicators with results for the monitored period to community (2014 - 2020)

	Final market achieved		Qualitative (what was the final destination)	Family Assessment	Every 2 years	2020: 42%	n/a	
						2014: n/a		
	Time invested by the communities' members		Hours	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months	2016: n/a	n/a	
						2018: n/a		
	Number of total trainings		Number			2020: n/a	n/a	
						1ºsem 2014: n/a		
	Number of trainings per community					2ºsem 2014: n/a	n/a	
						1ºsem 2015: n/a		
	ÁGUA AZUL					2ºsem 2015: n/a	n/a	
						1ºsem 2016: n/a		
	ÁGUA BRANCA					2ºsem 2016: n/a	n/a	
						1ºsem 2017: n/a		
						2ºsem 2017: n/a	n/a	
						1ºsem 2018: n/a		
						2ºsem 2018: n/a	n/a	
						1ºsem 2019: n/a		
						2ºsem 2019: n/a	n/a	
						1ºsem 2020: n/a		
						2ºsem 2020: n/a	n/a	
						1ºsem 2014: 3		
						2ºsem 2014: 5	n/a	
						1ºsem 2015: 0		
						2ºsem 2015: 4	n/a	
						1ºsem 2016: 0		
						2ºsem 2016: 0	n/a	
						1ºsem 2017: 2		
						2ºsem 2017: 7	n/a	
						1ºsem 2018: 2		
						2ºsem 2018: 6	n/a	
						1ºsem 2019: 1		
						2ºsem 2019: 0	n/a	
						1ºsem 2020: 0		
							n/a	
						1ºsem 2014: 3		
						2ºsem 2014: 1	n/a	
						1ºsem 2015: 0		
						2ºsem 2015: 0	n/a	
						1ºsem 2016: 0		
						2ºsem 2016: 0	n/a	
						1ºsem 2017: 1		
						2ºsem 2017: 0	n/a	
						1ºsem 2018: 0		
						2ºsem 2018: 1	n/a	
						1ºsem 2019: 0		
						2ºsem 2019: 0	n/a	
						1ºsem 2020: 0		
						2ºsem 2020: 0	n/a	
						1ºsem 2014: 0		
						2ºsem 2014: 0	n/a	
						1ºsem 2015: 0		
						2ºsem 2015: 2	n/a	
						1ºsem 2016: 0		
						2ºsem 2016: 0	n/a	
						1ºsem 2017: 0		
						2ºsem 2017: 0	n/a	
						1ºsem 2018: 0		
						2ºsem 2018: 0	n/a	
						1ºsem 2019: 0		
						2ºsem 2019: 0	n/a	
						1ºsem 2020: 0		
						2ºsem 2020: 0	n/a	
						1ºsem 2014: 0		
						2ºsem 2014: 0	n/a	
						1ºsem 2015: 0		
						2ºsem 2015: 0	n/a	
						1ºsem 2016: 0		

Table of indicators with results for the monitored period to community (2014 - 2020)

CCB v3.0, VCS v3.4

Appendix

Table of indicators with results for the monitored period to community (2014 - 2020)

Workshops and training in agro-extractive techniques	IGARAPÉ DAS PACAS	Relate to “slash and burn” focal issue (G1.8), allowing to monitor coverage of the project, trainings implementation and coverage, gender and youth	Number	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months	2ºsem 2015: 0	2014: cursos_2014_1o_sem.pdf cursos_2014_2o_sem_palestra_credito_rural.pdf relatorio_agente_agroextrativista_2014.pdf (p. 22 - 24, 36 -43)
						1ºsem 2016: 0	
						2ºsem 2016: 0	
						1ºsem 2017: 0	
						2ºsem 2017: 0	
						1ºsem 2018: 0	
						2ºsem 2018: 0	
						1ºsem 2019: 0	
						2ºsem 2019: 0	
						1ºsem 2020: 0	
						1ºsem 2014: 0	
						2ºsem 2014: 1	
						1ºsem 2015: 0	
						2ºsem 2015: 0	
						1ºsem 2016: 0	
						2ºsem 2016: 0	
						1ºsem 2017: 0	
						2ºsem 2017: 0	
						1ºsem 2018: 0	
						2ºsem 2018: 0	
						1ºsem 2019: 0	
						2ºsem 2019: 0	
						1ºsem 2020: 0	
						1ºsem 2014: 0	
						2ºsem 2014: 0	
						1ºsem 2015: 0	
						2ºsem 2015: 0	
						1ºsem 2016: 0	
						2ºsem 2016: 0	
						1ºsem 2017: 1	
						2ºsem 2017: 0	
						1ºsem 2018: 0	
						2ºsem 2018: 0	
						1ºsem 2019: 0	
						2ºsem 2019: 0	
						1ºsem 2020: 0	
						1ºsem 2014: 0	
						2ºsem 2014: 0	
						1ºsem 2015: 0	
						2ºsem 2015: 0	
						1ºsem 2016: 0	
						2ºsem 2016: 0	
						1ºsem 2017: 0	
						2ºsem 2017: 0	
						1ºsem 2018: 0	
						2ºsem 2018: 2	
						1ºsem 2019: 0	
						2ºsem 2019: 0	
	1ºsem 2020: 0						
	1ºsem 2014: 0						
	2ºsem 2014: 0						
	1ºsem 2015: 0						
	2ºsem 2015: 0						
	1ºsem 2016: 0						
	2ºsem 2016: 0						
	1ºsem 2017: 0						
	2ºsem 2017: 0						
	1ºsem 2018: 0						
	2ºsem 2018: 0						
	1ºsem 2019: 1						
	2ºsem 2019: 0						
	1ºsem 2020: 0						
	1ºsem 2014: 0						
	2ºsem 2014: 1						
		2017: cursos_2017_1o_sem.pdf cursos_2017_2o_sem.pdf relatorio_biofilica_2017.pdf (p. 29 - 33, 35 - 36) evidencia_relatorio_biofilica_2017_apicultura.pdf					
	IRATAPURU						
	</						

Table of indicators with results for the monitored period to community (2014 - 2020)

CCB v3.0, VCS v3.4

Appendix

Table of indicators with results for the monitored period to community (2014 - 2020)

	SÃO JOSÉ				2ºsem 2014:	1
					1ºsem 2015:	0
					2ºsem 2015:	0
					1ºsem 2016:	0
	SOMBRA DA MATA				2ºsem 2016:	0
					1ºsem 2017:	0
					2ºsem 2017:	0
					1ºsem 2018:	0
					2ºsem 2018:	0
					1ºsem 2019:	0
					2ºsem 2019:	0
					1ºsem 2020:	0
					1ºsem 2014:	2
					2ºsem 2014:	0
					1ºsem 2015:	0
					2ºsem 2015:	0
	TIRA COURO				1ºsem 2016:	0
					2ºsem 2016:	0
					1ºsem 2017:	0
					2ºsem 2017:	0
					1ºsem 2018:	0
					2ºsem 2018:	0
					1ºsem 2019:	0
					2ºsem 2019:	0
					1ºsem 2020:	0
					1ºsem 2014:	2
					2ºsem 2014:	4
					1ºsem 2015:	0
					2ºsem 2015:	0
					1ºsem 2016:	0
					2ºsem 2016:	0
					1ºsem 2017:	0
					2ºsem 2017:	0
					1ºsem 2018:	0
					2ºsem 2018:	2
					1ºsem 2019:	0
					2ºsem 2019:	0
					1ºsem 2020:	0
					1ºsem 2014:	272
					2ºsem 2014:	91
					1ºsem 2015:	0
					2ºsem 2015:	25
					1ºsem 2016:	0
					2ºsem 2016:	0
					1ºsem 2017:	34
					2ºsem 2017:	59
					1ºsem 2018:	64
					2ºsem 2018:	88
					1ºsem 2019:	11
					2ºsem 2019:	0
					1ºsem 2020:	0
					1ºsem 2014:	27%
					2ºsem 2014:	46%
					1ºsem 2015:	0%
					2ºsem 2015:	44%
					1ºsem 2016:	0%
					2ºsem 2016:	0%
					1ºsem 2017:	35%
					2ºsem 2017:	39%
					1ºsem 2018:	36%
					2ºsem 2018:	43%
					1ºsem 2019:	9%

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Table of indicators with results for the monitored period to community (2014 - 2020)

			Percentage per event		2ºsem 2019: 0%		
					1ºsem 2020: 0%		
					1ºsem 2014: 73%		
HOMENS					2ºsem 2014: 54%		
					1ºsem 2015: 0%		
					2ºsem 2015: 56%		
					1ºsem 2016: 0%		
					2ºsem 2016: 0%		
					1ºsem 2017: 65%		
					2ºsem 2017: 61%		
					1ºsem 2018: 64%		
					2ºsem 2018: 57%		
					1ºsem 2019: 91%		
					2ºsem 2019: 0%		
					1ºsem 2020: 0%		
					1ºsem 2014: 3		
					2ºsem 2014: 4		
					1ºsem 2015: 0		
					2ºsem 2015: 1		
					1ºsem 2016: 0		
					2ºsem 2016: 0		
					1ºsem 2017: 2		
					2ºsem 2017: 3		
					1ºsem 2018: 2		
					2ºsem 2018: 4		
					1ºsem 2019: 1		
					2ºsem 2019: 0		
					1ºsem 2020: 0		
Variety of topics covered			Number		1ºsem 2014: 12		
					2ºsem 2014: 33,5		
					1ºsem 2015: 0		
					2ºsem 2015: 0		
					1ºsem 2016: 0		
					2ºsem 2016: 0		
					1ºsem 2017: 5,5		
					2ºsem 2017: 40		
					1ºsem 2018: 4		
					2ºsem 2018: 26		
					1ºsem 2019: 0		
					2ºsem 2019: 0		
					1ºsem 2020: 0		
					1ºsem 2014: n/a		
					2ºsem 2014: n/a		
					1ºsem 2015: n/a		
					2ºsem 2015: n/a		
					1ºsem 2016: 36		
					2ºsem 2016: n/a		
					1ºsem 2017: n/a		
					2ºsem 2017: n/a		
					1ºsem 2018: n/a		
					2ºsem 2018: n/a		
					1ºsem 2019: n/a		
					2ºsem 2019: n/a		
					1ºsem 2020: 33		
Time invested by the communities' members			Hours		1ºsem 2014: 35		
					2ºsem 2014: 12		
					1ºsem 2015: n/a		
					2ºsem 2015: n/a		
					1ºsem 2016: n/a		
					2ºsem 2016: n/a		
					1ºsem 2017: n/a		
					2ºsem 2017: n/a		
					1ºsem 2018: n/a		
					2ºsem 2018: n/a		
					1ºsem 2019: n/a		
					2ºsem 2019: n/a		
					1ºsem 2020: 33		
					1ºsem 2014: 35		
					2ºsem 2014: 12		
					1ºsem 2015: n/a		
					2ºsem 2015: n/a		
					1ºsem 2016: n/a		
					2ºsem 2016: n/a		
					1ºsem 2017: n/a		
					2ºsem 2017: n/a		
					1ºsem 2018: n/a		
					2ºsem 2018: n/a		
					1ºsem 2019: n/a		
					2ºsem 2019: n/a		
					1ºsem 2020: 33		

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Table of indicators with results for the monitored period to community (2014 - 2020)

Development of Property Use Plans	Number of soil analysis performed	Related to "slash and burn" focal issue (G1.8), allowing to monitor TARE activities implementation and time invested by the producers.	Number	Assessment with Fundação Jari and Fundação Jari Social Activities report	Every 6 months	1ºsem 2019: n/a	arquivo-analisesolo-2014.pdf arquivo-analisesolo-2015.pdf arquivo-analisesolo-2018.pdf
						2ºsem 2019: n/a	
						1ºsem 2020: n/a	
						1ºsem 2014: n/a	
						2ºsem 2014: 11	
						1ºsem 2015: n/a	
						2ºsem 2015: 36	
						1ºsem 2016: n/a	
						2ºsem 2016: n/a	
						1ºsem 2017: n/a	
						2ºsem 2017: n/a	
						1ºsem 2018: n/a	
						2ºsem 2018: 24	
						1ºsem 2019: n/a	
						2ºsem 2019: n/a	
						1ºsem 2020: n/a	
						1ºsem 2014: n/a	
						2ºsem 2014: 6	
						1ºsem 2015: n/a	
						2ºsem 2015: n/a	
						1ºsem 2016: n/a	
						2ºsem 2016: n/a	
						1ºsem 2017: n/a	
						2ºsem 2017: n/a	
						1ºsem 2018: n/a	
						2ºsem 2018: 35	
						1ºsem 2019: n/a	
						2ºsem 2019: n/a	
						1ºsem 2020: n/a	
						1ºsem 2014: n/a	
						2ºsem 2014: n/a	
						1ºsem 2015: n/a	
						2ºsem 2015: n/a	
						1ºsem 2016: n/a	
						2ºsem 2016: n/a	
						1ºsem 2017: n/a	
						2ºsem 2017: n/a	
						1ºsem 2018: n/a	
						2ºsem 2018: n/a	
						1ºsem 2019: n/a	
						2ºsem 2019: n/a	
						1ºsem 2020: 33	
						1ºsem 2014: 109	
						2ºsem 2014: 55	
						1ºsem 2015: n/a	
						2ºsem 2015: n/a	
						1ºsem 2016: n/a	
						2ºsem 2016: n/a	
						1ºsem 2017: n/a	
						2ºsem 2017: n/a	
						1ºsem 2018: n/a	
						2ºsem 2018: n/a	
						1ºsem 2019: n/a	
						2ºsem 2019: n/a	
						1ºsem 2020: n/a	
						1ºsem 2014: n/a	
						2ºsem 2014: n/a	
						1ºsem 2015: n/a	
						2ºsem 2015: n/a	
						1ºsem 2016: n/a	
						2ºsem 2016: n/a	
						1ºsem 2017: n/a	
						2ºsem 2017: n/a	
						1ºsem 2018: n/a	

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Table of indicators with results for the monitored period to community (2014 - 2020)

						2ºsem 2018: n/a		
						1ºsem 2019: n/a		
						2ºsem 2019: n/a		
						1ºsem 2020: 33		
						1ºsem 2014: n/a		
						2ºsem 2014: n/a		
						1ºsem 2015: n/a		
						2ºsem 2015: n/a		
						1ºsem 2016: n/a		
						2ºsem 2016: n/a		
						1ºsem 2017: n/a		
						2ºsem 2017: n/a		
						1ºsem 2018: n/a		
						2ºsem 2018: n/a		
						1ºsem 2019: n/a		
						2ºsem 2019: n/a		
						1ºsem 2020: n/a		
						1ºsem 2014: n/a		
						2ºsem 2014: n/a		
						1ºsem 2015: 1		
						2ºsem 2015: n/a		
						1ºsem 2016: PADARIA COMMUNITY: (15) SÃO JOSÉ COMMUNITY: (9) SANTO ANTONIO DA CACHOEIRA COMMUNITY: (13) IRATAPURU COMMUNITY: (16) Total: 53		
						2ºsem 2016: n/a		
						1ºsem 2017: n/a		
						2ºsem 2017: n/a		
						1ºsem 2018: 1		
						2ºsem 2018: n/a		
						1ºsem 2019: n/a		
						2ºsem 2019: n/a		
						1ºsem 2020: 3		
						1ºsem 2014: n/a		
						2ºsem 2014: n/a		
						1ºsem 2015: n/a		
						2ºsem 2015: n/a		
						1ºsem 2016: PADARIA COMMUNITY: (2) SÃO JOSÉ COMMUNITY: (1) SANTO ANTONIO DA CACHOEIRA COMMUNITY: (1) IRATAPURU COMMUNITY: (3) Total: 7		
						2ºsem 2016: n/a		
						1ºsem 2017: n/a		
						2ºsem 2017: 1 (refers to the demand identified in 2015) - electrical wiring were donated		
						1ºsem 2018: 1		
						2ºsem 2018: n/a		
						1ºsem 2019: 1 (refers to the demand identified in 2015) - transformers were donated		
						2ºsem 2019: n/a		
						1ºsem 2020: 3		
						1ºsem 2014: n/a		
						2ºsem 2014: n/a		
						1ºsem 2015: n/a		
						2ºsem 2015: n/a		
						1ºsem 2016: 103		
						2ºsem 2016: n/a		
						1ºsem 2017: n/a		
						2ºsem 2017: 59		
						1ºsem 2018: 18		

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Table of indicators with results for the monitored period to community (2014 - 2020)

						2ºsem 2018: n/a			(6) FORTALECIMENTO DE SERVIÇOS; (7) CRIAÇÃO DE EMPREGOS; (8) HORTA COMUNITÁRIA; (9) PRODUÇÃO DE VELAS; (10) QUALIFICAÇÃO PROFISSIONAL; (11) SISTEMA DE COMUNICAÇÃO; (12) POLUIÇÃO/IMPACTO AMBIENTAL; (13) GERAÇÃO DE RENDA NA COMUNIDADE; (14) COMUNICAÇÃO COLETIVA; (15) A FALTA DE CERCA DOS QUINTAIS;
	Time invested by the communities' members		Hours			1ºsem 2019: 13			
						2ºsem 2019: n/a			
						1ºsem 2020: 6			
						1ºsem 2014: n/a			
						2ºsem 2014: n/a			
						1ºsem 2015: n/a			
						2ºsem 2015: n/a			
						1ºsem 2016: 6 hours for each community			
						2ºsem 2016: n/a			
						1ºsem 2017: n/a			
						2ºsem 2017: 0			
						1ºsem 2018: 0			
						2ºsem 2018: n/a			
						1ºsem 2019: 0			
						2ºsem 2019: n/a			
						1ºsem 2020: 0			
						2014: 45			
						2016: n/a			
						2018: n/a			
						2020: n/a			
						2014: 7			
						2016: n/a			
						2018: n/a			
						2020: n/a			
						2014: 1			
						2016: n/a			
						2018: n/a			
						2020: n/a			
						2014: n/a			
						2016: n/a			
						2018: n/a			
						2020: n/a			
Family Assessment	Number of families interviewed	Related to "slash and burn" practices focal issue (G1.8), allowing to monitor families' socioeconomic development and project's socioeconomic impacts, coverage of the project and time invested by the producers.	Number	Family Assessment Report and Fundação Jari Social Activities report	Every 2 years			Fichas-questionario-produtores.rar TABULAÇÃO REDD 2014.xls Questionário REDDAmapa_2020.V4-vf.pdf	
	Number of communities contemplated		Number						
	Frequency		Number per year						
	Time invested by the communities' members		Hours						
Structuring of the socio-	Resources invested on each strategic line (climate, community, biodiversity and management)								
	CLIMATE					2014: R\$ 67.708	JariGroup_Real_2014_CC_1006514/Real-		The Land Management and Security sector has prepared a detailed analysis of the annual Real Budget separating only those expenses directly related to the Patrolling and Surveillance operations. The spreadsheet "Real-Fiscalização-10065514" contains the details. For 2020 a separation of expenses was made for the
						2015: R\$ 62.315	Fiscalizacao-1006514-2014-vf.xlsx;		
						2016: R\$ 59.373	JariGroup_Real_2015_CC_1006514/Real-		
						2017: R\$ 72.672	Fiscalizacao-1006514-2015-vf.xlsx;		
						2018: R\$ 62.113	JariGroup_Real_2016_CC_1006514/Real-		
						2019: R\$ 41.051	Fiscalizacao-1006514-2016-vf.xlsx;		
						2020: R\$ 69.617,79	JariGroup_Real_2017_CC_1006514/Real-		
	COMMUNITY		Reais (R\$)			2014: R\$ 635.664	DFs - Fundação Jari - 2014.pdf		The 2019 financial statements were not audited, they were only approved by the "Conselho Curador". The minutes of approval (Ata aprovação de Balanço 2019 - Fundação Jari) follow jointly.
						2015: R\$ 644.819	DFs - Fundação Jari - 2015.pdf		
						2016: R\$ 580.587	DFs - Fundação Jari - 2016.pdf		
						2017: R\$ 619.335	DFs - Fundação Jari - 2017.pdf		
						2018: R\$ 631.659	DFs - Fundação Jari - 2018.pdf		
						2019: R\$ 494.846	DFs - Fundação Jari - 2019.pdf		
						2020: R\$ 268.349	DFs Fundação Jari - 092020 - resumidas (sem		
	BIODIVERSITY	Related to resources and wiliness available to boost local socioeconomic development and biodiversity conservation focal		Minutes of executive committee meetings, minutes of		2014: n/a	Nota 916 Fundação Jari.pdf		It includes the payment of the installments foreseen in the contract and the lodging expenses of the field team.
						2015: n/a	Nota 942 Fundação Jari.pdf		
						2016: n/a	FT.19171.QG TURISMO.NOV11-ABATER 100%		
						2017: n/a	JARI AMAPA.pdf		
						2018: n/a	NF 2786.jpg		
						2019: R\$ 12.551	NF 2787.jpg		
						2020: R\$ 86.651			
						2014: R\$ 100.511	DFs - Fundação Jari - 2014-20.pdf		
						2015: R\$ 155.467	RPAClaraMagalhaes17-07-2015-Biofilica.pdf		
						2016: R\$ 83.539	INVOICE. DNV ZUSUS205 1001255.2016.06.pdf		

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Table of indicators with results for the monitored period to community (2014 - 2020)

environmental Fund REDD+ Jari	MANAGEMENT	conservation focal point (G1.8), allowing to monitor Project's investments and equity, and communication regarding projects investments.		technical board, assessment with Fundação Jari and Fundação Jari Social Activities report	Annual	2017:	R\$ 89.086	INVOICE.DNV-GL.20141117.pdf	Expenses of the Administrative Structure Account
			2018:			R\$ 187.262	INVOICE.ZUSUS205 998966.DNV-GL.DEZ02.pdf		
			2019:			R\$ 209.745	ITAU.CONTRATO DE CAMBIO.133269719.inv		
			2020:			n/a	zusus205 998996 DNV-GL.DEZ02.pdf		
			2014:			1	ATA_workshop_estrategico_2014.pdf		
	Number of meetings carried out between the executive committee		Number		2015:	n/a	Memórias Workshop Estratégico Jari – 07 de		
					2016:	n/a	Outubro de 2014.pdf		
					2017:	n/a	Workshop Estratégico Jari – 07 de Outubro de		
					2018:	n/a	2014.pdf		
					2019:	1	Ata_alinhamentoJari_20191029.pdf		
	Number of consultation made through Technical Board		Number		2020:	n/a	Email - Ata - Reunião Grupo Jari.msg		
					2014:	n/a			
					2015:	1			
					2016:	n/a	AtaCTREDD_25082015.pdf		
					2017:	n/a	SlidesBiofilica_20180809_Cedula_Credito_Carbon		
	Number of communities represented in the technical board consulted about the investments to be done/done		Number		2018:	1	o.pptx		
					2019:	n/a			
					2020:	n/a			
					2014:	n/a			
					2015:	4			
Number of complains regarding the investments made		Number		2016:	n/a	ListaFrequenciaCT_25082015.pdf	Communities counted by checking the presence list.		
				2017:	n/a	ListaFrequenciaCT_09082018.pdf			
				2018:	6				
				2019:	n/a				
				2020:	n/a				
Improvement of communication channels	Number of registered complaints or demands	Related to the communication focal issue, allowing to monitor communication plan efficiency and efficacy.	Number	Assessment with Environment, Quality and Certification Department	Annual	2014:	0	Follow-up Demanda de Parte Interessadas	In this monitoring period no specific complaints and demands related to the Jari REDD+ Socioenvironmental Fund were registered. During the Technical Chamber of August 2015 two complaints were registered regarding the allocation of resources and the questions were clarified at the time as described in the respective Minutes.
						2015:	2	2014.xlsx; Follow-up Demanda de Parte	
						2016:	0	Interessadas 2015.xls;	
						2017:	0	AtaCTREDD_25082015.pdf; Follow-up Demanda	
						2018:	0	de Parte Interessadas 2016.xls; Follow-up	
	Number of addressed complaints or demands					2019:	0	Demanda de Parte Interessadas 2017.xls; Follow-	
						2020:	0	up Demanda de Parte Interessadas 2018.xls;	
						2014:	13		
						2015:	27		
						2016:	38		
						2017:	72		
						2018:	143		
						2019:	169		
Biodiversity Monitoring and Scientific Research	Analysis of communities perception regarding availability of natural resources	Related to biodiversity conservation focal issue (G1.8), allowing to monitor communities perception regarding changes on availability of natural resources and regarding the forest importance.	Qualitative	Familiar Assessment	Every 2 years	2020:	60	follow_up_demandas.zip	
						2014:	8	fwd_follow_up_DPI.msg	
						2015:	27		
	2016:	35							
	2017:	71							
	2018:	141							
	2019:	169							
					2020:	59			
					2014:	n/a			
					2016:	n/a			
					2018:	n/a			
					2020:	n/a			
					2014:	n/a			
					2016:	n/a			
					2018:	n/a			
					2020:	n/a			
					2014:	1	indicador-diversidade-produtos.xlsx		
					2015:	n/a	2014-diagnostico.rar		
	Number of communities	To evaluate its				2016:	1	indicador-diversidade-produtos.xlsx	
								2016-2018-PAA.rar	

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Table of indicators with results for the monitored period to community (2014 - 2020)

Identified High Conservation Value	Communities engaged that manage Brazil Nut	relevance to engaged communities	Number		Annually, once the HCV attribute is validated and the SFM Plan is approved.	2017: n/a		
						2018: 1	indicador-diversidade-produtos.xlsx 2016-2018-PAA.rar	
						2019: n/a		
						2020: 3	indicador-diversidade-produtos.xlsx 2020-questionario-dap.rar	
	Number of families attended that manage Brazil Nut	To evaluate it relevance to attended communities	Number	Assessment with Fundação Jari and Fundação Jari Social Activities report		2014: 8	indicador-diversidade-produtos.xlsx 2014-diagnostico.rar	
						2015: n/a		
						2016: 1	indicador-diversidade-produtos.xlsx 2016-2018-PAA.rar	
						2017: n/a		
						2018: 1	indicador-diversidade-produtos.xlsx 2016-2018-PAA.rar	
						2019: n/a		
						2020: 5	indicador-diversidade-produtos.xlsx 2020-questionario-dap.rar	
	Number of communities affected by the SFM that manage Brazil Nut	To evaluate possible risks to the HCV attribute	Number			2014: n/a		
						2015: n/a		
						2016: n/a		
						2017: n/a		
						2018: n/a		
						2019: n/a		
						2020: 1	ConselhoRetiro ATA01.pdf	
	Number of workshops carried with communities affected by the SFM previously to the operation	To evaluate the proposed mitigation measures	Number	Assessment with Environment, Quality and Certification Department		2014: 2	Relatorio de Visita as Comunidades_Cajari 10072014.pdf Relatorio de Visita as Comunidades_Cajari2 28112014.pdf	
						2015: n/a		
						2016: n/a		
						2017: n/a		
						2018: n/a		
						2019: n/a		
						2020: n/a		
	Number of Brazil Nut trees identified by the pre-harvesting inventory	To evaluate the proposed mitigation measures	Number			2014: n/a		
						2015: n/a		
						2016: n/a		
						2017: n/a		
	Number of Brazil Nut tree damage by the SFM	To evaluate the proposed mitigation measures	Number	Assessment with the Forestry Department and the Post-harvesting report		2018: 8.394	AGREGUE MF - INVENTÁRIO FLORESTAL CASTANHEIRAS.xlsx 05-shapefile.rar > Castanheiras.shp	
						2019: n/a		
						2020: n/a		
						2014: n/a		
						2015: n/a		
						2016: n/a		
						2017: n/a		
						2018: n/a		
						2019: n/a		
						2020: IRREVERSIBLE DAMAGE: 28 LESS THAN 50% DAMAGE: 85 DAMAGE IN MORE THAN 50%: 24 TRUNK DAMAGE: 14 CANOPY DAMAGE: 26 ACCESS DAMAGE: 223	PMFS AGREGUE avaliação de danos castanheiras.xlsx	
						2014: n/a		
						2015: n/a		
						2016: n/a		
						2017: n/a		
						2018: n/a		
						2019: n/a		

Appendix

Table of indicators with results for the monitored period to community (2014 - 2020)

	Number of complaint regarding damage to Brazil Nut tree or to restriction of access	To evaluate possible risks to the HCV attribute	Number	Assessment with Environment, Quality and Certification Department		2020: 2 1-Partial or total loss of productivity of Brazil nut trees in the collection area, due to the fall of managed trees near the bases of the Brazil nut trees, causing obstruction of access to trees due to the high volume of branches of managed trees, making it impossible/difficult to collect fruits/ nuts; 2- access roads to the Brazil nut groves in bad conditions, due to the traffic of large machinery	ConselhoRetiro_ATA01.pdf ConselhoRetiro_ATA02.pdf	
	Analysis of communities' perception regarding resources availability, focus on the Brazil Nut	To evaluate possible risks to the HCV attribute	Qualitative	Assessment with Fundação Jari and with the Environment, Quality and Certification Department		2014: n/a 2015: n/a 2016: n/a 2017: n/a 2018: n/a 2019: n/a 2020: 1- "O Sr. Rosinaldo iniciou a conversa abordando que os danos provocados pela extração florestal (PMFS – AP), tais como árvores mortas, copas parcialmente quebradas e copas das árvores abatidas que entulham as bases das castanheiras dificultando a coleta dos ouriços/ castanhas, reduzindo drasticamente a produção, o Sr. Rosinaldo segue citando que nas áreas com clareiras abertas devido o abate das árvores, já estão sendo infestadas de tiririca e outras ervas invasoras formando uma juguira (capoeira), que dificultarão o acesso dos extrativistas." 2- "O Sr. Izanor comenta que em sua área a extração foi muito forte, danificando muitas castanheiras deixando grande parte delas entupidas de galhos, trazendo uma perda de metade da produção. O Sr. Izanor comenta que antes das atividades do PMFS, ele já tinha o ramal da grota Rica e outros ramais que dava acesso aos castanhais; os ramais da empresa são bons, infelizmente a produção do ano passado e deste ano foram afetadas, prejudicando sua renda." 3- "O Sr. Ozeias comenta que foi bem atendido por ramais em sua área, porém observa que os danos aos castanhais tarar reflexo por 4 há 5 anos."	ConselhoRetiro_ATA02.pdf (p. 1-2)	
Seedling Nursery	Number of total seedling produced	Related to biodiversity conservation focal issue and environmental education focal issue (G1.8), allowing to monitor the nursery production and coverage of the project.	Number	Assessment with Environment, Quality and Certification Department	Annual	2014: 7.024 2015: 12.803 2016: 49.569 2017: 28.904 2018: 50.771 2019: 43.725 2020: 4.982	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx	
	Number of different species produced		Number			2014: 12 2015: 2 2016: 31 2017: 23 2018: 26 2019: 24 2020: 17	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx	
	Number of seedling distributed to the engaged communities		Number			2014: 3.840 2015: 11.753 2016: 865 2017: 835 2018: 5.993 2019: 0 2020: 0	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx LinhaTempo_ATER.xlsx	

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Table of indicators with results for the monitored period to community (2014 - 2020)

	Number of seedling distributed per family attended		Number			2014: 1.400	Viveiro de mudas.rar: corresponding annual subfolders	
						2015: 11.553		
						2016: 0	Producao_e_distribuiçao_de_mudas - compilado.xlsx	
						2017: 0	LinhaTempo_ATER.xlsx	
						2018: 387	LinhaTempo_ProjetosPrioritarios.xls	
						2019: 0		
						2020: 0		
Xylotheque (Wood Collection)	Number of families attended that have been there	Related to biodiversity conservation focal issue and environmental education focal issue (G1.8), allowing to monitor project inclusion regarding information on biodiversity and conservation issues.	Number	Assessment with Environmental, Quality and Certification Department	Annual	2014: 0	livro_xiloteca.zip	
						2015: 0	relacao_produtores_dignostico.xlsx	
						2016: 0	diagnostico_familiar.zip	
						2017: 0		
						2018: 0		
						2019: 0		
						2020: 0		

Appendix

Table of indicators with results for the monitored period to biodiversity (2014 - 2020)

Activities	Indicator	Justification/ Description	Type of measurement/Unit	Sampling Methods	Frequency of Monitoring	Value monitored		References/Evidences			
	Number of expeditions for the sampling at each monitoring event	Related to the biodiversity conservation focal issue, allowing the proponents to monitor the efficacy of project's activities on maintaining regional biodiversity and efficiancy of the biodiversity monitoring.	Number	Fauna Monitoring Report		2014:	n/a	Relatório Monitoramento da Biodiversidade ProjetoREDDJariAmapa rev 4.pdf (pag.8)			
	Intensity of expeditions for the sampling at each monitoring event		Days			2016:	n/a				
						2018:	n/a				
						2019:	1				
						2020:	n/a				
	No. of monitored taxa at each monitoring event		Number			2014:	n/a	Relatório Monitoramento da Biodiversidade ProjetoREDDJariAmapa rev 4.pdf (pag.8)			
						2016:	n/a				
						2018:	n/a				
						2019:	13				
	No. of monitored species at each monitoring event		Number			2020:	n/a		Relatório Monitoramento da Biodiversidade ProjetoREDDJariAmapa rev 4.pdf (Avifauna: pag.8; Mammals: pag.54)		
						2014:	n/a				
						2016:	n/a				
						2018:	n/a				
	Diversity of the monitored fauna taxon at each monitoring event		Not applicable				2019:	2 (Avifauna and mammals)		Relatório Monitoramento da Biodiversidade ProjetoREDDJariAmapa rev 4.pdf (Avifauna: pag.16; Mammals: pag.63)	
							2020:	n/a			
		2014:		n/a							
		2016:		n/a							
		2018:		n/a							
		Richness of the monitored fauna taxon at each monitoring event		Number				2019:	230	Relatório Monitoramento da Biodiversidade ProjetoREDDJariAmapa rev 4.pdf (Avifauna: pag.26; Mammals: pag.66)	
								2019:	Avifauna: 197 Mammals: 33		
								2020:	n/a		
	2014:		n/a								
	2016:		n/a								
	Diversity of plant community in Permanent Plots		Related to the biodiversity conservation focal issue, allowing the proponents to monitor the			Not applicable		Post Exploratory	2018:	n/a	Relatório Monitoramento da Biodiversidade ProjetoREDDJariAmapa rev 4.pdf (Avifauna: pag.18; Mammals: pag.65)
									2019:	n/a	
									2016:	n/a	
		2018:		n/a							
		2020:		n/a							
							2019:		Beta Diversity for Avifauna Eucaliptus plantation: 0,65; Managed native forests: 0,55; Primary forest: 0,64; Beta Diversity for Mammals Eucaliptus plantation: 0,71; Managed native forests: 0,43; Primary forest: 0,47		
							2020:		n/a		
							2014:		n/a		
	2016:		n/a								
	2018:		n/a								
				2019:	Avifauna Eucaliptus plantation: 76 species; Managed native forests: 140 species; Primary forests: 134 species; Mammals Eucaliptus plantation: 10 species; Managed native forests: 10 species; Primary forests: 15 species						
				2020:	n/a						
				2014:	n/a						
				2016:	n/a						
				2018:	n/a						
				2019:	0						
				2020:	n/a						
				2014:	n/a						
				2016:	n/a						
				2018:	n/a						

Appendix

Table of indicators with results for the monitored period to biodiversity (2014 - 2020)

Biodiversity Monitoring and Scientific Research	Richness of the plant community in Permanent Plots	efficacy of project's activities, especially SFM, on maintaining regional biodiversity.	Number	Report
	Presence of endangered species in the Project Area	Related to the biodiversity conservation focal issue, allowing the proponents to monitor the efficacy of project's activities on maintaining regional biodiversity.	Number and list	Fauna Monitoring Report
	Status of species of relevance on IUCN's red list of endangered species		Not applicable	
	Number of studies and research projects developed		Number	
	Number of scientific papers	Related to the biodiversity conservation focal issue, allowing the proponents to monitor the efficacy of project's activities on maintaining regional biodiversity.	Number	Fauna Monitoring Report and published scientific papers.

Biannual

2014:	n/a	
2016:	n/a	
2018:	n/a	
2019:	0	
2020:	n/a	
2014:	n/a	Relatório Monitoramento da Biodiversidade Projeto REDD Jari Amapá rev 4.pdf (Avifauna: pag.108; Mammals: pag.107)
2016:	n/a	
2018:	n/a	
2019:	8 Avifauna - <i>Crax alector</i> ; - <i>Patagioenas subvinacea</i> ; - <i>Ramphastos tucanus</i> ; - <i>Ramphastos vitellinus</i> ; Mammals - <i>Panthera once</i> ; - <i>Priodontes maximus</i> ; - <i>Ateles paniscus</i> ; - <i>Mazama americana</i> .	
2020:	n/a	
2014:	n/a	Relatório Monitoramento da Biodiversidade Projeto REDD Jari Amapá rev 4.pdf (Avifauna: pag.108; Mammals: pag.107)
2016:	n/a	
2018:	n/a	
2019:	Avifauna - <i>Crax alector</i> (VU); - <i>Patagioenas subvinacea</i> (VU); - <i>Ramphastos tucanus</i> (VU); - <i>Ramphastos vitellinus</i> (VU); Mammals - <i>Panthera once</i> (NT); - <i>Priodontes maximus</i> (VU); - <i>Ateles paniscus</i> (VU); - <i>Mazama americana</i> (DD).	
2020:	n/a	
2014:	0	Tese Mestrado Floresta Amapá 2016 FERNANDA DA SILVA MENDES.pdf; Tese 2016 Rodrigo G. Nascimento.pdf; TeseFinal_Morro do Felipe Francimary Carneiro_2016.pdf; Tese_Versao_FinalCorrig_16.03.2018_TESE DOUTORADO WALTER PAIXÃO.pdf
2016:	3	
2018:	1	
2019:	0	
2020:	0	
2014:	0	Griffiths et al 2015 Ecology.pdf / https://esajournals.onlinelibrary.wiley.com/doi/10.1890/14-1211.1 Publicacao 2016 Revista ESPACIOS _ Vol.pdf CARNEIRO, F. S. et al, 2019 - Revista Ibero-Americana de Ciencias Ambientais.pdf
2015:	1	
2016:	1	
2018:	0	
2019:	1	
2020:	0	
2014:	0	Ambiens: Resumo de Condições_Pag 1 a 4.pdf (Summary) Resumo de Condições_Pag 5 a 7.pdf (Item 3.1 e 3.1.4)
2016:	0	

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Table of indicators with results for the monitored period to biodiversity (2014 - 2020)

	Number of institutions engaged	maintaining regional biodiversity, and to environmental education focal issue, allowing society to build awareness about Jari Valley's biodiversity imporance and relevance.	Number	Project's Annual Monitoring report		2018:	0	Embrapa: CONTRATO FJ e EMBRAPA - Dez2013.pdf			
	Amount invested in research		R\$			2019:	2 (Ambiens and Embrapa)	Email de interesse em renovacao de acordo de cooperacao - Embrapa e FJ.pdf			
						2020:	0	Carta de Interesse em renovacao de acordo de cooperacao - Embrapa.pdf			
	Validation workshops/knowledge return events		Number			2014:	n/a	Resumo de Condições_Pag 1 a 4.pdf (Summary)			
						2016:	n/a	Resumo de Condições_Pag 5 a 7.pdf (Item 3.1 e 3.1.4)			
						2018:	n/a	Nota 916 Fundação Jari			
						2019:	R\$ 12.551	Nota 942 Fundação Jari			
						2020:	R\$ 86.651	FT.19171.QG TURISMO.NOV11-ABATER 100% JARI AMAPA NF 2786			
									NF 2787		
			Number of seedlings			Number	Assessment with the Forestry Department	Annual	2014:	7.024	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx
									2015:	12.803	
									2016:	49.569	
2017:		28.904									
2018:		50.771									
2019:		43.725									
Number of species produced		Number	2020:	4.982	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx						
			2014:	12							
			2015:	2							
			2016:	31							
			2017:	23							
			2018:	26							
Number of seedlings distributed to communities in the Project Zone	Number		2019:	24	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx LinhaTempo_ATER.xlsx						
			2020:	17							
			2014:	3.840							
			2015:	12.803							
			2016:	865							
			2017:	1.495							
Number od seedling distributed to communities engaged by the Project	Number		2018:	8.266	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx LinhaTempo_ATER.xlsx						
			2019:	0							
			2020:	0							
			2014:	3.840							
			2015:	11.753							
			2016:	865							
Number of seedling distributed to families engaged	Number	Assessment with Fundação Jari and Fundação Social Activities report	2017:	835	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx LinhaTempo_ATER.xlsx						
			2018:	5.993							
			2019:	0							
			2020:	0							
			2014:	1.400							
			2015:	11.553							
	2016:	0	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx LinhaTempo_ATER.xlsx LinhaTempo_ProjetosPrioritarios.xls								
2017:	0										
2018:	387										
2019:	0										
	2020:	0									

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Table of indicators with results for the monitored period to biodiversity (2014 - 2020)

	Number of seedlings used for restoration of degraded lands		Number			2014: 0	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx	
	2015: 0							
	Number of seedling used for productive ends	Number	2016: 155	2017: 0	2018: 0	2019: 0		2020: 0
						2014: 6.474	Viveiro de mudas.rar: corresponding annual subfolders Producao_e_distribuicao_de_mudas - compilado.xlsx	
						2015: 12.803		
						2016: 38.410		
						2017: 26.245		
						2018: 47.881		
						2019: 42.425		
						2020: 4.757		
Xylotheque (Wood Collection)	Number of Wood samples	Related to environmental education focal issue, allowing general public to see and understand the high diversity of biodiversity on Jari Valley.	Number	Assessment with Environment, Quality and Certification Department	Annual	2014: 1.050	Dados Acervo Florestal Jari - Auditoria REDD.xlsx	
	2015: 1.050							
	2016: 1.050							
	2017: 1.050							
	2018: 1.050							
	2019: 1.050							
	2020: 1.050							
	2014: 4.921							
	2015: 4.921							
	2016: 4.921							
	2017: 4.921							
	2018: 4.921							
	2019: 4.921							
	2020: 4.780							
	2014: 2.322							
	2015: 2.322							
	2016: 2.322							
	2017: 2.322							
	2018: 3.000							
	2019: 3.000							
2020: 2.786								
						2014: 114	Visitas_Xiloteca 2014_2020.xlsx Livro visitas.rar	
						2015: 80		
						2016: 96		
						2017: 88		
						2018: 235		
						2019: 85		
						2020: 18		
						2014: 0		
						2015: 136		
						2016: 48		
						2017: 109		
						2018: 28		
						2019: 75		
						2020: 0		