TRIUNFO DO XINGU GROUPED REDD+ PROJECT VALIDATION REPORT

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Report Title	Triunfo do Xingu Grouped REDD+ Project Validation Report
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Summary:

The Triunfo do Xingu Grouped REDD+ Project aimed contribute to the preservation of the Brazilian Amazon Biome, then all instances are located within it, is composed of seven (7) private rural properties located in the Municipality of Altamira, in the south region of the State of Pará. The total area of the project is established at 10,636.02 ha, which is composed of native Amazon Rainforest vegetation The project corresponds with the Sectorial Scope 14 of the VCS: Agriculture, Forestry and Other Land Uses (AFOLU), in the category of Reduction of Emissions of Deforestation and Degradation (REDD) using the VM0015 methodology for avoiding unplanned deforestation (AUD). The TdX REDD+ Project seeks to establish a monitoring system through the evaluation of satellite images and their use for remote geospatial analysis, generating economic benefits to local communities through direct investments and knowledge transfer processes in sustainable ways to maintain their economic activities by improving the quality of production systems.

The purpose of this audit is to provide an independent review and to determine the conformance of the project with respect the VCS Standard. Earthood Services Private Limited (hereinafter ESPL) as part of the list of available validation and verification bodies (VVB), has been contracted to carry out the validation process of the project activities according to the VCS standard in compliance of a confidence level of 95% and a materiality of 5%.

The audit process aims to validate the Project Description and all related project documents in accordance with all applicable VCS rules and requirements of the VCS standard, the methodology VM0015 and other applicable tools and references. This process includes document review, site visits, interviews, and consultation of secondary sources of information, statements of findings, feedback to the project owner, and preparation of the final report.

As a result, the number of findings raised about validation requirements were five (5) requests for clarifications (CL) and eleven (11) requests for corrective action (CAR), which were correctly addressed by the project proponent. Four (4) forward corrective action (FAR) were raised in this audit process. The documentation review, interviews, and site visit allowed ESPL to gather sufficient evidence to fully assess the validation criteria and determine that the project meets all relevant requirements of the VCS standard and correctly applies the VM0015 methodology for Avoiding Unplanned Deforestation (AUD), the baseline calculation, additionality determination, risk analysis, monitoring plan and quantification of emission removals.

The Triunfo do Xingú Grouped REDD+ Project as described in the Project Description Document version 2, met all relevant requirements of the VCS standard, and the methodology was applied correctly. The implementation of the grouped project will result in direct reduction emissions attributable to the project activities over the 30-year project lifetime (31-August-2022 to 30-August-2052). The expected baseline GHG emission reduction is 4,042,715.39 tCO_2e over 30-year credit period and 134,757.18 tCO_2e on an annual average.

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1 INTRODUCTION

Earthood Services Limited, as the conformity assessment body, conducted the independent validation of the Triunfo do Xingu Grouped REDD+ Project, in Brazil. The third-party assessment was conducted in an objective, neutral and consistent manner, in accordance with the requirements for the VCS standard, rules, and approved methodological procedures.

1.1 Objective

The objective of the present validation by Earthood Services Limited is to provide an independent assessment of the project against all criteria defined by the Verified Carbon Standard (VCS), in order to conclude whether the project, its activities, design, applied methodology, and all documentation related to the development and implementation of the project, complies with the VCS v4 Standard and whether it is in compliance with all rules and requirements applied for this type of project (AFOLU).

The process developed during the audit focused on the evaluation of the project description, the adequate selection of the methodology, project boundaries, baseline, additionality, risk analysis, monitoring plan, quantification of ex-ante GHG emissions reductions, and compliance with applicable legislation in the country or region where the project is developed and compliance with methodological requirements and scope and evaluation criteria.

1.2 Scope and Criteria

The scope of the validation is to establish that:

- The project meets all relevant criteria of the host country (Brazil), all the rules and requirements of the certification program.
- The Project Description Document and other supporting documents provided are complete (see Appendix 1 DOCUMENTATION PROVIDED BY THE PROJECT), in accordance with the latest applicable version, verifiable and in accordance with the requirements of the standard VCS, and of the applicable legislation under the legal framework of the carbon market in Brazil.
- The project complies with the conditions of the applied methodology.

This process includes the independent and objective revision to determine that the Project Description and Monitoring Report document meets the criteria defined by the following documents:

- VCS Standard v4.5
- VCS Program Guide v4.4
- VCS Methodology Requirements v4.4
- AFOLU Non-Permanence Risk Tool v4.0
- VM0015 “Methodology for Avoided Unplanned Deforestation”, Version 1.1, 03 December 2012.
- VT0001 - Tool for the demonstration and assessment of additionality in VCS agriculture, forestry and other land use (AFOLU) project activities Version 3.0, 1 February 2012.

On the other hand, verification criteria are in accordance with ISO 14064-3:2006 and Validation and Verification Manual v3.2.

1.3 Reasonableness of Assumptions

The confidence level is 95% of the validation statement, agreed with the project proponent, as well as the form and timing of evidence gathering to achieve a reasonable level of confidence, as set out in the applicable requirements. Also, materiality is less than 5% for the project.

ESPL ensures the project's compliance with VCS Standard by considering a materiality threshold of less than 5% with respect to errors, omissions and misrepresentations related to the total reported GHG reductions.

1.4 Summary Description of the Project

Table 1 Summary of the project

Project name	Triunfo do Xingu Grouped REDD+ Project
Sectoral scope	14 - Afforestation, Forestation and Other Land Use
AFOLU Project category	Reduced Emissions from Deforestation and Forest Degradation (REDD), Avoiding Unplanned Deforestation (AUD project activity).
Project Proponent	SYSTEMICA INTELIGENCIA EM SUSTENTABILIDADE S.A.
Baseline and monitoring methodology	VM0015 methodology for Avoiding Unplanned Deforestation (AUD), Version 1.1, 03 December 2012.
Location of the project activity	Municipality of Altamira, in the south region of the State of Pará, Brazil.
Project scale	Project
Area	10,636.02 hectares
Project crediting period	31-August-2022 to 30-August-2052
Validated emission removals projections in the project lifetime[1]	4,042,715.39 tCO_2e
Annual average GHG emission removals	134,757.18 tCO_2e

The TRIUNFO DO XINGÚ GROUPED REDD+ PROJECT is an AFOLU grouped project categorized as AUDD to be developed in seven (7) properties located in the Altamira Municipality, six (6) of them owned by Rafael Sefer, and one (1) owned by Didácio Barros, in the south of the state of Pará inside the Amazon rainforest biome. The project complies with the eligibility criteria to be a Grouped Project, according to the Appendix 1 of the VCS Standard.

[1] Baseline total emissions reduction.

The TdX project total area is 10,636.02 hectares, the project will accomplish its environmental benefits through a successful monitoring system by assessing satellite images and using them for remote geospatial analysis. Beyond the project's ecological and carbon benefits, a proportion of future carbon credits generated for avoid the planned deforestation and degradation will be dedicated to improving the social, environmental, and economic benefits in conditions for local communities, through investments in local communities, teaching them sustainable ways to maintain their economic activities and improving social environment quality.

2 VALIDATION PROCESS

2.1 Method and Criteria

Validation process consisted of the following four phases: i) desk review and consultation of secondary sources of applicable information, ii) on-site assessment, iii) the resolution of findings, and iv) issuance of the final validation report with the conclusion. The validation process is conducted in accordance with the criteria established by VCS standard. The validation process included the following:

- Contract with the project proponent for the scope and appointment of validation team and technical review team.
- Completeness check of Project Description.
- Desk review of conformance to VCS rules, Project Description Document by the validation team and planning of onsite audit (site inspection to confirm project boundaries, project design activities, check project description and interviews with stakeholders).
- Project conformance to the applied methodology, including the procedure for the demonstration of additionality specified in the methodology.
- Physical on-site inspection by the team audit (site inspection and overfly to confirm project boundaries check project description, confirm stable forest area, confirm possible loose events and interviews with stakeholders).
- Reports, calculation checks, QA/QC, and resolution and closure of findings (CARs/CLs/FARs) and preparation of draft validation report.
- Independent technical review of the project documentation to confirm if the internal procedures established and implemented by ESPL were duly complied with and if said opinion or conclusion was reached objectively and in compliance with the applicable rules and requirements. The independent technical reviewer can approve the report in the way it was presented by the lead auditor or return it, with comments or findings that must be resolved by the validation team.
- Reporting and closure of TR comments/findings (CARs/CLs/FARs) and final approval for the decision made.
- Issuance of the final validation report.

The sampling plan consisted included review of 100% of project documents, spreadsheets, cartographic information, project ownership and land tenure certificates according to the Brazil laws, and all

documents submitted as evidence for validation. In addition, on-site inspections, and interviews with stakeholders, were scheduled.

The audit team identified potential risks of errors, omissions, and misrepresentations related to the validation criteria. Based on the selected approach, the audit team considers the selected sample design to be sufficient for decision-making regarding the analysis of the project and its compliance with the applicable requirements.

Table 2. Validation process on-site

Date	Topics
10/04/2023	Displacement to Parauapebas from Vitória and Bogotá
11/04/2023	Arrival in Parauapebas
11/04/2023	Displacement from Parauapebas to Ourilândia
12/04/2023	**Opening Meeting:** - Introduction of the lead auditor - Presentation of the audit team - Audit objective, scope and criteria, roles, and responsibilities - Schedule discussion/remarks - Review of the Audit plan - General Conditions of Service, Impartiality / Confidentiality - Confirmation of schedules and dates, interviews with institutional and local actors, field check. - Interview with project proponents - CLA/CAR, Technical review procedure - Questions and answers session
12/04/2023	**Project Area Audit (airplane flyover):** - Project limits – Didácio and Sefer farms - Reference Region, Leakage Belt - Possible fire events review - Agents and drivers of deforestation
12/04/2023	Displacement from Ourilândia to São Félix do Xingu **Stakeholder Interviews**: - Institutions of the Municipality of São Félix do Xingu: Secretário de Meio Ambiente e Mineração do município de São Félix do Xingu - (Sergio Benedetti)
13/04/2023	**Stakeholder Interviews**: - State institutions – Pará – Secretaria Estadual de Meio Ambiente (SEMA) - (Renata Nobre) - Land Institute of Pará (ITERPA) – (Flavio Azevedo) - Deliberative Council of the APA Triunfo do Xingu (IDEFLOR) - (Rogério Ferreira) - Sindicato de Trabalhadores Rurais (STTR) - (Everaldo Amorim)

Date	Topics
	- Institutions of the Municipality of Altamira – Secretaria da Gestão de Meio Ambiente de Altamira (SEMMA) - (Patrick Teixeira) **Document review:** - GIS-review- stratification - GIS review - Baseline / Reference Region / Leakage
14/04/2023	Displacement from São Félix do Xingu to Caboclo Village and Didácio Farm **Stakeholder Interviews:** - Community Caboclo Village - 3 community leaders: Rosimeire Gonçalves, Gilma dos Santos Teixeira Ribeiro e Wilson (Doutor) **Project Area Audit:** - Project limits – Didácio farm - Reference Region, Leakage Belt - Possible fire events review - Agents and drivers of deforestation
15/04/2023	Displacement from Didácio Farm to São Félix do Xingu **Stakeholder interview:** - Properties employee – (Charles Silva)
16/04/2023	Displacement from São Félix do Xingu to Parauapebas **Stakeholder interview:** - Properties administrators or owners – Didácio Barros
17/04/2023	**Stakeholder interview:** - Properties administrators or owners – (Rafael Sefer) - Institutions of the Municipality of Altamira – Secretaria Municipal de Saúde de Altamira (Sivaldo Tavares) **Document review:** - Non-Permanence Risk Tool - Additionality - PD revision - Financial - Spreadsheet review - Review of VCUs calculations in accordance with applied methodology and relevant tools. - Contracts and agreements - SDG - Start date support - Stakeholder consultation - Communication channel review - SIGEF review

Date	Topics
	- Land tenure - Legal compliance - Fire events analyze - Document management, capture, and compilation of Project information. **Closing Meeting:** - A general presentation of the partial conclusions and results of the audit, the CARs/CLAs/ detected. - Confirmation of dates to deliver final findings and resolution of findings Flight from Parauapebas to São Paulo
18/04/2023	Flight from São Paulo to Vitória and Bogotá

The lead auditor has extensive expertise in forestry sector, social, ecological and biodiversity issues in the amazon region, speaks Spanish and understand the local language of the project site and has extensive experience as an auditor qualified according to VCS requirements. As below:

Pablo Rodríguez Ramírez: Senior Lead Auditor. Forestry Engineer, qualified under the ISO 14064 and 14065 to lead validation and verification processes of Carbon Emission Reduction and removals projects for VCS standard and others. More than 20 years of work and relevant experience in biodiversity conservation, technical and social aspects land management protected areas and in other projects related with forestry sector. Main auditor since 2018, successfully auditing more than 20 carbon projects in Brazil, Colombia, and Paraguay.

The audit was supported by a local professional expert from ESPL, who was born in Brazil and have experience in on site auditory of other projects in AFOLU sector in Brazil and other sector auditory processes.

Ana Beatriz Tukada de Melo, Brazilian, Local Expert, Forestry Engineer. More than 9 years of professional experience in certified FSC and CERFLOR Sustainable Forest Management Plan of native forests and planted forests and with forest restoration in Brazil. Specialization in FSC Chain of Custody (2015) and Reduced Impact Exploitation (2016).

Table 3 Audit Team

Name	Role
Pablo Rodríguez	Lead Auditor/Technical Expert
Ana Beatriz Tukada de Melo	Technical and Local Expert

Table 4 Technical Review

Name	Role
Shreya Garg	Technical Reviewer
Marcelo Sebben	Technical Reviewer
Parul Srivastava	Technical Expert

The project was assessed for conformance to the criteria described in this report.

2.2 Document Review

The review of the project information was carried out between *April 3* and *7*, 2023, based on the information provided by the Project Proponent (see Appendix 1), before the on-site visit, to collect relevant information for the development of the on-site audit and determine the project's compliance with the main elements of the standard, the methodology and tools used. The auditor scrutinized all project documents to ensure consistency with the nature of the project, validated and verify the completeness, and identify if any deviations from the VCS program and used methodology could be presented.

The *on-site visit and* desk review of the project was conducted in presence with the two (2) people from the project proponent's and the two (2) people of the audit team *in person* and *some members of the project proponent were contacted* by virtual means when required to discuss specific topics *or be interviewed* with the professionals responsible of the GIS area or the project's carbon calculations on *April 17*, 2023, it included an examination of project details, data and parameters, and quantification of GHG emission reductions*, in the same way one of the project owners was interviewed by virtual means*. The validation team conducted a desk review that included the following:

- A review of the Project Document, the applied methodology, applicable tools, monitoring plan and quality assurance and quality control procedures.
- A review of the data and information submitted to validate its integrity.
- An evaluation of compliance with the applicable regulations to validate the regularity of the activity.
- An evaluation of documents proving the land tenure (project ownership) and/ or proof of carbon rights of the project.
- An evaluation of the controls envisaged to guarantee the quality of the information and the documentary control of the project.
- Other supporting documents (cartography, spreadsheets, etc.).

During the desk audit (lead auditor and *project proponent*) an exhaustive review of the project documentation was carried out and the main points of the project that required attention were identified, according to what was found in the preliminary review of the information and during the on-site audit carried out in previous days.

2.3 Interviews

During the on-site audit period, eleven (11) interviews were conducted that were considered relevant to compliance with legal requirements and relevant technical aspects of the project. The group of people for the interviews was selected based on their role in the project, their influence on the development of the project at the local or regional level and their location respect to the project area and prior to the development of the audit plan, a classification of local stakeholders was advanced with the support of the project proponent, to facilitate the orientation of this interview process.

The interviewees included: representatives of public entities, institutions and organizations whose functions are directly or indirectly related to the project activities, members and leaders of the local community, and landowners of the project properties. As mentioned earlier some interviews were done online to optimize the logistics of the on-site visit.

Table 5. Stakeholder interviews

Name	Role	Date	Topics
Sérgio Benedetti	Secretary of Environment and Mining of the Municipality of São Félix do Xingu	12/04/2023	Sérgio has been Executive Secretary for the Environment of the municipality of São Félix do Xingu since 2021 and his main attributions are: to seek funds and investments for the municipality of São Félix do Xingu, create synergies with other municipal departments for joint and more efficient action, issue the document for the suppression license in small areas and issue a license for clearing the pasture, through analysis of embargoes and deforestation before 2018. Regarding the factors that lead to deforestation, he said that even if there are CARs issued in the municipality, they are self-reporting. Thus, the lack of land tenure regulation ends up being a factor that leads people to illegally deforest to increase the occupation area; another factor is illegal logging for financial gain from selling timber; and the other factor would be the population's lack of knowledge, which leads people to deforest because it is a culturally practiced activity. He said that since November 2022, he has held 3 to 4 online meetings with Systemica and presentations have been made explaining the project and explaining the audit process. The communication channel is via WhatsApp with Rodrigo and Thiago. Sergio said that the project has a positive impact on the region for financial reasons, where there is income generation with the forest standing, in addition to the social benefits for job creation. He said he doesn't know of another carbon project in the region. Regarding mining, Sergio said that it is a systemic problem in the municipality and they estimate that there are 5,000 illegal mining sites, involving approximately 25,000 people. Legal mining exists and the Secretariat for the Environment and Mining is responsible for issuing licenses, but the

Name	Role	Date	Topics
			amount is minimal compared to the amount of illegal mining. In the year 2023, more inspections began to occur and the growth of illegal mining decreased. Regarding fires, the year 2022 was quite bad because the amount of fire in forest areas and pastures increased a lot. Altamira is the municipality with the largest cattle raising in Brazil.

Name	Role	Date	Topics
Patrick Teixeira	Environmental Engineer at the Altamira Municipal Secretariat for Environmental Management - SEMMA	13/04/2023	Patrick is an environmental engineer at the Municipal Secretariat for Environmental Management in Altamira. According to him, the municipality of Altamira is made up of large extensions of Conservation Units and Indigenous Lands and the Secretariat works together with federal and municipal agencies to manage these areas. SEMMA operates in environmental licensing and environmental education. Inspection in deforestation areas is the responsibility of other institutions, such as IBAMA and SEMMA, and takes place through complaints and verification of aerial images. Systemica contacted SEMMA and Patrick on 16-March-2023. Rodrigo got in touch, made a presentation about Systemica, about the carbon credits market, explained about the Triunfo do Xingu project and about the operation in 2 properties and Vila Caboclo, spoke about the work based on VCS standards and CCB, and also talked about the audit process (it was communicated by Systemica that the audit process would take place in March 2023). The communication channels with Systemica are excellent and efficient and work through email and WhatsApp. Regarding the impacts, Patrick said that the region has many conflicts and deforestation, mainly because of the production culture in the countryside where it is necessary to deforest to have subsistence income. The TdX project is a way to generate income by keeping the forest standing and this is a positive impact. In addition, there are benefits brought to the rural community such as access to the internet, and improvements in schools and the health center. Another positive impact is that the project is helping with the land tenure regularization of the project's farms. He said that the drivers that lead to deforestation are small landowners, who open up areas for planting cassava and pasture for livestock and illegal mining.
Rogério Soares Ferreira	Regional Manager of the Institute for Forestry Development and Biodiversity of the State of Pará - IDEFLOR	13/04/2023	Rogério is the Regional Manager of IDEFLOR, an institution that is part of the Deliberative Council of APA Triunfo do Xingu. According to Rogério, all management and recovery of the Environmental Preservation Area (APA) is the responsibility of IDEFLOR. They started the APA Management Plan, but it has not yet been finalized. He said that the owners can carry out the Sustainable Forest Management Plan (PMFS) activity within the APA. However, he said that he does not know of any PMFS or Carbon Projects being carried out in the APA. Deforestation increases a lot in the APA due to a lack of supervision and public support through public policies. Recently inspections against illegal activities have increased (Operation Curupira). Rogerio said that so far there have been 2 or 3 online meetings with Systemica, where the project was presented

Name	Role	Date	Topics
			and the intention to present the project to the APA management board was exposed.
Everaldo Souza Amorim	Union of Rural Workers Farmers and Family Farmers of the Municipality of Altamira - STTR	13/04/2023	Everaldo is a family farmer and representative of the Rural Workers Union of Altamira, in the area of the secretary of finance. The Union has been part of the APA council for 8 years. He said that he knows Systemica through Rodrigo, who got in touch to talk about the Triunfo do Xingu project. Communication channels with Systemica are via email and telephone. Everaldo said that the employees who work on the project's farms have no contact with the Union because the distance is enormous between the farms and the city of Altamira. About the project, he said that carbon credits shouldn't be bad, but he can't say much because he doesn't know much about the project.
Renata Nobre	State Secretariat for Environment and Sustainability - SEMAS	13/04/2023	Renata is the Director of Climate Change at the State Secretariat for the Environment of the State of Pará - SEMA. This board is part of a new agenda and they recently split from the Water Resources Secretariat. This Secretariat has the functions of developing an institutional REDD market in the state of Pará, developing the Payment for Environmental Services, creating a product traceability seal, developing forest restoration and environmental education projects, and structuring norms and legal frameworks. She said that Rodrigo from Systemica got in touch and gave explanations about the Triunfo do Xingu project, spoke about the region that has a lot of pressure from deforestation, and that the project has 2 areas that are not continuous. They had contacted her a week ago and he said about the audit of the project. The communication channels are virtual meetings, email, and WhatsApp. Regarding the positive impacts of the project, Renata said that the project will help the State to reduce illegal deforestation and that there is the generation of knowledge by the community of other ways to generate value with the forest. About the activities within the APA area, she said that the SNUC Law (National System of Conservation Units) provides that Sustainable Forest Management Plans are executed, but a license issued by the environmental agency is required and it is also necessary to present the land documents of land ownership. Renata said that the main factors that lead to deforestation are the large territorial extension of the municipality, the lack of inspection, and poverty, which leads people to deforest to have a place for subsistence production. Inspection exists, but needs to improve, as the government's goal is to reduce deforestation to zero.

Name	Role	Date	Topics
			When the legislation is not complied with, for example in the amount of Legal Reserve area, the property may suffer fines and embargoes.
Flavio Ricardo Albuquerque Azevedo	Pará Land Institute - ITERPA	13/04/2023	Flavio is Deputy President of ITERPA and the institution is responsible for the land heritage of the state of Pará. He said that those who have the right to land regularization are the people who occupy and produce and these people can request land regularization by Law 8878/2019. One of the requirements is a minimum occupation of 5 years in the area. Flavio said that of the 6 Rafael Sefer properties, 2 were recently titled and the other 4 properties are in the process of finalization. The length of the land regularization process varies according to the documentation made available by the owner and the on-site analysis, that is, it is not enough to just declare and document. According to Flavio, the main factor that leads to deforestation is the lack of land regularization, because if you have a regularized area, you take care of the property. In other words, land tenure regularization is a way to reduce deforestation. Regarding the municipalities of Altamira and São Félix do Xingu, he said that the biggest land problems that exist in Pará are in these cities, because the municipalities are very large. Land regularization is not related to environmental regularization. However, when land regulation is carried out, the property can acquire conditions in the contract, with clauses for environmental regularization.

Name	Role	Date	Topics
Rosimeire Gonçalves, Gilma dos Santos Teixeira Ribeiro e Wilson Silva (Doutor)	Caboclo village representatives	14/04/2023	Rosimere Gonçalves has been a resident of Vila Caboclo for 4 years. Gilma dos Santos Teixeira has been a resident of Vila Caboclo since 2001. Wilson Silva has been a resident of Vila Caboclo for 23 years. They said they know Didácio and his property and that an employee of Didácio (Charles) lives in the community. They said that the Vila was formed between 1991-1996 and that it has approximately 15 families. They said that the first contact with the project was with Didácio, Carolina (Systemica), and Isabel (Systemica), in September 2022. During the visit, it was explained that the project would be carried out and a part of the sale of carbon credits would be invested in the community, in the area of health and education. They also said that an explanation of the project was made, and they said that there will be environmental protection of 2 areas/farms. The environmental and social impact will be very great because preservation is good and brings benefits from courses and training and improvements in Vila's facilities. In addition, the project is already generating interest from other landowners for the carbon project theme. In April 2023, they spoke with some people from the company that will carry out the inventory of the carbon parcels that passed through the Vila. They said that the main activity in the region is livestock. In addition, people in the community have their swidden with corn and beans for their consumption. Cattle are sold to large cities, such as São Félix do Xingu, and freight is expensive due to the distance from the city and road conditions. Regarding land regularization, they said that it is a very time-consuming process, carried out by the State of Pará and that they are very far from the city of Altamira. In this way, only those who are dealing privately are managing to advance the regularization of their lands. Most people in Vila do not have regularized land documentation, only possession. Regarding environmental inspection, they said that it has increased a lot and the agencies have been applying fines and embargoes in some areas. The Vila residents' association itself adopted a "motto" of "zero deforestation" due to legal obligations.

Name	Role	Date	Topics
Charles Silva	Employee of Didácio's Farm	15/04/2023	Charles has been an employee of Didácio since 2010 and he came from the state of Maranhão. He lives on the Nossa Senhora Aparecida farm, but he also has a place in Vila Caboclo, as his daughters study at the village school. He maintains the pasture and looks after Didácio's cattle. Charles has a formal contract and has never had a problem with his payments. Charles said he met Carol (Systemica) in September 2022 and she presented the project to him. He said he thinks the project will help the community and conserve the forest and water. There is a river (Rio Pardo) that runs very close to the house within the farm area. He said hunting and fishing are prohibited on the property. Fire is also not used much, but when it is necessary, it is done for pasture management and with permission from the responsible body. The farm has only one road access (through Vila Caboclo) and has no history of invasions. He said that contact is made via WhatsApp, mainly with Rodrigo, and that they have a good relationship.
Didácio Milhomens Barros	Owner of Nossa Senhora Farm	16/04/2023	Didácio lives in Brasília, owns the farm Nossa Senhora Aparecida since 2009 and the farm has the title and land documents. He currently has 60 heads of cattle and an employee (Charles) who takes care of the herd and cattle. Fishing and hunting are prohibited on his property and since he is the owner, there has been no invasion or threat. His farm has a river that runs close to the house and two springs inside the forest, which he keeps preserved. According to him, the forest brings life and animals and he has seen peccary, jaguar, agouti, armadillo, bush deer, and macaws. He said that since 2010 he has been concerned about doing a carbon project, but for financial reasons, it had not worked out. Systemica contacted him in 2022 and in August of this year they signed a contract. His responsibility is to maintain the forest and preserve 80% of the Legal Reserve. With the project's resources, he will renovate the fences to prevent deforestation. Systemica is responsible for trading carbon and carrying out projects with the community. He said the contract runs until 2052. The communication channel with Systemica takes place via email, WhatsApp, and telephone. He said that there is good communication with João, Thiago, André, and Rodrigo. As for positive impacts, he said that the project will bring improvements to the Vila Caboclo school and bring education and knowledge to the people of the community. He does not perceive any negative impact on the project. Regarding the risks of deforestation, he said that the biggest

Name	Role	Date	Topics
			risk is the government, through changing laws. He does not see the neighbors as a problem of invasion and deforestation. He said that in recent years, illegal deforestation and fires have decreased. Nowadays, people who set fires are fined because inspections have increased. Fire can happen in the pasture when there is a license from the environmental agency and it is controlled so that it does not reach the forest area.
Rafael Sefer	Owner of "Santa Maria" Farms	17/04/2023	Rafael said he has owned the 6 properties, called Santa Maria Farms, for approximately 5 years and his main activity is cattle raising. He has approximately 8,000 head of cattle on these properties and the sale is made in São Félix do Xingu, approximately 320km away. The 6 properties are in the name of 2 companies and he is the sole owner/partner of these companies. He has a contract signed with Systemica, where the obligations between the parties are established. Systemica is responsible for the administrative part of the project, for the management and sale of carbon credits. He is responsible for preserving the forest, and the firebreaks, carrying out constant surveillance of the farm's perimeter to prevent invasions, and installation of signs prohibiting hunting and fishing. Regarding the positive impacts of the project, Rafael said that it will be very good for the communities, and for the environment and will also bring financial gains to preserve the forest on his properties. The closest community is Vila Canopus, which is approximately 70km away from the farms. There are no communities - the closest is Vila Canopus, 70 km away. Regarding threats to his property, Rafael said that fires in the surroundings could enter and burn his pasture and forest. As a preventive measure, he has a water truck to help put out the fire. He also said that since he owns the property, he has not had any problems with invasions, but he has had wood theft. He said that inspection is increasing, but it is still not enough and does not prevent deforestation in the region. He said that deforestation is taking place far from the big cities as this makes inspection logistics difficult. He also said that the slope of the land is not an impediment to deforestation when the activity to be implemented is livestock. Cattle even like to graze on the hills. The slope is a determining factor to curb deforestation when the activity is installed in agriculture, due to the possibility of the tractor operating

Name	Role	Date	Topics
Sivaldo Filho Seixas Tavares	Municipal Secretary of Health of Altamira – SESMA	17/04/2023	Sivaldo holds a Bachelor's Degree in Health and is the Coordinator of the Municipal Health Secretariat of Altamira. He said that one of the Secretariat's biggest challenges is logistics in the municipality, due to its size. The more distant regions have few professionals and in the case of Vila Caboclo, there is a nursing technician who is a resident of the village and she provides care according to the availability of materials and her knowledge. Every 60-90 days, material is delivered to the health center in Vila Caboclo. Logistics is done via cars that take materials to schools or by the health team's cars. The main diseases are flu, viruses, skin diseases, hypertension, and diabetes. Contact with Systemica was made in February 2023 through Carol and she spoke about the project, carbon credits, and the social projects in the project region. One of the works is a survey of vulnerabilities in health and education in the Vila Caboclo region and the main deficiencies in the health center are: water, energy, and internet. Contact is also made with Rodrigo, they talk every week and are in the process of formalizing a cooperation agreement. Sivaldo said that Systemica always sends documents and they ask for suggestions to improve these documents. Contact is made via WhatsApp, email, and meets (online meetings). He said he was informed on 31-March-2023 that the audit would take place in April 2023. Regarding the positive impacts of the project, Sivaldo said that the Vila Caboclo health center will have a better structure, more comfort for the nursing technician, and, consequently, better service for the population.

2.4 Site Visits

The main purpose of the on-site audit is to validate the relevance of the information previously provided by the proponent in the project description document and its supports in relation to the current conditions of the area where the project will be implemented and the factors and drivers influencing the deforestation process, as well as the measures planned for ensure the conservation of standing forests in the project area during the crediting period.

For the project validation process, the on-site inspection was carried out by visiting and over flight the project area and the surrounding area during April 12 to 15, 2023 (the days of travel to the project area carried out by both the members of the audit team and the PP are not included here). The development of the field activities in the framework of the on-site audit consisted of:

- Ensuring that the geographical area of the project as reported in the project description and annexes (GIS). For this purpose, the project proponent was requested to send geo-referenced maps in advance, allowing the use of the Avenza Maps tool during all the planned tours, overfly

and the rest of field activities. The project proponent provided two maps that contains the project area, reference region, leakage belt areas, main access roads, and the communities.

- To review the project area regarding adequate planning to minimize risks to cover the project limits. The project area's boundaries were recognized through an overflight on April 12, 2023, where it was possible to visualize the seven properties that make up the project area. Besides that, an on-site visit was done by car to the Nossa Senhora Aparecida farm on April 14, 2023.
- Review of the proposed monitoring plan.
- Identify all possible disturbances in the forest area (trough the overfly done), given the threats present.
- Conduct a risk-based review of the project area to ensure that the project meets the eligibility requirements of the VCS Standard and the applicability conditions of the selected methodology.
- Confirmation of the existence of quality control and quality assurance procedures.
- Development of a documentary and procedural control stage by the audit team at the project proponent's office.

The visit started with the opening meeting on April 12, 2023, and subsequent on-site inspections with the lead auditor and the audited team. The overfly to the first instance project area, activities of satellite monitoring, patrolling and surveillance (fires, illegal deforestation control and leakage), the visit and interviews to institutions, community and landowners included in the stakeholder list, land tours close the limits of first instance farms included in the project area, monitoring, responsible parties, as well as all aspects to confirm the information presented by the project proponent. Confirmation of boundaries and activities was validated during the field as follows:

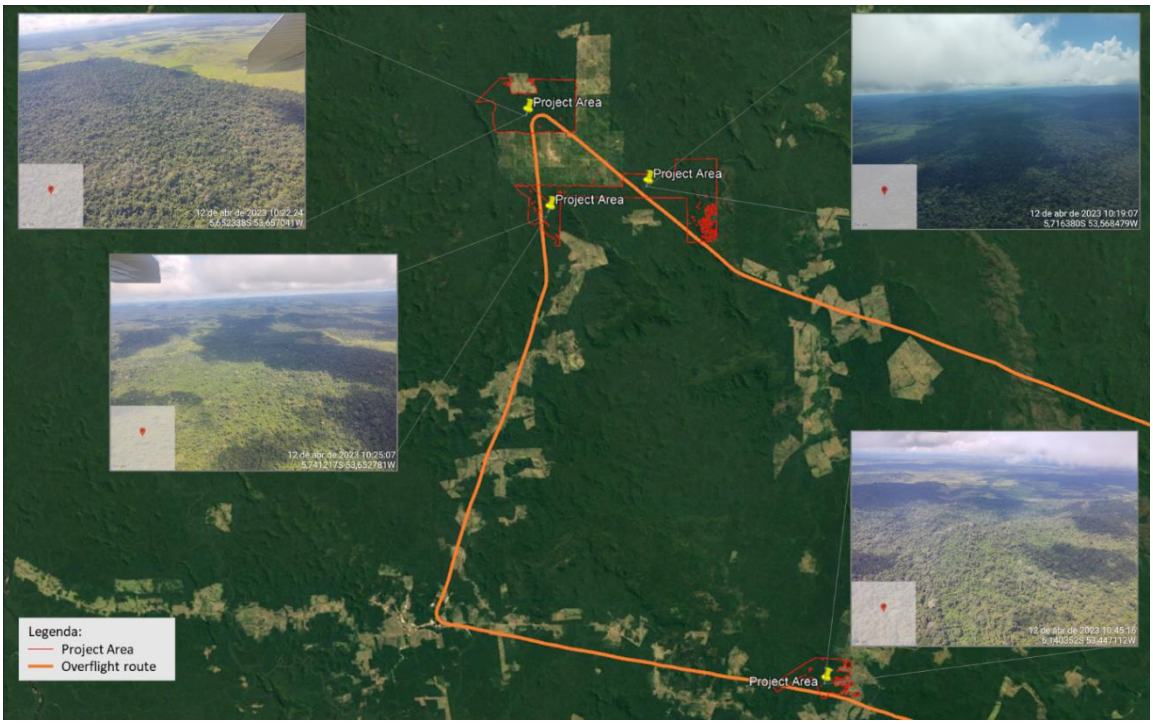

Figure 1. Project Area

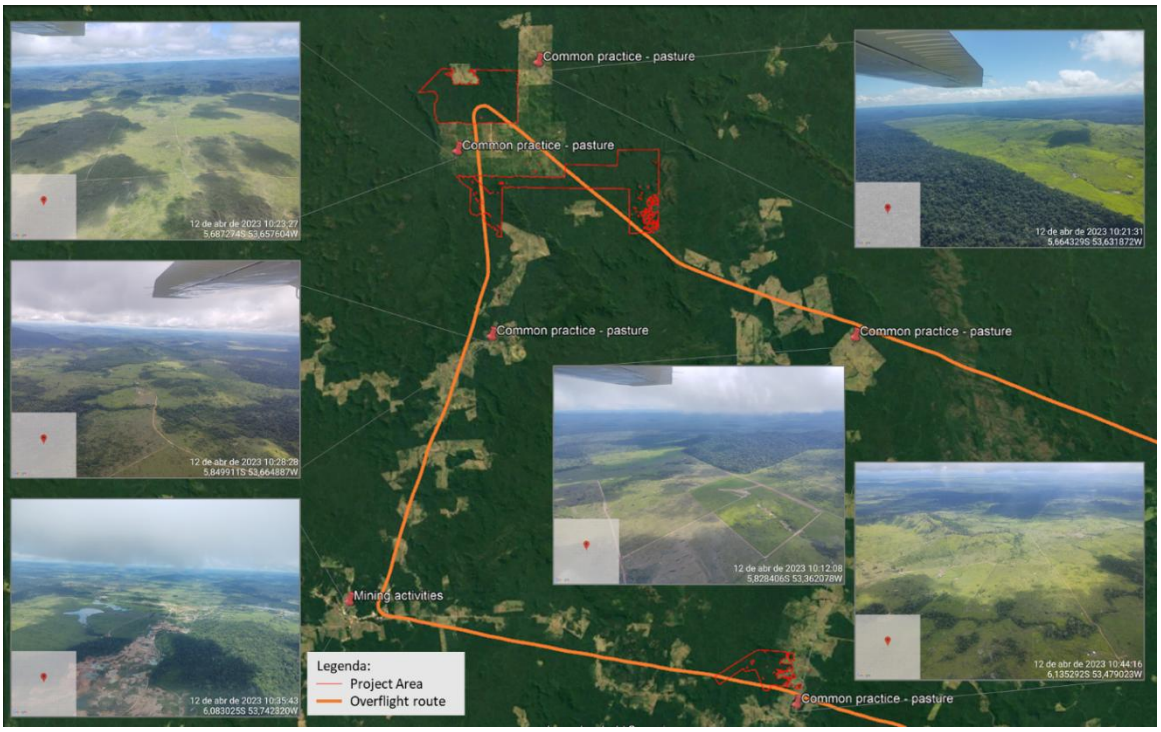

Figure 2. Common practice in the Reference Region.

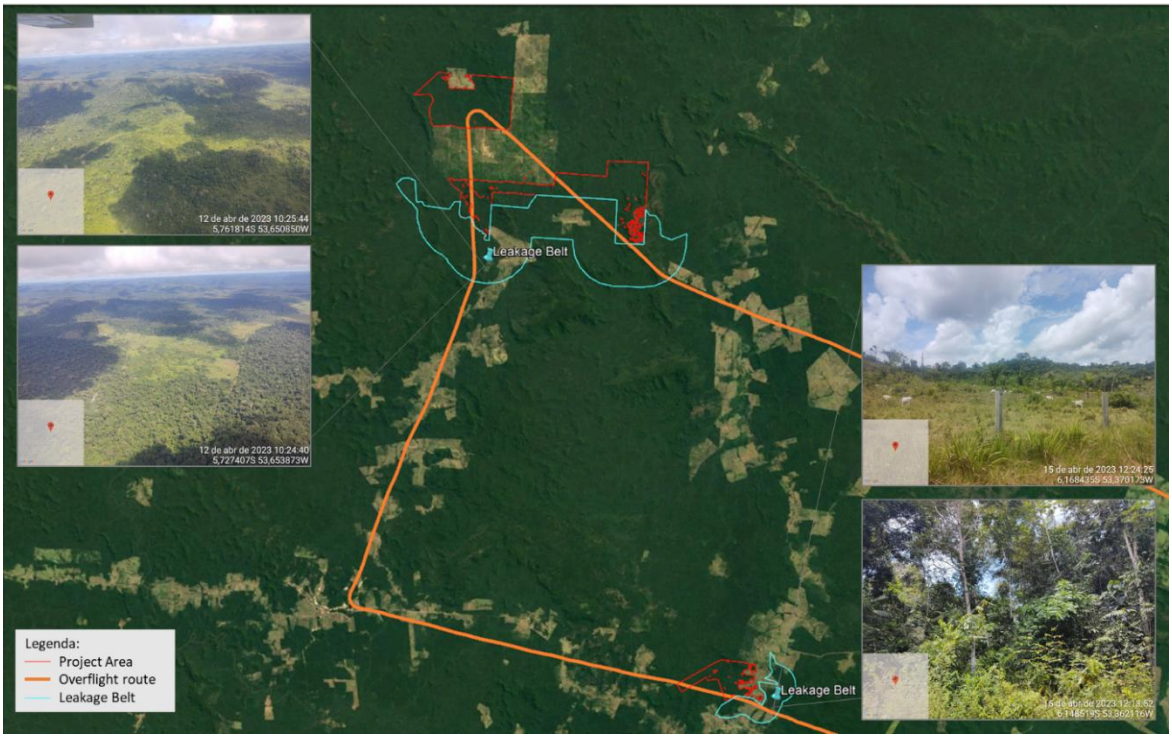

Figure 3. Leakage Belt.

Figure 4. Land tour from Parauapebas to São Felix do Xingu, Caboclo village and Nossa Senhora da Aparecida farm.

The visits were aimed at verifying the spatial limits of the project, identifying the relevance of the analysis of deforestation drivers and the activities carried out by the project to control the threats to the conservation of carbon stocks in the forests included in the project area. Stakeholder interviews were conducted at the same time as the development of the land tours for the Caboclo village, always with the support of the project proponent's team and with the necessary protection measures; all the tours and interviews have photographic and written files that support this document and the audit process in general. During the audit period, other online stakeholder interviews were conducted.

It is important to note that it was only possible to reach the limits of the six (6) properties owned by Rafael Sefer by overflight because the road was with limited access due to road conditions. The journey from Caboclo village to the Nossa Senhora Aparecida farm was carried out by car to check on site one of the properties that make up the project area. The audit team confirms that the conditions of the overflight verified that the project area is composed for the forest of seven (7) private rural properties, is one hundred percent preserved and that this allows confirming the consistency of the project conditions and the correct application of the baseline.

Table 6. Tours and points visited.

Site	Coordinate		Photo
	Latitude	Longitude	
Ourilândia do Norte airport	6°45’41.05” S	51°29’31,45”W	
Secretary of Environment and Mining of the Municipality of São Félix do Xingu	6°38’15.91”S	51°58’35.34”W	
Limit of Triunfo do Xingu Environmental Protection Area	6°10’42.32”S	52°22’58.52”W	

Site	Coordinate		Photo
	Latitude	Longitude	
Novo Pacto Municipal School, located in Caboclo village	6°,10’40.2”S	53°23’01.66”W	
Poster publicizing the validation audit to be carried out at Triunfo do Xingu Grouped REDD+ Project, at Novo Pacto Municipal School – Caboclo village	6°10’39.93” S	53°23’01.72”W	
Public health structure at Caboclo village, also with the poster publicizing the validation audit to be carried out at Triunfo do Xingu Grouped REDD+ Project	6°10’39.82”S	53°23’04.79” W	
Headquarters of Nossa Senhora da Aparecida farm	6°08’11.81” S	53°22’54.94”W	

Site	Coordinate		Photo
	Latitude	Longitude	
Caboclo village grocery store and Wilson (Doutor) house	6°10’41.22”S	53°22’59.94” W	

2.5 Resolution of Findings

The identification of the findings was determined after reviewing the documentation and the results of the on-site inspections. The findings relate to non-compliance with the requirements of the VCS standard, non-compliance with local environmental laws and regulations to support the project ownership, non-compliance with general principles and approved methodological procedures or NPR analysis. Project information must meet the requirements of the standard by presenting the correct evidence and be based on relevant, verifiable, and internationally recognized sources.

The on-site inspections made it possible to validate the relevance, reliability, and transparency of the procedures for obtaining information and data for the project, especially in the appliance of the procedure to define the baseline or the NPR Tool assumptions. The audit sampling effort ensured that the relative importance did not exceed 5%, which was agreed upon with the project proponent. The information and data were validated to ensure that the information was free of errors, omissions, or misrepresentations.

A Corrective Action Request (CAR) shall be raised if one of the following situations occurs:

- Non-compliance with the standards or methodology if it has not been sufficiently documented by the project proponent, or if the evidence provided to demonstrate compliance is not enough.
- Mistakes have been made in applying assumptions, data or calculations of emission removals which will impact the quantity of emission removals.

A Clarification Request (CL) shall be raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

A Forward Action Request (FAR) is issued for actions if the project description require attention and/or adjustment for the next audit.

The VVB conducted the assessment to reach a reasonable level of assurance of conformance against the defined audit criteria and materiality thresholds within the audit scope. Based on the validation team

assessment twenty (20) non-conformities were raised (see Appendix 2), eleven (11) CAR, five (5) CL, and four(4) FAR. In summary, the project proponent presented the corrective actions and clarifications supports for closing the findings related to project ownership, document management, project area limit, legal requirements, project area limit, procedure to establish the baseline, SDG compliance, procedures to diligence the template of PD (v2.5), risk tool, additionality, among others. In conclusion, the findings were successfully closed in accordance with the applicable requirements.

2.5.1 Forward Action Requests

Four Forward Action Request (FAR) were issued for the validation process (see Appendix 2 of VR):

- The first FAR is related to the demonstration of the assessment if risk of double claiming related with the Pará REDD+ Program.

- The second FAR is related to the risks associated with workers of surveillance activities since the deforestation might come from illegal activities.

- The third FAR is the result of the assessment of Verra in PRR process, about the complete support information of Project Ownership from the first verification.

- The fourth FAR is related with the transition of the PP to the use of VM0048 Methodology from the first verification process.

3 VALIDATION FINDINGS

3.1 Project Details

3.1.1 Project type, technologies and measures implemented, and eligibility of the project

The project meets the criteria established in the VCS Program Guide and under the scopes of the VCS Standard, being activities that reduce net GHG emissions and use an eligible methodology under the VCS program, complying with the requirements established in the Brazilian laws and being an eligible AFOLU category. The TdX Grouped REDD+ Project is within the sectoral scope: 14. Agriculture, Forestry, Land Use and it is in the project categories of Avoided Unplanned Deforestation (AUD project activity) and is a grouped project as indicated in section 1.3 of the VCS PD v2.5, and in compliance with the Appendix 1 requirements of the VCS Standard.

The project is not located in REDD+ program/project zones, does not convert native ecosystems to generate GHG, and the project area only contains native forested land for a minimum of 10 years before the project start date, does not occur on wetlands, does not drain native ecosystems or degrade hydrological functions, as confirmed with the supports provided by the project proponent.

3.1.2 Project design, including eligibility criteria for grouped projects

The project has been designed as unplanned avoided deforestation (AUD) in compliance with the criteria of methodology VM0015 methodology for avoiding unplanned deforestation (AUD) (VERRA, 2012a). The audit team confirms that the project is applicable for grouped project being possible to include in the next years new project activity instances after the validation process, which for the present validation process is composed by only one instance (VCS Standard, Sections 3.1, 3.2, 3.6 and Appendix 1 of the standard).

The first instance of the project corresponds to an area of 10,636.02 hectares of tropical forest that meets the conditions of the VCS Standard v4.5, section 3.6.16, during the on-site audit and considering the accessibility conditions at the First instance location, The audit team carried out an overflight from the city of Ourilandia (April 12, 2023), where they were able to verify that the project area is made up of forest on seven (7) private rural properties, which are one hundred percent preserved. The field phase of the audit allowed the VVB to confirm the consistency of the project conditions and the correct application of the baseline, spatial limits and coordinates represented by these properties that the Triunfo do Xingu Grouped REDD+ Project that were presented by of PP in KML and Shapefile files.

The project proponent includes in section 1.4.1, table 1.3 of the VCS PD indicating that within the eligibility criteria for future instances of the project, the non-inclusion of areas with SFM will be considered, consistent with the baseline in which the project area is located. The VVB considers that this criterion is adequate and complies with the conditions of the VCS Standard.

Based on the experience of the audit team in the field work and the documentation provided by the proponent, compliance with the methodological criteria, compliance with the eligibility criteria established by the VCS standard and the procedure for the inclusion of new project instances (Section 1.4.1 of the PD).

The New TdX project activity instances should comply the next set of conditions:

- Will occur in the designated geographic area specified in the project description.
- Will be in conformance whit this defined set of eligible criteria.
- Will be included in the monitoring report.
- Is going to be included in an updated project description, with updated project location information, which will be validated by the VVB contracted.
- Will have evidence of project ownership.
- Will have the same start date as or later than the TdX grouped project.
- Will be eligible through all the project activity instance crediting period.
- Will be eligible for crediting from the start of the verification period in which they were added to the TdX grouped project.

- Will not be or have been enrolled in another VCS project.
- Will adhere to the clustering and capacity limit requirements.

According to the Appendix 1 of VCS Standard, TdX Project meets the requirements listed below:

- Reduce emissions derived from unplanned deforestation by controlling invasions and transformation of forest covers by illegal occupants.
- The eligible area is composed of forest covers that apply to the definition of forest with more than 10 years of existence before the project start date.
- The activities included within the REDD project have specifically the objective of avoiding unplanned (unauthorized) deforestation, configuring it as a type of AUD project.
- The non-inclusion of areas with SFM will be considered.

Finally, the desktop review carried out during the on-site audit, permitted to the VVB confirms with the GIS team of the TdX Grouped REDD+ Project demonstrates the compliance with the criteria defined in section 1.4.1 of the PD, the audit team examined all GIS supporting information to determine the appropriateness of the procedure and the compliance of the set of eligibility criteria, according with the requirements of the section 3.6.22 (4) of the VCS Standard v4.5.

3.1.3 Project proponent and other entities involved in the project

As indicated in the VCS PD v2.5 template used by the project proponent, proponent contact information is provided in section 1.5 of the PD (Tables 1.4 to 1.7):

Table 7. Project proponent

Organization name	SYSTEMICA INTELIGÊNCIA EM SUSTENTABILIDADE S.A.
Contact person	Munir Younes Soares
Title	Director
Address	Rua São Vicente de Paulo, nº 501, Apartamento 201, Santa Cecília, São Paulo, Brazil. Postal Code: 01229-010.
Telephone	+55 (11) 99394-1980
Email	munir@systemica.digital

Table 8. Other entities involved in the project.

Byblos Agronegócio Holding Ltda	
Organization name	Byblos Agronegócio Holding Ltda

Role in the project	Landowner and partner in the project activity implementation.
Contact person	RAFAEL BEMERGUY SEFER
Title	Owner of the Patacho and Campo Lindo farms
Address	Rua Tv SOL D'Oeste, S/N, Sala C, Liberdade, Marabá – PA, Brazil, CEP 68.501-730
Telephone	+55 91 9353-1020
Email	rafaelsefer@hotmail.com
Santa Maria Pecuaria e Agronegocio Ltda	
Organization name	SANTA MARIA PECUARIA E AGRONEGOCIO LTDA.
Role in the project	Landowner and partner in the project activity implementation.
Contact person	RAFAEL BEMERGUY SEFER
Title	Owner of the Belcon, Santa Marta, Retiro Encantado and Vó Lina farms
Address	Rua Tv SOL D'Oeste, S/N, Sala C, Liberdade, Marabá – PA, Brazil, CEP 68.501-730
Telephone	+55 91 9353-1020
Email	rafaelsefer@hotmail.com
Didácio Milhomens Barros	
Organization name	DIDÁCIO MILHOMENS BARROS
Role in the project	Landowner[2] and partner in the project activity implementation.
Contact person	DIDÁCIO MILHOMENS BARROS
Title	Owner of the Nossa Senhora Aparecida farm
Address	QSC 19, Chácara 25, Conjunto F, Lote 11, Taguatinga, Distrito Federal, Brazil, CEP: 72.017-221
Telephone	+55 61 8406-5165
Email	didmilhomens@yahoo.com.br

3.1.4 Ownership

[2] Annex: 221014_Systemica-Didácio contract.pdf

The audit team confirms that the legal documents that proving ownership of each property were made available to the auditors during the validation process and they follow the VCS Standard requirements to demonstrate the ownership (Sections 3.11.2 and 3.11.4 of VCS Standard v4.5).

Based on the analysis of the Documents delivered by the project proponent in March of 2024 to the PRR, the VVB confirms that the first instance of the TdX Grouped REDD+ Project is composed by seven (7) private properties:

- Fazenda Nossa Senhora Aparecida, owned by Didácio Milhomens Barros, and
- Six (6) other properties owned by Rafael Sefer under two different companies:
    - Facunda Belcon, owned by Santa Maria PecuariaPecuária e Agronegócio Ltda
    - Fazenda Santa Marta owned by Santa Maria Pecuária e Agronegócio Ltda
    - Fazenda Retiro Encantado, owned by Santa Maria Pecuária e Agronegócio Ltda
    - Fazenda Vó Lina owned by Santa Maria Pecuária e Agronegócio Ltda
    - Fazenda Patacho, owned by Byblos Agronegócio Holding Ltda
    - Fazenda Campo Lindo owned by Byblos Agronegócio Holding Ltda.

Based on the analysis of the evidence provided by the project proponent, the VVB verified that all properties in the Project currently have issued Final Titles. Likewise, the VVB confirms that, in accordance with the provisions of Decree No. 1,190/2020 of the State of Pará, a technical inspection is required in the titling processes, which in the case of the project area was carried out on September 23, 2022, concluding that the requirements established in article 43 of the aforementioned Decree are met.

The VVB could determine from the analysis of the documents and evidence made available by PP, that “all areas included in the project area of Triunfo do Xingu Grouped REDD+ Project have titles that support their regular occupation”.

In relation to the farms Nossa Senhora Aparecida enrolled under n. 4583 it holds a duly registered title of ownership in the Real Estate Registry Office.

Regarding the farms Belcon, Santa Marta, Vó Lina, Patachó, Retiro Encantado and Campo Lindo, the areas were held by their holders through possession occupancy, which is why they had to undergo the public land regularization process before ITERPA , which has already been duly completed (ITERPA is the "Land Institute of Pará", a governmental agency responsible for land-related matters in the State of Pará, Brazil. Its main tasks include land regularization, management of public lands, and providing support for land-related legal processes). The Belcon farm, enrolled under n. 39741, Santa Marta farm, enrolled under n. 39486, Vó Lina, enrolled under n. 39572, and Patachó, enrolled under n. 39724, farms had its Property Exchange Agreement issued by ITERPA and duly registry before the Real Estate Registry Office of Altamira, State of Pará.

The Retiro Encantado and Campo Lindo farms had its Property Exchange Agreement issued and concluded by ITERPA by 05/16/2024, awaiting only registration before the Real Estate Registry Office, but evidencing the full regularity and validity of (i) the Proponents' occupation of the area; and (ii) the titles supporting such occupation of these areas[3].

The evidence presented allows the VVB to conclude that the properties included in the Project area were "regularized" through exchange titling, as provided for in Article 86 of the Decree 1.190, culminating in the issuance of the Final Titles in favor of the landowner. Therefore, the VVB can assure that the legal requirements and criteria established by Standard were fully met, the PP provide some substantial evidences which permit to the VVB conclude that all the properties within the project area have 100% legal rights to control and operate project activities from the project start date, in full compliance with section 3.7 of the VCS Standard version 4.5 [4,5,6].

However, considering the requirement of Verra in Finding #2 of PRR, the VVB included a FAR in the current VR (Appendix 2) that include two actions:

a. Monitor the progress of the land regularization process (registration by the Real Estate Registry Office).

b. During the initial verification, the project proponent must provide evidence of full ownership (in this case, registration with the Real Estate Registry Office) for the farms Retiro Encantado and Campolindo to corroborate the existing title, to and demonstrate their ability to maintain ownership over the entire project area throughout its duration.

3.1.5 Project start date

According with the support evidence provided by the project proponent, section 1.8 of the VCS PD v2.5 and the terms of the VCS Standard, the Triunfo do Xingu grouped REDD+ project started on the 31st of August 2022.

Based on the interviews conducted during the on-site audit and the review and evaluation of the meeting documents and commitments made therein, the VVB verified through some steps that the first REDD+ training for capacity development is an additional activity that contributes to the reduction of deforestation, all this because the attendees commit to changing deforestation practices as of August 31, 2022. The VVB verify that the support information and interviews carried out by the audit team allow to conclude that these actions of Socialization and training on REDD+ issues carried out by the PP as support for the start date, generate a direct impact as mitigation actions, considering that the majority of those invited to these activities are neighbors of the project area, who carry out unplanned forest transformation activities and who, according to the description of the baseline, are included within the groups of agents that exert pressure on the forests that are identified in the PD.

[3] 240528_Current status_Proof of property title.zip

[4] Annex: InspectionReport_INTERPA.rar

[5] Annex: IndependentLegalOpinion.pdf

[6] Annex: 240528_Current status_Proof of property title.zip

The interviews revealed the immediate commitment of the participants, especially Raquel and Charles, who at that time and still today worked on Didácio's farm and who participated in the REDD+ training, overseeing some project activities, particularly "Patrolling and Surveillance" (an activity that was part of the training).

Although this is not a control and surveillance activity per se, it is a prevention action, which according to what is documented in the interviews carried out during the on-site audit (See section 2.3 of the VR), generates among the neighbors of the project area a favorable impact on the conservation of forests and to avoid actions that could generate alteration in the forest cover.

The VVB concluded that these socialization and training (prevention) actions for the communities surrounding the project area and focused on the workers of the farms of the project area and landowners located in the Leakage Belt of the project, in accordance with the definition of Start Date included in Section 1.2.1 of the VM0015 Methodology, are additional to those developed in the Baseline scenario.

The set of evidence and actions carried out during the audit phase allow the VVB to conclude that the project proponent carries out a set of activities organized synergistically around deforestation control actions, the structure of which is oriented toward and contributes to the reduction of emissions attributable to the implementation of the project.

Likewise, the VVB considers that the set of elements analyzed in each step allow us to demonstrate that the training on the REDD+ issue that the PP carried out is not a mandatory activity based on the country's legal requirements and has a greater scope than a socialization of the project and during the first monitoring period, the project must demonstrate that the impact of the activities effectively contributed to reducing the deforestation trend that the project baseline projects

For the VVB this date represents the effective date on which the project began generating GHG emissions reduction in the project area., that is the first date when local activities started to be implemented by the Systemica Team in face-to-face meetings were held to present to local communities near the project activity instance, bring capacity building activities, and obtaining feedback of their opinion about it; the audit team confirms the relevance of this information and conclude that it is in compliance with the VCS criteria.

3.1.6 Project crediting period

As is indicated in section 1.9 from VCS PD v2.5, the project has a crediting period of 30 years, from 31st of August 2022 to the 30th of August 2052.

3.1.7 Project scale and estimated GHG emission reductions or removals

The project proponent mentioned in the Project Description Document v2.5– section 1.10 that project is considered-Project-, which is in accordance with VCS Standard – section 3.10.1, and the project will have an average annual of reduction emissions by 105,592.67[7]tCO2e/year, which corresponds with the thresholds to be classified as a Project scale.

[7] According with baseline emissions reduction.

3.1.8 Project location

According to Project Description Document v2.5– section 1.12 and information support, the first instance of the project TdX comprises seven (7) properties (Table 1.10) located in the Altamira municipality, Pará state in Brazil. The project proponent provided documentary evidence to support that the KML file is under updating process on Verra's page.

Table 9. Properties and project area (centroid of each area).

Ownership	Properties	Area (ha)	Project Area/Eligible Forest (ha)	Centroid location coordinates	
				Longitude	Latitude
Rafael Bemerguy Sefer	Belcon Farm	2,197.53	1,835.91	-53° 39′ 38.852″	-5° 37′ 55.445″
	Campo Lindo Farm	2,443.14	1,792.98	-53° 31′ 58.888″	-5° 41′ 56.909″
	Patacho Farm	2,135.16	1,901.16	-53° 39′ 21.781″	-5° 39′ 22.873″
	Retiro Encantado Farm	2,342.88	1,242.27	-53° 34′ 45.974″	-5° 42′ 42.604″
	Santa Marta Farm	2,450.34	1,355.40	-53° 37′ 48.865″	-5° 43′ 2.404″
	Vó Lina Farm	2,364.57	1,101.51	-53° 40′ 38.524″	-5° 41′ 15.775″
Didácio Milhomens Barros	Nossa Senhora Aparecida Farm	1,880.19	1,406.79	-53° 24′ 18.419″	-6° 8′ 1.763″
Total		15,813.81	10,636.02	-	-

An overlapping GIS review were conducted by the VVB team to confirm that the project area does not overlap private lands, other CAR plots, public lands, indigenous territories, quilombo lands, and conservation units. The results were described above:

- CAR database

VVB cross-check: The project proponent used official sources, and they are current, matching the date of October 27, 2024.
Source: https://consultapublica.car.gov.br/publico/estados/downloads

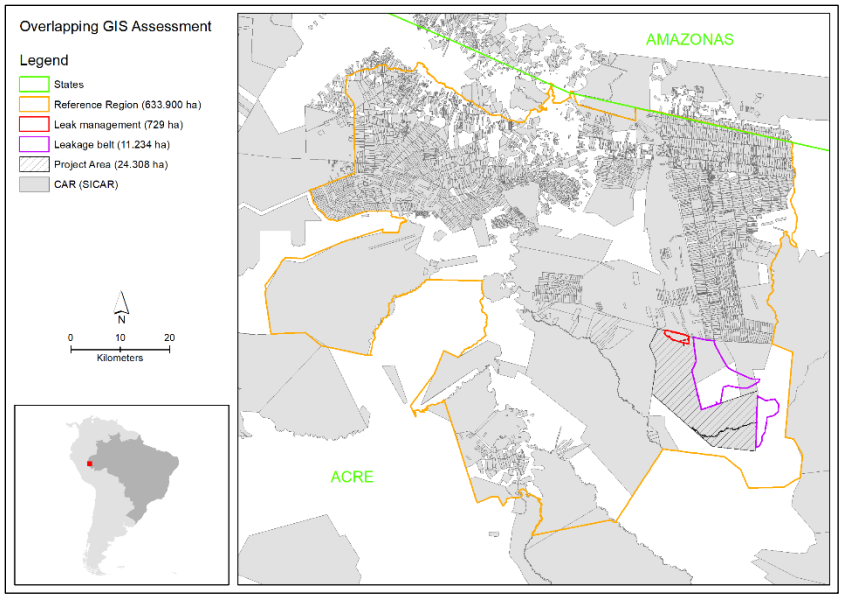

Figure 5. Overlapping GIS assessment: CAR database, Reference Region, and Project Area.

- Property data in CAR attributes

In the publicly available vector file, no significant overlaps were observed in its attribute with the reference property AC-1200203-1D7851AAAE39467A977D86030DF2AE0B and the Project Area.

- Settlements, Private areas, Indigenous Land, Quilombola Territories, and Conservation Units

The audit team redid the maps, by attributes and with public data, consulted on 27/10/2024. There were no overlaps with the attributes assessed and the results are presented below.

Settlements

Source: https://certificacao.incra.gov.br/csv_shp/export_shp.py

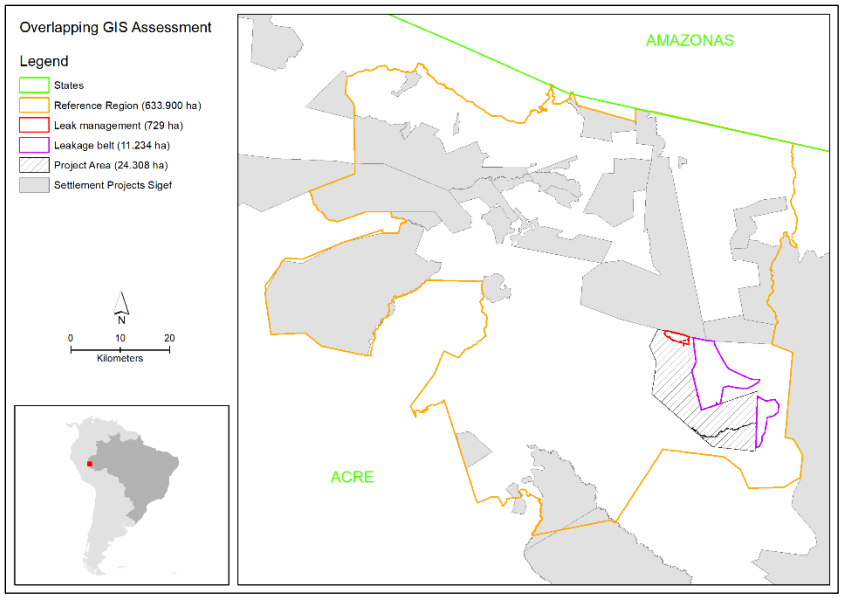

Figure 6. Overlapping GIS assessment: Settlements, Reference Region, and Project Area.

Private Areas

Source: https://sigef.incra.gov.br/

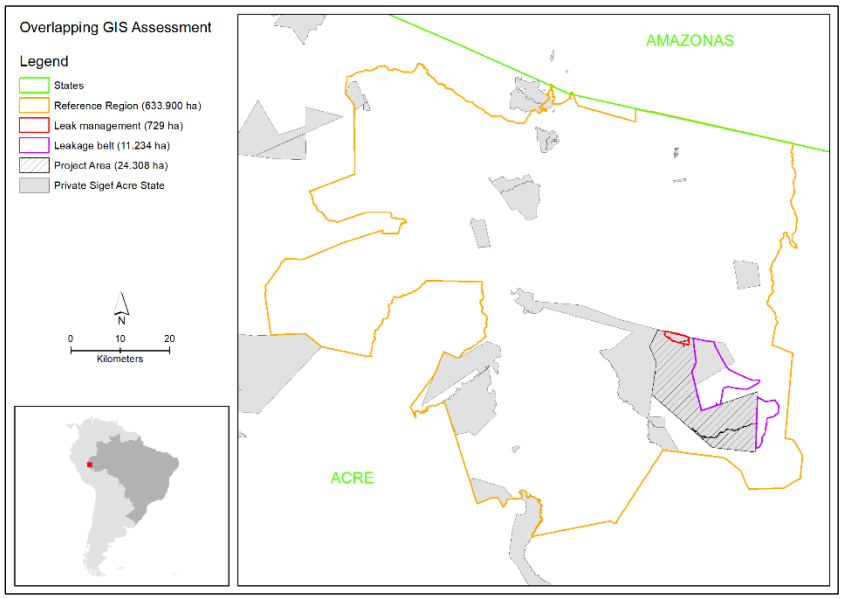

Figure 7. Overlapping GIS assessment: Private Areas, Reference Region, and Project Area.

Indigenous Lands

Source: https://www.gov.br/funai/pt-br/atuacao/terras-indigenas/geoprocessamento-e-mapas

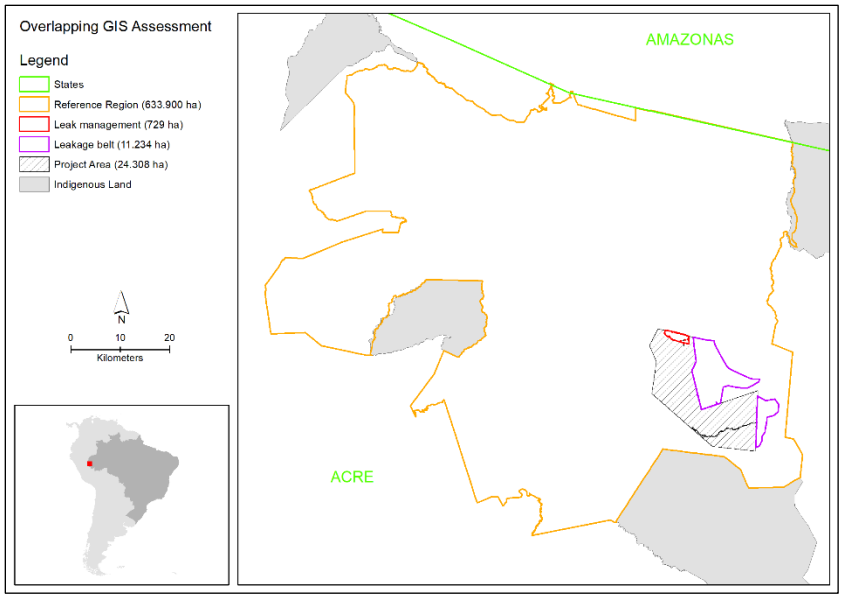

Figure 8. Overlapping GIS assessment: Indigenous Lands, Reference Region, and Project Area.

Quilombola Territories

Source: https://sigef.incra.gov.br/

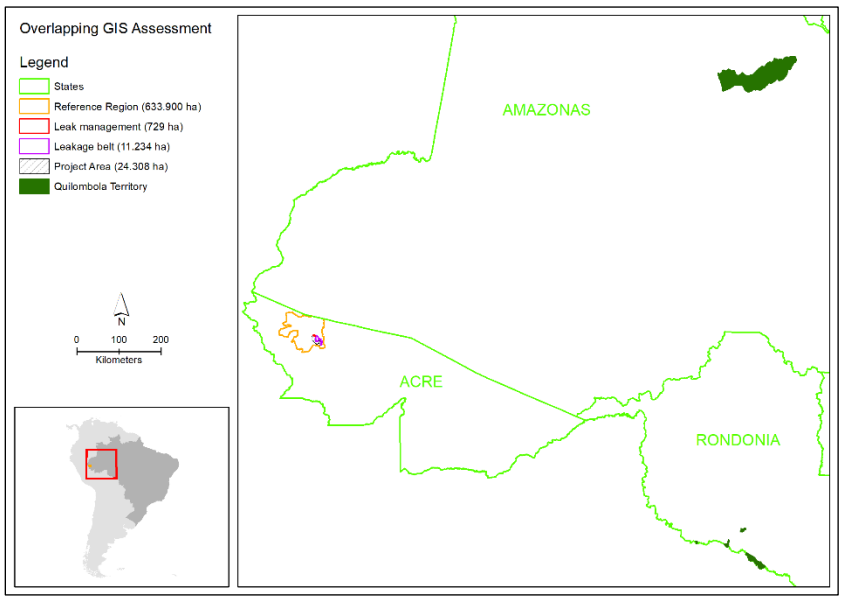

Figure 9. Overlapping GIS assessment: Quilombola Territories, Reference Region, and Project Area.

Conservation Units

The audit team redid the map with public data consulted on 27/10/2024, confirming that the client used official and current sources.

Special attention was given to the last source, as it contains information on Private Natural Heritage Reserves (RPPN), which are sensitive due to their dynamism, and all the information matches what was provided by the client:

Sources: https://metadados.snirh.gov.br/geonetwork/srv/api/records/9407d38f-84d2-48ea-97dd-ee152c493043
https://www.gov.br/icmbio/pt-br/assuntos/dados_geoespaciais/mapa-tematico-e-dados-geoestatisticos-das-unidades-de-conservacao-federais
https://terrabrasilis.dpi.inpe.br/downloads/
https://dados.mma.gov.br/dataset/unidadesdeconservacao
https://sistemas.icmbio.gov.br/simrppn/publico/

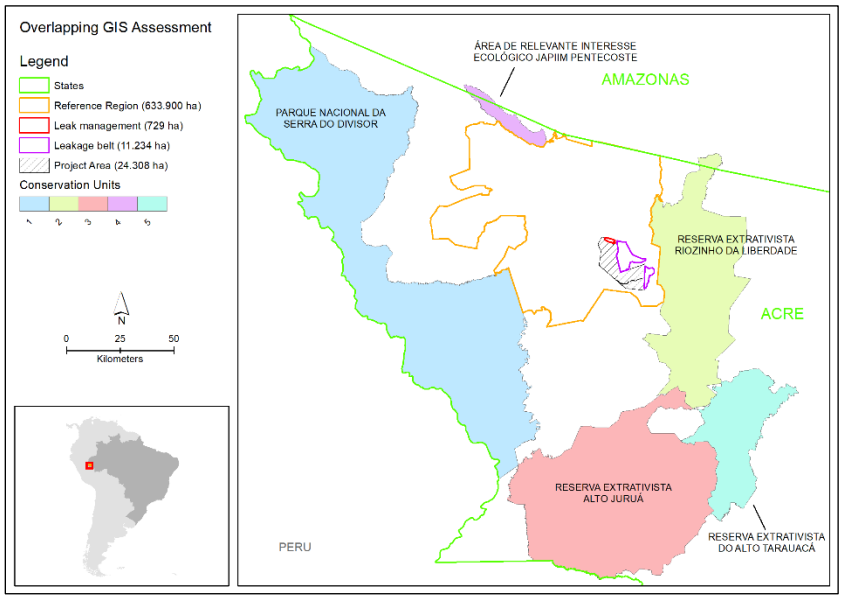

Figure 10. Overlapping GIS assessment: Conservation Units, Reference Region, and Project Area.

3.1.9 Conditions prior to project initiation

The main dynamic in land use is the conversion of areas of native vegetation to implement livestock farming, generating great pressure in the surrounding region of the Project Area, justifying the inclusion of the project in the AFOLU REDD+ category to Avoid Unplanned Deforestation and Degradation (AUDD). This condition was verified during the on-site audit (overflight and land tours in project area), which generated georeferenced and photographic material that is part of the evidence of the validation process.

At the local level, in addition to the above-mentioned activities, it was observed during the on-site audit that in addition to small and medium-scale cattle ranching regional commercial activities are carried out. The common practice for preparing the land for pastures is the use of controlled fire, as was corroborated during interviews and visits to the farms of some of the inhabitants of the project's area of influence.

Another of the important contextual situations in which the TdX project is framed is its location within the APA Triunfo do Xingu (section 1.13.2 of the PD), which was established by State Decree 2.612 of 2006 and is located in the municipalities of São Félix do Xingu and Altamira, with an area of approximately 1.68 million hectares. This APA does not currently have a management and zoning plan, which has influenced the great pressure on the forests due to invasion processes within this area and ongoing formalization processes.

The section 1.13 of PD v2.5 of the project includes a brief description of climate, ecosystems, hydrography, geology, topography, demography and land use, soils, and vegetation of the project's zone

in conformance with VCS PD Template v4.2 and provided thematic cartography information to support it, provided by official sources that the audit team could consult.

3.1.10 Project compliance with applicable laws, statutes and other regulatory frameworks

According to the PD v2.5– section 1.14, the most important law for the project develop is the Law Nº 12,651 of 2012 (Brasil, 2012b) which created the newest Brazilian Forest Code. The project proponent indicates textually the most important articles in which is based the project propose:

Article 3: definitions; Article 12: minimum percentages of forest cover for main biomes; Article 29: Rural Environmental Registry (RER) within the scope of the National System Information on the Environment (NSIE).

In addition to the forestry code, the project complies with the national statutes and other regulatory frameworks, including the Federal Constitution who determines that it is concurrent between the Union, Member States, and the Federal District the competence to legislate on matters related to the protection of the environment, conservation of nature, defense of the soil, protection of landscape heritage and responsibility for damages to the environment.

The project proponent includes in mentioned section of PD (Table 1.11) and resume from all the legislation (nine laws since 1850 to 2002) in federal and state context, including standards and guidelines from national agencies, specific legislation on climate change and carbon market and legislation and guidelines on traditional communities and workers, who applies to the project activities. The project also complies with the legal conditions regarding the project ownership and the respective analysis was carried out during the audit process.

3.1.11 Participation under other GHG programs

The project does not participate under other GHG program and has not been rejected by any other GHG program.

3.1.11.1 Projects Registered (or seeking registration) under Other GHG Program(s)

Not applicable. This project is not engaged in any other emissions trading program and the host country has no binding limits on GHG emissions yet. The project has not been registered or is seeking registration under any other GHG programs.

3.1.11.2 Projects Rejected by Other GHG Programs

Not applicable. This project is not requesting registration in any other GHG Programs nor has the project been rejected by any other GHG programs.

3.1.12 Other forms of credit

3.1.12.1 Emissions Trading Programs and Other Binding Limits

According to the description of the 1.16.1 in PD v2.5, the TdX project does not reduce GHG emissions from activities that are included in any emissions trading programs or any other mechanism that includes

GHG allowance trading. The project activities of reducing emissions from the AUDD category aim to generate credits only under VERRA's VCS Program.

3.1.12.2 Other Forms of Environmental Credit

According to the description of the 1.16.2 in PD v2.5, the project did not seek or receive any other form of GHG-related credit, including renewable energy certificates. The VVB confirmed that there is no double counting or double claiming between the TdX project and the Para Jurisdictional REDD+ Program[8]. The PD submitted to VERRA is the first initiative to issue credits for reducing GHG emissions.

3.1.13 Sustainable development contributions

As the PD v2.5– section 1.17 mention, the project will implement not only the activities related with project activities to control the planned deforestation, but also some social activities in benefit of local activities.

It is also in accordance with the nationally determined contribution, conceived under the Paris Agreement, which outlines the efforts each country is willing to make to remove national emissions and adapt to the impacts of climate change and finally, in conformance with VCS Standard – section 3.17, the TdX Grouped REDD+ Project contributes to at least four (4) Sustainable Development Goals (SDGs):

SDG 4: Quality education: The TdX project could help to strengthen and empower communities to take sustainable attitudes and develop productive alternatives that ensure the preservation of forest and local biodiversity.

SDG 8: Decent work and economic growth: The project implementation will provide stakeholder consultation to identify the community priorities, look for decent job creation, and promote sustainable tourism, culture, and local products.

SDG 13: The project is taking strategies to combat climate change and its impacts, as well as raising the community's awareness of the topic.

SDG 15: The TdX project will protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss. Also, it will protect and control illegal wildlife hunting due to keeping the project area under constant surveillance. Besides, it shall generate financial returns for the landowner.

3.1.14 Additional information relevant to the project

3.1.14.1 Leakage management for AFOLU projects

According to Project Description v2.5– section 1.18.1 (based on section 1.11), being a project classified as AUDD (Avoiding Unplanned Deforestation and Degradation), the leakage that is contemplated in the items of Leakage Control, where the project proponent, together with the landowners, will adopt a proactive initiative for reducing the risk of leakage, based on a cooperative effort with local stakeholders to promote a new approach to forest use and land use in the region, raising awareness among them

[8] https://art.apx.com/mymodule/reg/TabDocuments.asp?r=111&ad=Prpt&act=update&type=PRO&aProj=pub&tablename=doc&id1=124

about environmental education. The project proponent also plans a continuous remote monitoring of the region surrounding the project area (Leakage Belt) and interventions with the local stakeholders residing in the Leakage Management Area, which is defined as the non-forest region where the Caboclo Village is located. The project seeks that with the implementation of project activities and the sale of VCUs, the landowner will understand the benefits of REDD+ activities for forest protection.

The project states that all areas deforested by the deforestation agent in the baseline should be monitored to estimate the increase in GHG emissions leakage areas. The project assumes that forest intervention is done first by logging activities (high value timber exploration) followed by burning of the area to increase the pasture area. Because the parameter values used to estimate emissions will be the same as those used to estimate the forest fires that are part of the baseline (Sections 5.1 and 5.3 of the VCS PD), the audit team considers this orientation of the project to be adequate and in compliance with the methodology requirements about leakage.

Through its analysis of the Management Plan for the LMAs, the VVB ensured compliance with VM0015 v1.1. In short, the plan aims to reduce the risk of escapes by implementing integrated actions within both the LB and the LMA.

The VVB concludes that the plan seeks to include key deforestation agents in productive and conservation activities (LMA) through the implementation of educational actions with the community, ensuring continuous monitoring through satellite imagery (LB), and providing training and capacity building for workers and community agents, guaranteeing knowledge transfer. Also, the plan will be based on the dissemination of job opportunities, prioritizing social inclusion and equal opportunities.

The VVB, within the validation process, included CAR10 (See Appendix 2), in which compliance with the methodological requirements to define the LMA was ensured, in terms of its spatial delimitation and to ensure that the mitigation actions to be carried out in this area, are adequate to mitigate the risk of leaks due to the development of the project. The VVB also evaluated the adjustments that the PP advanced in sections 1.18 and 3.3.5 of PD v2.5, in compliance with the corrective actions that were advanced as part of the PRR process (Finding 17), considering that the project complies with the requirements of section 1.1.4 of VM0015 v1.1, Section 3.15.6 of the VCS Standard and the Project description template v4.2.

3.1.14.2 Commercially sensitive information

According to Project Description v2.5 – section 1.18, commercially sensitive information applies to information provided in the non-permanent risk analysis, specifically internal risk, where internal financial information is required to be provided. The project proponent indicates that no other commercially sensitive information has been excluded from the public version of the Project Description (PD) and the relevant and necessary information of the project proponent and the conditions precedent to project implementation is available.

Provide an overall conclusion regarding whether the description in the project description is accurate, complete, and provides an understanding of the nature of the project.

3.2 Safeguards

3.2.1 No Net Harm

As the project proponent points out in section 2.1 of the VCS PD v2.5, the territory in which the project is located is part of the Amazon biome, in a strip of connectivity of important Environmental Preservation

areas located in the central region of Altamira (are part of the National System of Conservation Units (SNUC): the Triunfo do Xingu APA, the Serra do Pardo National Park, the Terra do Meio Ecological Station and the Iriri state forest.

The degree of threat to the biome is quite high, since the region is characterized by having the highest rates of deforestation and fires in Brazil. The project proponent highlights that in 2022, the state of Pará presented one of the highest incidences of fires in Brazil, with 26,190 fires recorded in August, the driest month in the Amazon biome (between August 1, 2022 and on October 5, 2022), that is, 33.9% of all fires recorded in the Amazon biome (INPE, 2022b). Likewise, compared to other conservation units, the Triunfo do Xingu Environmental Protection Area has the highest number of fires and suffers pressure mainly from the conversion of forests into pastures (IBGE, 2021a).

The owners of the project area have been part of those who have transformed the territory with the development of farming and grazing areas, however, aware of the deforestation situation in the region, they propose to be a management model and promote a change towards development. sustainable economic, based on the promotion and maintenance of the standing forest.

As a mitigation measure for possible negative impacts during the project design, local communities have been made known and informed about the activities that will be developed and neighboring residents have been linked in informative talks related to REDD+ projects, which could be verified during the on-site audit. Likewise, during the interviews carried out by the VVB, it was confirmed that the project workers residing in Caboclo Village have been incorporated as interested parties and have participated in the socialization activities of the REDD+ project.

The audit team verified that although the project will be developed in a private area, it proposes actions of common benefit that include the surrounding communities, although there is no legal obligation in this regard, which is why the project complies with the guidelines of the VCS standard in section 3.18.2.

3.2.2 Local Stakeholder Consultation

As is consigned in section 2.2 of the PDv2.5, stakeholder consultation was conducted through direct communication with the community surrounding the project areas, representatives of Conservation Units, and all the competent institutions in the Municipality of Altamira and the State since the month of August of 2022.

The consultation of the parties interested in the project was carried out through direct communication with the community of Caboclo Village, relevant institutions, and property administrators, during the months of August and September 2022. The families of the rural community of Vila Caboclo participated in a social diagnosis carried out by the project proponent in which brochures with the project's contact telephone number and email were distributed, project workers residing in Caboclo Village have also joined as stakeholders and have participated in the socialization activities of the REDD+ project.

During this diagnosis, a semi-structured questionnaire was applied to produce a socio-environmental diagnosis of the residents and collect information about the potential impacts that the project could have on the community; This questionnaire was also sent to other interested parties, such as public and private institutions, and is the basis for structuring the permanent communication channel with the local context, for sending project information, and information about the validation process.

As a result of the application of the questionnaires, the project proponent linked the majority of the members of the Caboclo Village community: of 21 heads of households who live permanently in the community, 17 were interviewed by the project proponent (80% of the total). Results of all activities developed, including information on location, date and number of participants involved are summarized by the project proponent according with Table 10.

Table 10. Results of the activities with the community of Caboclo Village

Activity	Location	Date	Participants
Questionnaire for social diagnosis	Caboclo Village	29-08 a 01-09	17
Start Date and Capacity Building Meeting for REDD+ Activities	Caboclo Village	31/08/2022	13
Explanation of the Project, delivery of pamphlet and inauguration of communication channel	Caboclo Village	29-08 a 01-09	50

Considering the above information, the project is in compliance with the following items of the VCS Standard, in sections 3.18.3, 3.18.4, and 3.18.5, and was conducted for the project proponent a stakeholder consultation process with an ongoing communication with the local communities allow stakeholders to raise concerns about potential negative impacts during project implementation and in an adequate manner.

Because the workers on the farms that make up the project area are currently dedicated to livestock activities, which are the basis of the owners' economy, the VVB considers it pertinent to include a FAR (See Appendix 2), in order to that in the first verification of the project, monitoring is carried out on how the project mitigates the risks that patrolling and other deforestation control activities represent for project workers.

Section 2.2 of PD v2.5 describes the Communication Procedure which contains the Redress Grievance Procedure. This procedure provides a structured process to receive, listen to, respond to, and resolve complaints within a reasonable period, taking into account culturally appropriate communication and conflict resolution methods. The procedure was built together with the community, and it was publicly available through an informational meeting and an explanatory video on the project's YouTube channel. The Redress process includes three stages: 1) informal or friendly approach, 2) formal or mediation approach, and 3) arbitration or courts.

The implementation of the communication channel during the project design was held by Systemica, the project proponents attached documentary evidence consolidated in Appendix 1 of the present report in the route: VCS Project Description/Annexes/2. Safeguards/ 230309_Stakeholder_consultation; to support that the contact information was shared as a communication channel with stakeholders.

3.2.3 Environmental Impact

According with the description in section 2.3 of VCS PD v2.5, considering that the area of influence of the project will not be affected by any type of business activity or exploitation activity that could have negative consequences at an environmental and social level, it is not expected to generate negative impacts from the development of the project.

Considering that the area of influence of the project will not be affected by any type of business activity or exploitation activity that could have negative consequences at an environmental and social level, it is not expected to generate negative impacts from the development of the project. This was confirmed during interviews with landowners and communities during stakeholder consultation.

On the other hand, considering their proximity to the conservation units and the large extensions of native forest on the properties, the project areas will contribute to the provision of various ecosystem services, to the conservation of areas and public interest and ecological connectivity, to the maintenance of the biodiversity of fauna and flora, in addition to the control of land fragmentation.

The audit team confirms, consider that this assumption is correct and the project has enough support information about the relationship with the probable impacted communities, the project is in compliance with the Project Description template v4.2: "Summarize any environmental impact assessments carried out with respect to the project, where applicable."

3.2.4 Public Comments

The project's 30-day public comment period occurred from October 31, 2022 to November 30, 2022. During this period, no comments were received for the project. The audit team confirms this fact with the evidence provided by the project, which is a VERRA communication dated in December 1st, 2022, included in the project documentation system.

3.2.5 AFOLU-Specific Safeguards

The project indicates in Section 2.5 of the PD v2.5, that through satellite images, secondary data from desk research, and primary data surveys carried out through fieldwork, a radius of 20 km from the property's limits was defined, and the communities or local stakeholders were identified. The project identified local communities as well as institutional stakeholders potentially involved in the project to understand the public impacts of the project. The consultation and explanation process on the scope was carried out through telephone calls and email containing a digital version of the brochure, contact number and information about the project, this supporting information is included in the attached spreadsheet mentioned in Section 2.2 of the VCS PD v2.5.

It is estimated that Villa Caboclo has around 100 inhabitants, the population is mainly concentrated along the main road that gives access to the town center and surrounding properties. According to information from the local Health Centre, the local population is 30 men, 23 women and 16 children, a total of 69 residents, a population that, when compared to that provided by the director of the educational center, could be underestimated, especially in the surrounding areas, where statistics and official data are outdated.

Risks to Local Stakeholders

According to the evidence provided to the audit team, the project proponent (Systemica) recognizes, respects and supports the property rights of local actors, the project does not infringe private, stakeholder or government property nor does it relocate people off their lands; According to the supporting evidence, the owner does not face disputes over land ownership or access and use of resources and has full control over the project area in accordance with the VCS standard (CAR01).

The audit team, through the reviewed supporting information and the results of the interviews carried out in the on-site audit, verifies that the project proponent and the other entities involved in the project are not related to any type of discrimination or sexual harassment. Likewise, the owners of the project area

do not have labor liabilities, that is, they have no debts due to non-compliance with labor obligations, incorrect payment of social charges or payment of mandatory benefits.

According to the interviews carried out and the observations of field activities carried out during the on-site audit, the personnel who work for the project proponent on the farms that make up the project area have the appropriate conditions to mitigate occupational risks and have the adequate support by the landowner in relation to his legal rights. The project proponent made available evidence in relation to the management and mitigation of risks for workers, as well as their participation in training activities and linkage to the REDD+ TdX project, which the VVB analyzed and verified, considering these supports relevant.

Respect for local stakeholder resources

The project area protects native species of the Amazon biome and although the owners of the project area develop other economic activities within the properties, the introduction of invasive species or the use of species that cause adverse effects is not planned, due to the type of activities. To be carried out, no fertilizers, pesticides or other biological control agents will be used.

Ongoing Communication and Consultation

The proponent of the project applied a questionnaire to carry out a socio environmental diagnosis with the external community to evaluate the impacts of the project on their lives and their opinion on the activities carried out by the farm, working conditions, forms of organization, etc. In relation to the institutional stakeholders, email communications were sent informing the contact information to deal with any doubts that arose about the project, as well as preliminary information about the project itself, including an informative brochure.

According to the evidence provided by the project proponent and analyzed by the audit team, there is a robust communication system between the project and community and institutional stakeholders in which respect for individual rights and institutional competencies is ensured.

Legal and moral responsibility of the project with stakeholders in the project

According to section 2.5.3, the consent process with the landowners of the project consisted of three main phases: prospecting, contract negotiation, and technical viability. The consent to participate was obtained from the landowners in the project, where the project area is located, through the contract signed with the project proponent (Systemica). In the future, the same stages will be followed in the FPIC process with other participants such as landowners.

The project states that does not tolerate any kind of discrimination or sexual harassment; respects, recognizes, and promotes the protection of the rights of local communities, even though the project does not impact or affect traditional communities; provides equal opportunities in gender context for community employment and participation in consultation and project activities; equal pay for equal work in the project is also something that will be followed in the project's design and implementation, including adequate training, information on labor rights to workers, and occupational safety assessment; does not tolerate the use of forced labor, child labor, victims of human trafficking, or any crime, as established in its code of ethics and conduct; respect human rights as defined in the International Labor Organization's Declaration on Fundamental Principles and Rights at Work; although traditional communities recognized as such by national or international legislation do not participate in the project nor are impacted, the project applies the guidelines given in the definition of the Program Definitions on free, prior, and informed consent and the principles established by the Convention n° 169 of the International Labor

Organization (ILO 1989). Consent has been obtained from the Caboclo Village community to participate in the project activities through a series of informative meetings and a dialogical process; and does not impact or affect traditional communities. This statement follows the requirements 3.19.11 to 3.19.18 of VCS Standard v4.5.

In conclusion, the audit team reviewed the instruments and evidence identified by the project to respect the safeguards and based on the documentation and results of the on-site audit (interviews and tours) concluded that the project takes the measures that prevent the deterioration of the elements essential social and economic and environmental rights and prevents the occurrence of negative impacts due to project design and implementation. The interviews, tours and the documents provided by the project proponent allow the audit team to conclude that the FPIC was conducted with the current landowners and the project complies with the Human Rights and Equity requirements.

Patrolling and surveillance activity

The patrol and surveillance activities carried out in the project area are conducted peacefully and in compliance with the guidelines[9] provided in the training provided by the PP regarding procedures for controlling deforestation agents and monitoring forest areas within the property. The Operational Monitoring Procedure (OMP) was presented to those involved in patrol and surveillance activities and formally signed by the owners of the properties within the project area. This document defines the objectives, responsibilities, monitoring methods, safety measures, and a list of materials and equipment permitted for the activity.

3.3 Application of Methodology

3.3.1 Title and Reference

The grouped project uses the approved VCS methodology VM0015 Methodology for Avoiding Unplanned Deforestation (AUDD) v1.1, published on 03-December-2012 (VERRA, 2012a).

The tools used in the project were VT0001 – Tool for demonstration and assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities, v3.0, published on 01-February-2012 (VERRA, 2012b) and AFOLU Non-Permanence Risk Tool v4.0, published on 19-September-2019 (VERRA, 2019).

3.3.2 Applicability

According with the contents of section 3.2 of the PD v2.5, the project sets as a goal to reduce emissions from avoiding unplanned deforestation and is defined as a type of REDD activity, according to the VCS AFOLU guidance document.

The applicability of each methodology used and tools are available in Tables 11 and 12.

[9] PatrollingSurveillanceActivities.zip

Table 11. Applicability conditions of the methodology.

VM0015 – Methodology for Avoided Unplanned Deforestation v1.1		
Applicability conditions	Justification of Applicability	VVB assessment
a) Baseline activities may include planned or unplanned logging for timber, fuel-wood collection, charcoal production, agricultural and grazing activities as long as the category is unplanned deforestation according to the most recent VCS AFOLU requirements	None of the baseline land-use conversion activities are legally designated or sanctioned for forestry or deforestation, and hence the project activity qualifies as avoided unplanned deforestation. This is in accordance with the definition of unplanned deforestation under the VCS Standard v4.4.	According with the methodology and the justification presented by the project.
b) Project activities may include one or a combination of the eligible categories defined in the description of the scope of the methodology. Project activities are eligible within the "Avoided Deforestation without Logging in the Project Case", category A. Degradation is not considered in any part of the baseline or project scenario.	b) Project activities may include one or a combination of the eligible categories defined in the description of the scope of the methodology. Project activities are eligible within the "Avoided Deforestation without Logging in the Project Case", category A. Degradation is not considered in any part of the baseline or project scenario.	According with the methodology and the justification presented by the project.
c) The project area can include different types of forest, such as, but not limited to, old growth forest, degraded forest, secondary forests, planted forests and agro-forestry systems meeting the definition of "forest".	The forest classes that compose the project area are named as per Technical Manual for Brazilian Vegetation (IBGE, 2012). No deforested, degraded or areas otherwise modified by humans were included in the project area.	According with the conditions of the baseline and the observed during the on-site visit.
d) At project commencement, the project area shall include only land qualifying as "forest" for a minimum of 10 years prior to the project start date.	The area is considered forest as per the definition (Ramírez & Morales, 2021): "Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ". Also, satellite images that will be used for the baseline scenario analysis shows that the project area has only native forests qualified as forests for more than 10 years prior to the project start date.	According with the conditions of the baseline and the observed during the on-site visit.
e) The project area can include forested wetlands (such as bottomland forests, floodplain forests, mangrove forests) as long as they do not grow on peat. Peat shall be defined as organic soils with at least 65% organic matter and a minimum thickness of 50 cm. If the project area includes a	Not applicable. The project area does not have any forested wetlands.	According with the observed during the on-site visit and support provided.

forested wetlands growing on peat (e.g. peat swamp forests), this methodology is not applicable		

Table 12. Applicability conditions of the tool.

VT0001 - Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities, v3.0.		
Applicability conditions	Justification of Applicability	VVB assessment
AFOLU activities the same or similar to the proposed project activity on the land within the proposed project boundary performed with or without being registered as the VCS AFOLU project shall not lead to violation of any applicable law even if the law is not enforced.	The activities within the proposed project boundary does not lead to violation of any applicable law even if the law is not enforced. Also, they follow all the VCS methodologies requirements.	According with the methodology and the justification presented by the project.
The use of this tool to determine additionality requires the baseline methodology to provide for a stepwise approach justifying the determination of the most plausible baseline scenario. Project proponent(s) proposing new baseline methodologies shall ensure consistency between the determination of a baseline scenario and the determination of additionality of a project activity.	The most plausible baseline scenario is being development under the stepwise approach of VM0015 methodology, which is available as an eligible methodology in the Verra website.	According with the methodology and the justification presented by the project.

VCS AFOLU Non-Permanence Risk Tool (T-BAR), v4.0.

This tool is fully mandatory for the given project activity and must be used to determine the number of buffer credits that shall be deposited into the AFOLU pooled buffer account.

The audit team confirmed that Triunfo do Xingú Grouped REDD+ Project meets all the applicability conditions of the methodology and tools applied.

3.3.3 Project Boundary

The on-site visit permitted to the audit team confirms GHG sources, temporal and spatial boundaries, location and deforestation drivers were confirmed by verifying the consistency between the project design document, the files submitted by the project proponent were in conformance with the overfly and land tracks made.

In the documentary review process, specific sites were defined that were easily identifiable spatial limits of the project, the project area, reference region and leak belt were consolidated by the project proponent

in a georeferenced map and the conditions observed during the overflight allowed identify the good state of conservation of the project area, the factors associated with the access routes near the project and the land use systems in the area of influence, the action of the drivers at present, the development of mining activities illegal in relatively close areas, among other use factors.

During the field audit, the lines and points that define the spatial limits of the project were recorded in the Avenza Maps program, validating their correspondence with what was recorded in the PD and all supporting cartographic documentation. The georeferenced maps, enriched with supporting photographic material, were incorporated into the ESPL information management system to be consulted when required.

Temporal boundaries

The project proponent defines the temporal boundaries in the next way:

- Starting date and end date of the historical reference period*:* the adopted historical reference period is 31-August-2012 to 30-July-2022.
- Starting date of the project crediting period the AUD project activity: the project has a crediting period of 30 years, from 31-August-2022 until 30-August-2052.
- Starting date and end date of the first fixed baseline period*:* The first baseline period is from 31-August-2022 to 30-August-2028.

Carbon Pools

As described in section 3.3.8 of the VCS PD v2.5, the applied methodology considers the six (6) carbon pools, the justification for their inclusion or exclusion within the limits of the proposed AUD project activity, which are listed in tables 13 and 14 below:

Table 13. Carbon pools included or excluded within the boundary of the proposed AUD project activity

Carbon pools	Included/Excluded	Justification/Explanation of choice
Above-ground	Included	Carbon stock change is always significant
Below-ground	Included	Carbon stock change is always significant
Dead wood	Excluded	Excluded for simplification. This exclusion is conservative.
Harvest wood products	Excluded	Not significant
Litter	Excluded	Not to be measured according to VCS Methodology Requirements, 4.0.
Soil organic carbon	Excluded	Not to be measured in conversions to pasture grasses and perennial crop according to VCS Methodology Requirements, 4.0.

No forest management activities are planned in the Project Area; however, the project proponent defines the inclusion of project emissions in the event of any unplanned deforestation that cannot be prevented or controlled in the project area. It is further anticipated that in the event of a loss greater than or equal to 5% of previously verified emissions reductions and eliminations due to losses in carbon stocks in reservoirs included in the project boundary, a loss event will be reported to Verra, through the Loss Event Report.

Table 14. Sources and GHG included or excluded within the boundary of the proposed AUD project activity

Source		Gas	Included?	Justification/Explanation
Baseline	Biomass burning	CO_2	No	Counted as carbon stock change
		CH_4	Yes	Methane emissions during burning of biomass for land clearance
		N_2O	No	Nitrous oxide emissions during burning of biomass for land clearance
		Other	-	-
	Livestock emissions	CO_2	No	Not a significant source
		CH_4	Yes	Significant source of livestock emissions
		N_2O	Yes	Significant source of livestock emissions
		Other	-	-
Project Emissions	Biomass burning	CO_2	No	Counted as carbon stock change
		CH_4	Yes	Methane emissions during burning of biomass for land clearance
		N_2O	Yes	Nitrous oxide emissions during burning of biomass for land clearance
		Other	-	-
	Livestock emissions	CO_2	No	Not a significant source
		CH_4	Yes	Significant source of livestock emissions
		N_2O	Yes	Significant source of livestock emissions
		Other	-	-
Leakage belt	Biomass burning	CO_2	No	Counted as carbon stock change
		CH_4	Yes	Methane emissions during burning of biomass for land clearance
		N_2O	Yes	Nitrous oxide emissions during burning of biomass for land clearance

Source		Gas	Included?	Justification/Explanation
		Other	-	-
	Livestock emissions	CO_2	No	Not a significant source
		CH_4	Yes	Significant source of livestock emissions
		N_2O	Yes	Significant source of livestock emissions
		Other	-	In the presence of unplanned deforestation that cannot be avoided

Considering the justifications, assumptions, secondary information (such as articles and GIS information) and the design of the project, the audit team deems that project boundary is correctly defined and in compliance with the applicable methodology VM0015 and VCS requirements.

3.3.4 Baseline Scenario

According to the description of section 3.4 of the VCS PD v2.5 the project proponent establishes the most probable future scenario for the reference region and the project area in the absence of the carbon project, based on an assessment of agents, drivers, and historical patterns of deforestation. The baseline period is the 6-year period between 2022 and 2028, considering the project start date and the historical period was the 10-year period prior to the project's start, extending from 2012 to 2022, also the project defines the “extended historical period” as the 20-year period ranging from 2002 to 2022.

The VVB reviewed and evaluated the analyzes and information provided by the project proponents for the determination of the baseline, which are described below:

- The project's annual land cover maps for the period between 2002 and 2020 were obtained through the MapBiomas database that uses Landsat images with a resolution of 30 meters. Classification learning implemented in Google Earth Engine (GEE). MapBiomas uses images with minimal cloud cover constructed from a mosaic of Landsat scenes taken in various months of the year.
- The analysis of the historical change in land use and land cover: according to the GIS analysis, between 2012 and 2022, it is possible to project an accumulated deforestation of 6,167.01 ha in the project area for the period of validity of the baseline (2022- 2028). Project proponents included a clear definition of LU/LC classes for both the project area and the reference region and the leakage belt in accordance with the requirements of VM0015; The accuracy assessment of the map and all tables includes the defined LU/LC and documentary evidence was provided to support the historical LU/LC analysis performed (Appendix 1: DOCUMENTATION PROVIDED BY THE PROJECT/VCS Project Description/Annexes/3. Application of Methodology/D:\VERIFIT\Audits and RT Pablo Rodríguez\Work Activities 2023\Audits and TR 2023\REDD+ Triunfo do Xingu\Pre-visit Documents\VCS Project Description\Annexes\3. Application of Methodology\221020_TDX-BASELINE_MODELING.zip \TDX-BASELINE_MODELING, 221020_TDX-GIS_DATA_PROCEDURES.zip). The VVB concludes that the

deforestation rates measured in historical annual periods in the reference region reveal a trend of increasing deforestation rate (R^2=0.875).

- The analysis of agents, drivers, and underlying causes of deforestation of the project indicates that the main cause of deforestation in the region is the illegal suppression of forests for the implementation of pastureland, which is driven by the economical attractiveness of this activity and encouraged by a lack of law enforcement and overall sense of impunity. The dynamics of deforestation due to livestock activities involve the interaction of three actors: 1) owners who deforest their lands beyond the limits established by law, 2) land grabbers, and 3) large landowners, whose spatial correlation with deforestation is not possible to determine based on publicly available information, for which the PP this group of agents is analyzed as a single agent, since everything is reflected in a single type of post-deforestation activity, which is livestock, which is corroborated in the section 3.4.2 of the PD.
- The characteristics of the action of deforestation agents and drivers allow us to observe that unplanned deforestation occurs without distinguishing between RL areas and Non-RL areas, which is why the regulatory surplus conditions established in section 3.14.1 of the VCS Standard, v4 are met.
- The analysis of presented evidence related to deforestation agents and drivers (information such as academic articles, GIS information, news and information from institutional pages, in addition, the project proponent included actions to address the underlying causes identified. The information allows to conclude that the deforestation rate is increasing. The project proponent selected the "historical average approach" to delineate the baseline model. Table 3.19 of PD v2.5 includes historical deforestation data from 2012–2013 to 2021–2022, resulting in an annual average of 9,527.98 ha. The project proponent conducted an analysis of planned and unplanned deforestation, and based on unplanned deforestation, the Reference Region had an annual deforestation rate of 9,315.16 ha/year, as demonstrated in "250311_TdX_Deforestation_Curve.xlsx" spreadsheet. Table 3.20 and Figure 3.30 of PD v2.5 present the project annual deforestation for the next ten years (2022–2023 to 2031–2032) based on the historical average approach.
- The project proponents provided documentary evidence to support the analysis made for projection of future deforestation in the project area and leakage belt. The VVB verified the methodology compliance of the criteria, assumptions and variables used by the PP to the spatial modeling of future deforestation, which is supported in the CARs 10, 11 and 12 of the Findings Report (See Appendix 2 of VR) and in the updating of the sections 3.4.2 and 3.4.3 of the PD as a consequence of the PRR made by VERRA (included the analysis of new evidences provided to the VVB: 240523_TDX-BASELINE_MODELING.zip (document inside zip: 240523_TdX_Model_Development.xlsx)).
- The VVB concludes that the projection is the result of spatial modeling processes in defined analysis times and in accordance with the methodological requirements of VM0015, v1.1, Part 2, Steps 4.1.2 and 4.2.

The baseline scenario chosen corresponds to deforestation caused by squatters, farmers and ranchers, loggers and wood collectors (continued land use activities prior to the project). During the on-site visit, the audit team verified this project is being implemented in a region with an increase of the historical deforestation, mainly due to lack of state governance in relation to areas of special ecosystem

importance. The most likely scenario in the absence of the project is the continuation of deforestation due to the conversion of forests to pastures caused by the main drivers of deforestation.

The audit team deems that assumptions, justifications and data used in the identification of the baseline scenario are appropriately supported and can be deemed reasonable.

3.3.5 Additionality

The additionality was determined according to the "VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities, V3.0. The audit team assessed the steps of the VT0001 tool and confirms that both conditions of applicability of the tool are met because the AFOLU project activity is the same or similar to the proposed project activity on the ground within its boundaries with or without being registered as the VCS AFOLU project does not lead to the violation of any applicable law.

STEP 1. Identification of alternative land use scenarios to the AFOLU project activity.

Sub-step 1a. Identify credible land use scenarios to the proposed VCS AFOLU project activity:

i. The Continuation of the pre-project land use (Business as Usual Scenario):

This scenario involves the maintenance of the preserved forest area by the landowners, without any source of supplementary income, that is, no REDD+ activities are implemented, nor any stakeholder engagement to prevent the drivers of deforestation to act as a source of carbon loss. Monitoring and surveillance measures, taken by the landowners, will be made to privilege primarily livestock activities, then to avoid any eventual external agents land invasion being conducted by forest clearing with fire, followed by cattle ranching (business as usual scenario). Only the surveillance already done by the landowners would be applied, but not enough to stop the deforestation patterns.

According to the sources used by the project, 40% of the APA Triunfo do Xingu have already been converted to other land use different from the native vegetation, being livestock the most common use. It was also the environmental protection area most pressured by unplanned deforestation in the first quarter of 2022.

ii. Project activity on the land within the project boundary performed without being registered as the VCS AFOLU project.

The scenario would be the same one as described in option (i), but in this second scenario, effective measures would happen to curb local illegal deforestation and will be completely financed by the landowners, which wouldn't receive any kind of additional revenue executing those actions.

iii. Logging being conducted through Sustainable Forest management:

According to the legislation on the subject, there is the possibility to execute forest management activities in the forest areas from a Legal Reserve (LR) inside an APA. In this scenario, the landowner would have to develop and approve a sustainable forest management plan under the competent environmental agency to explore his legal reserve area. Executing forest management to benefit from timber resources is an expensive activity but that would generate some revenue for the landowners.

Sub-step 1b. Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations

Considering the three credible alternative land use scenarios from sub-step 1a, the project proponent develops a demonstration of compliance with all applicable mandatory legal and regulatory requirements, which the audit team deems relevant.

The advance analysis made by the project proponent is conclusive in relation to the fact that the Brazilian Forest Code (Law 12,651/2012), which prohibits deforestation in permanent preservation areas (APP) and legal reserves (RL), is not systematically applied and its non-compliance is widespread, which has been observed in more than 30% of the properties in the municipality, as well as in the APA Triunfo do Xingu, in accordance with the regulatory surplus criteria established in VT0001, version 3.0.

Sub-step 1c. Selection of baseline scenario

Based on the baseline scenario described in Section 3.4 and all common practices and the BAU scenario, the most credible scenario for TdX without revenue from carbon credits would be scenario (i), the continuation of the blueprint land use scenario. The audit team confirms that this is indeed the most viable economic alternative with lower investment costs.

Step 2. Investment analysis

The proposed project activity, without the revenue from VCU sales, is less financially attractive than scenario 1 (defined as the BAU scenario) and the project proponent performed an investment analysis to justify this assumption.

Sub-step 2a. Determine appropriate analysis method.

It was determined the simple cost analysis (Option I), which is considered pertinent for the audit team.

Sub-step 2b. – Option I. Apply simple cost analysis

The costs to implement REDD+ activities involve community engagement, monitoring and surveillance of property's areas against illegal squatters, a decent infrastructure for local workers, etc. All the most relevant costs for implementing a structured monitoring, surveillance and fire protection system were identified in partnership with the landowners and are described in Table 3.30 and Table 3.31 of the PD v2.5.

The project concludes that the AFOLU Project activity does not generate any financial or economic benefits other than VCS related income, as the conservation of the project area is an obligation defined by law without any financial incentive available for the APA Triunfo do Xingu, without the revenues of carbon credits, a systematic conservation activity for the areas would not be possible to occur.

Step 3. Barrier Analysis

The VT0001 requires investment analysis (Step 2) or Barrier Analysis (Step 3) and the project proponent opted for the Investment Analysis, already described in Step 2.

Step 4. Common practices analysis

The project proponent exposes in this step some commercially available forest conservation mechanisms, which have a limited range of applicability, and with essential distinctions between the proposed VCS AFOLU project activity and which would have low effectiveness in avoiding deforestation, especially to the APA Triunfo do Xingu.

The VVB verifies that no similar activity to the project was found as part of the common practice analysis, which allows to conclude the proposed VCS AFOLU project is not the baseline scenario and, hence, it is additional. The above was validated in the interviews and in the on-site audit process.

3.3.6 Quantification of GHG Emission Reductions and Removals

The audit team reviewed the quantification of GHG emission reductions made by the project proponents according to the VM0015 – Methodology for Unplanned Avoided Deforestation, version 1.1:

- The baseline emissions were estimated following steps of the methodology. The baseline values in the initial phased of the project were based on vegetation type collected from geospatial data (IBGE, 2022a; Nogueira, Yanai, Fonseca, & Fearnside, 2015).

According to the supporting information used by the project proponent (Barlow et al., 2020), which was confirmed through direct observation by the audit team, during the on-site phase of the audit (photographic record available at the VVB) there is solid evidence that links fires with deforestation: the process of felling the primary forest that begins with the felling of the vegetation and its drying, later the fire is used to prepare the area for agriculture, finally the fires come for the maintenance of pastures for livestock use, which are a major source of greenhouse gas emissions and air pollution and increase the risk of soil erosion and loss of soil nutrients (Jakimow et al., 2023).

Based on the information described above, the VVB confirms the relevance of the proponent's assumption according to which it is concluded that all the biomass present in the project's baseline scenario will be burned, so the parameters 〖Fburn〗_icl and 〖Pburnt 〗_(p,icl) can be reliably considered as 100%.

- The VVB reviewed the carbon stock changes due to unavoidable unplanned deforestation within the project area. An effectiveness index (EI) of the project of 90% is realistic and was estimated based in a comprehensive analysis including a benchmark comparison with the ex-post EI of similar projects, a sensitivity analysis between the EI and NPV, and an assessment of the predictive capability of the EI for each proposed project activity, evaluating which would be most effective in preventing unplanned deforestation within the project area. Patrolling, surveillance, and satellite monitoring are the most effective activities for mitigating deforestation impacts. These measures enable early detection of pasture expansion, land grabbing, illegal logging, and fires. The remaining project activities such as community engagement, capacity-building, and alternative income generation, complement these high-impact measures by promoting environmental awareness, reducing local reliance on deforestation-driven livelihoods, and strengthening long-term conservation efforts. Non-CO2 emissions from fires used as a post-clearing practice can be accounted for when sufficient data is available to estimate them, the project proponent conservatively omitted accounting for these emissions. Likewise, GHG emissions from land use implemented on deforested lands (including biomass burning) are conservatively omitted in accordance with Methodology VM0015, if these emissions occur during the development of project activities, the project will monitor them and reported to verify if there will be an increase in estimated emissions under the project scenario, the total decrease in carbon stock due to displaced deforestation and total GHG emission from biomass burning in the forest class is calculated using Equation 13 and Equation 14, respectively.

- The PP estimated post-deforestation carbon stocks, average carbon stocks of grasslands and secondary forests using Silva Neto et al. as a source. (2012) – Table 1 – 7.87 ± 0.53 t m.s. ha-1 (aerial and underground 9.44 ± 0.64 t m.s. ha-1, considering a root-shoot ratio of 0.2 (VM0015 v1.1)) and Heinrich

et al. (2021) – Supplementary Table 8 – 2.7 × 20 = 54 ± 23 tC ha-1 (or 108 ± 46 t m.s. ha-1; above ground), respectively. The carbon fraction is transformed into biomass and then converted to the values and parameters present in the PD. The aerial and underground value, considering a root to shot of 0.20, was 129.60 ± 55.20 t m.s. ha-1. The VVB confirms the relevance and conservativeness of the PP assumptions.

- The PP concludes that the error associated with secondary forest is greater than 10%, the upper value of the confidence interval was used (126.90 + 55.20 = 184.80 t d.m. ha-1 for secondary forest). The value applied after correction for the biomass error was 9.44 t d.m. ha-1 for pastureland and 184.80 t d.m. ha-1 for secondary forests. The weighted average considered was 18.11 t d.m. ha-1 (or 31.21 tCO2e, considering carbon fraction of 0.47). The baseline estimation is calculated considering the sum of the baseline emission and biomass burning minus the post deforestation class. The VVB verified the update of the PD and ensures the pertinence and the consistency with the updating of the project calculation spreadsheet.

- Leakage: Two sources of leakage are considered in this methodology and must be addressed: 1) Decrease in carbon stocks and increase in GHG emissions associated with leakage prevention measures and 2) Decrease in carbon stocks and increase in GHG emissions associated with activity displacement leakage. The leakage belt leakage belt was determined following the mobility approach described in VM0015. In addition, the project proponents accounted/justified all deforestation there. The leakage prevention measures proposed by the present project do not include improvements in agricultural or pasture management, or forage production or any other activities that reduce carbon stocks and increase GHG emissions compared to the baseline scenario are planned. For the leakage, the assumed DFL for the project is 10%.

The estimations of the net GHG emissions reductions attributed to the project were made following equation 19 of the methodology. The number of Verified Carbon Units was calculated following equation 20 of the methodology. The percentage of retention of the buffer is calculated according to AFOLU Non-Permanence Risk Tool. The overall non-permanence risk rating is 10%.

Table 15. Estimated net GHG emission reductions or removals of TdX Grouped REDD+ Project

Year	Estimated baseline emissions (tCO_2e)	Estimated project emissions (tCO_2e)	Estimated leakage emissions (tCO_2e)	Net GHG emission reductions (tCO_2e)	Buffer pool allocation (tCO_2e)	VCUs Tradable (tCO_2e)
2022 (31-August-2022 – 30-August-2023)	8.369,91	906,37	906,37	6.557,16	655,72	5.901
2023	9.183,18	994,44	994,44	7.194,29	719,43	6.474
2024	20.212,73	2.187,00	2.187,00	15.838,72	1.583,87	14.254
2025	43.234,37	4.677,09	4.677,09	33.880,20	3.388,02	30.492
2026	76.933,80	8.326,81	8.326,81	60.280,18	6.028,02	54.252
2027	96.112,51	10.403,39	10.403,39	75.305,74	7.530,57	67.775
2028	134.190,63	14.524,96	14.524,96	105.140,71	10.514,07	94.626
2029	149.623,71	16.185,97	16.185,97	117.251,78	11.725,18	105.526
2030	157.427,71	17.026,20	17.026,20	123.375,31	12.337,53	111.037
2031	158.288,57	17.121,27	17.121,27	124.046,03	12.404,60	111.641
2032	233.295,35	25.244,14	25.244,14	182.807,07	18.280,71	164.526
2033	184.564,88	19.977,84	19.977,84	144.609,21	14.460,92	130.148
2034	200.373,49	21.678,08	21.678,08	157.017,33	15.701,73	141.315
2035	256.081,67	27.705,92	27.705,92	200.669,83	20.066,98	180.602

Year	Estimated baseline emissions (tCO2e)	Estimated project emissions (tCO2e)	Estimated leakage emissions (tCO2e)	Net GHG emission reductions (tCO2e)	Buffer pool allocation (tCO2e)	VCUs Tradable (tCO2e)
2036	203.739,99	22.050,68	22.050,68	159.638,63	15.963,86	143.674
2037	253.756,00	27.473,63	27.473,63	198.808,73	19.880,87	178.927
2038	326.045,56	35.296,97	35.296,97	255.451,62	25.545,16	229.906
2039	242.775,07	26.281,72	26.281,72	190.211,63	19.021,16	171.190
2040	234.391,65	25.360,79	25.360,79	183.670,06	18.367,01	165.303
2041	145.157,10	15.704,19	15.704,19	113.748,72	11.374,87	102.373
2042	94.168,34	10.183,41	10.183,41	73.801,52	7.380,15	66.421
2043	107.672,52	11.643,09	11.643,09	84.386,33	8.438,63	75.947
2044	155.723,26	16.845,36	16.845,36	122.032,54	12.203,25	109.829
2045	162.564,71	17.580,63	17.580,63	127.403,46	12.740,35	114.663
2046	123.605,38	13.373,74	13.373,74	96.857,90	9.685,79	87.172
2047	111.902,58	12.114,13	12.114,13	87.674,31	8.767,43	78.906
2048	87.265,42	9.446,77	9.446,77	68.371,89	6.837,19	61.534
2049	66.055,32	7.153,00	7.153,00	51.749,31	5.174,93	46.574
2050	-	-	-	-	-	-
2051	-	-	-	-	-	-
Total	**4.042.715,39**	**437.467,59**	**437.467,59**	**3.167.780,21**	**316.778,02**	**2.850.988**
Total numbers of crediting years	**30**					
Average annual	**134,757.18**	**14,582.25**	**14,582.25**	**105,592.67**	**10,559.27**	**95,032**

3.3.7 Methodology Deviations

The VVB confirms that no methodology deviations were made in the design and development of the project until the completion of this document, as is described in the VCS PD v2.5 in sections 3.4, 3.5, and 3.6.

3.3.8 Monitoring Plan

The monitoring plan of the TdX Grouped REDD+ Project includes revision of the baseline, monitoring of actual carbon stock changes and GHG emissions within the project area, monitoring of land-use and land-cover change within the project area, monitoring of carbon stock changes and non-CO2 emissions from fires, monitoring of impacts of natural disturbances and other catastrophic events, and monitoring of Leakage.

The monitoring plan is described in detail in Section 5.3 of VCS PD v2.5 where the parameters available at the time of validation, the parameters to be monitored, the frequency of records, and the QA/QC procedures are considered appropriate and suitable.

Table 16. Data and parameters available at validation (section 5.1 of VCS PD v2.5)

Parameter	Unit	Description	Value	Source
CF	tC t d.m-1	Default value of carbon fraction in biomass	0.47	VM0015 (VERRA, 2012a) and IPCC (2006d) page 4.49, Table 4.4
Root-shoot ratio	t root d.m.t-1 shoot d.m.	Root to shoot ratio appropriate to species or forest type / biome; note that as defined here, root to shoot ratio is applied as belowground biomass per unit area: aboveground biomass per unit area (not on a per stem basis)	Above-ground biomass <125 t/ha = 0.2 t root d.m.t-1 shoot d.m. Above-ground biomass >125 t/ha = 0.24 t root d.m.t-1 shoot d.m.	VM0015 (VERRA, 2012a) and IPCC (2006d), page 4.48, Table 4.3
Conversion Factor	Dimension less	Ratio converting C to CO2e	44/12 = 3.67	VM0015 (VERRA, 2012a)
ab_{icl}	$Mg.ha^{-1}$	Average biomass stock per hectare in the above-ground biomass pool of initial forest class icl	Open-canopy rainforest, submontane: 174.33 Dense-canopy rainforest, submontane: 193.39	Nogueira et al. (2015)
bb_{icl}	$Mg.ha^{-1}$	Average biomass stock per hectare in the below-ground biomass pool of initial forest class icl	Open-canopy rainforest, submontane: 41.84 Dense-canopy rainforest, submontane: 46.41	Nogueira et al. (2015)
Cab_{icl}	$tCO2e.ha^{-1}$	Average carbon stock per hectare in the above-ground biomass carbon pool of class icl	Open-canopy rainforest, submontane: 300.44 Dense-canopy rainforest, submontane: 333.27	Calculated
Cbb_{icl}	$tCO2e.ha^{-1}$	Average carbon stock per hectare in the below-ground biomass carbon pool of class icl	Open-canopy rainforest, submontane: 72.10 Dense-canopy rainforest, submontane: 79.98	Calculated
$CE_{p,icl}$	dimension less	Average combustion efficiency of the carbon pool p in the forest class icl	Primary tropical moist forest: 0.50 Primary open tropical forest: 0.45	IPCC (2006b), Table 2.6, page 2.55
NCR	dimension less	Nitrogen to carbon ratio	0.01	VM0015 (VERRA, 2012a) and IPCC (2006c), page 3.50.
ER_{CH4}	dimension less	Emission ratio for CH4	0.012	VM0015 (VERRA, 2012a) and IPCC (2006a), page. 3.185, Table 3A.1.15.

Parameter	Unit	Description	Value	Source
ER_{N02}	dimension less	Emission ratio for N2O	0.007	VM0015 (VERRA, 2012a) and IPCC (2006a), pg. 3.185, Table 3A.1.15.
GWP_{CH_4}	tCO_2 $tgas^{-1}$	Global Warming Potential for CH_4	28	IPCC (2014), Box 3.2, Table 1
GWP_{N_2O}	tCO_2 $tgas^{-1}$	Global Warming Potential for N_2O	265	IPCC (2014), Box 3.2, Table 1.
$Pburnt_{p,icl}$	%	Average proportion of mass burnt in the carbon pool p in the forest class icl	100%	Local assessment
$Fburn_{icl}$	%	Proportion of forest area burned during the historical reference period in the forest class icl	100%	Local assessment
Pasture	$tCO2e.ha^{-1}$	Land used for the pasture	(7.87+7.87× Root shoot ratio)×CF× 44/12 = 16.28	(SILVA NETO et al., 2012)
EI	dimension less	Ex ante estimated Effectiveness Index	0.9	Local assessment
DFL	dimension less	Leakage displacement factor	0.1	Local assessment

Table 17. Data and parameters monitored (section 5.2 of VCS PD v2.5)

Parameter	Unit	Description	Frequency and monitoring equipment	Source
$ACPA_t$	ha	Annual area within the Project Area affected by catastrophic events at year t	Each time a catastrophic event occurs.	Remote sensing data and GIS and supervisor reports.
ABSLPAicl,t	ha	Area of initial forest class icl deforested at time t within the project area in the baseline case	Annual.	Remote sensing data and GIS.
ABSLLKicl,t	ha	Area of initial (pre-deforestation) forest class icl deforested at time t within the leakage belt in the baseline case	Annual.	Remote sensing data and GIS.
ABSRRicl,t	ha	Area of initial (pre-deforestation) forest class icl deforested at time t within the reference region in the baseline case	Annual	Remote sensing data and GIS.

Parameter	Unit	Description	Frequency and monitoring equipment	Source
$\Delta CADLK_t$	tCO2e	Total decrease in carbon stock due to displaced deforestation in the year t	Annual	Remote sensing data and GIS.
$\Delta CPAdPA_t$	tCO2e	Total decrease in carbon stock due to all planned activities at year t in the project area.	Annual	Documents, remote sensing data and GIS.
$\Delta CPSLK_t$	tCO2e	Total annual carbon stock change in leakage management areas in the project case	Annual	Documents, remote sensing data and GIS.
$\Delta CUDdPA_t$	tCO2e	Total actual carbon stock change due to unavoided unplanned deforestation at year t in the project area	Annual	Remote sensing data and GIS.
$EBBPSPA_t$	tCO2e	Sum of (or total) actual non-CO2 emissions from forest fire at year t in the project area	Areas burnt will be monitored every 5 years or if verification occurs on a frequency of less than every 5 years, examination will occur prior to any verification event	Supervisor reports, remote sensing data and GIS.
$EADLK_t$	tCO2e	Total increase in GHG emissions due to displaced forest fires at year t	Annual	Remote sensing data and GIS.
EgLKt	tCO2e	Emissions from grazing animals in leakage management areas at year t	Annual	Documents, remote sensing data and GIS.
RF_t	%	Risk factor used to calculate VCS buffer credits t	Annual	• VCS Non-Permanence Risk Report (v3.1), • Remote sensing data and GIS, • Supervisor report. • Literature data.
Deforestation in the project area and leakage belt	ha	Forest cover areas converted into non-forest areas inside the Project Area and Leakage Belt.	Annual	Calculated through remote sensing images.
ΔCabBSLLKt	tCO2e	Total carbon stock changes in the leakage belt area.	To be determined depending on the activity.	Calculated.
A_sp	ha	Area of sample plots in biomass inventory.	At least every ten years for forest biomass inventory renewal.	Recording and archiving of number and size of sample plots.
n	Dimensionless	Number of sample plots	At least every ten years for forest biomass inventory renewal	Recording and archiving of number of sample points.
DBH	cm	Diameter at breast height of a tree in cm.	Monitoring must occur at least every ten years for forest biomass inventory renewal. Where carbon stock enhancement is included, monitoring shall occur at least every five years.	Field measurements in sample plots.

The VVB compared all parameters listed in the monitoring plan to the requirements of the methodology and determined that all parameters met the requirements of the methodology. The VVB validated the compliance of the monitoring plan with the requirements of the applied methodology.

3.4 Non-Permanence Risk Analysis

In accordance with VCS requirements, the proponent applied "AFOLU Non-permanence risk tool v4.0" to assess the risk according to internal risk, external risk, natural risk, and mitigation measures for minimizing risk. The project proponent provides the NPR report v2.2 (VCS_NPRR_TriunfoDoXinguGroupedREDD+Project_v231016.pdf) and the Excel of risk tool, in response to the second round of evaluation of findings. The audit team assessed the rationale, appropriateness, documentation, and justifications of risk ratings implemented by project.

Table 18. Evaluation of the project risks

Risk	Assessment of rationale, assumptions, and justification	Assessment of quality of documentation and data provided	Conclusion
Internal risks Risk rating= 5			
Project management Risk rating= -4	The audit team evaluated the justification for the risk rating and the actions to mitigate the risk of illicit activities within the project area.	The Mitigation measure is considering that the management team includes individuals with significant experience in AFOLU project design and implementation, carbon accounting and reporting (e.g., individuals who have successfully managed projects through validation, verification and issuance of GHG credits) under the VCS Program or other approved GHG programs.	Risk rating is appropriate. The VVB finds that the mitigation measures are appropriate to cover risk.
Financial viability Risk rating= 0	The audit team evaluated the justification for rating the risks on project cash flow breakeven point	The documentation provided is a financial analysis that allowed for assessment by the audit team and is therefore of good quality.	Risk rating is appropriate.
Opportunity cost Risk rating= -6	The audit team evaluated the rationale for rating risk and mitigation; The NPV of the project activity is expected to be at least 50% more profitable than the most profitable alternative land use.	As described on Section 3.5 of the VCS PD v2.5, the most likely alternative scenario is considered the business as usual. The most credible scenario for TdX to happen without the revenue of the carbon credits would be scenario (i), the continuation of the pre-project land use scenario.	Risk rating is appropriate.

Risk	Assessment of rationale, assumptions, and justification	Assessment of quality of documentation and data provided	Conclusion
Project longevity Risk rating= 15	The audit team evaluated the justification for rating the risk and the mitigation on legal agreement or requirement to continue the management practice.	The documentation provided is the contract signed between Systemica and the landowners. The TdX Grouped REDD Project provided the description and support on forest regulations, specifically Law nº 12.651 of 2012/05/25.	Risk rating is appropriate.
External risks Risk rating= 0			
Land Tenure and Resource Access/Impacts Risk rating= 0	The audit team evaluated the justification for rating the risk and the mitigation.	The documentation provided is the description and supports forest and land tenure regulations that are allowed for assessment by the audit team and is therefore of good quality.	Risk rating is appropriate.
Community Engagement Risk rating= 0	The audit team evaluated the justification for the risk rating on the consulting process to the stakeholders associated with the project area, which has adequate support. There is no occupation by communities in the project area, and no use of the area for extractivism, but the Caboclo Village uses the Caboclo stream, which runs alongside the community, for fishing, recreation, and domestic water use. The preservation of the project area is essential for the community's well-being.	The documentation provided is a socioeconomic and financial analysis that supports the good relationship between the Project and the surrounding communities of Vila Caboclo and the existence of ongoing communication channel.	Risk rating is appropriate.
Political risk Risk rating= 0	The audit team evaluated the justification for rating the governance risk and the mitigation on Country implementing REDD+ Readiness or other activities.	The documentation provided is a description of the participation of Brazil in REDD+ activities and governance indicators.	Risk rating is appropriate.
Natural risks Risk rating= 1			
Fire Risk rating= 2	The audit team evaluated the justification for rating the	The project concludes that natural fires in the Amazon area	Risk rating is appropriate.

Risk	Assessment of rationale, assumptions, and justification	Assessment of quality of documentation and data provided	Conclusion
	fire risk and the actions of mitigation.	can occur in less than 10 years as a combination of vegetation ecology and climate, for example, burning of high combustible material induced by dry climate conditions. In the case of anthropogenic forest fire, this occurs because of the deforestation process in which the felling of the trees followed by "cleaning" of the area often ends up to fire or spark spreading to nearby forested areas (Fonseca, Ricarte, & Mangueira,2021).	The VVB finds that the mitigation measures are appropriate to cover risk.
Pest and Disease outbreaks Risk rating= 0	The audit team evaluated the justification for rating the pest and disease outbreaks risk.	There was no record of any pest and disease outbreak in the project area. Furthermore, the project area is covered by native and old-growth Amazon rainforest which increases environmental equilibrium and resilient to any pest and disease outbreaks.	Risk rating is appropriate.
Extreme Weather Risk rating= 0	The audit team evaluated the justification for rating the extreme weather risk.	The frequency of blow-down winds registered by the weather station are not classified as harmful, according to the classification scales of "Saffit-Simpson" e "Beaufort".	Risk rating is appropriate.
Geological Risk Risk rating= 0	The audit team evaluated the justification for rating the geological risk.	Additionally, the two major geological risks in the city of Altamira are flooding and landslides, but the project areas are far outside the areas delimited as high risk, according to the Brazilian's geological service.	Risk rating is appropriate.
Overall Non-Permanence Risk Rating Overall Risk Rating = 10			

The VVB carried out an assessment of all rationale, assumptions, justifications, documentation, and data used to support the risk rating considering the conditions of the baseline in the project area and the region where the project will be implemented in the state of Pará.

4 VALIDATION OPINION

The Triunfo do Xingú Grouped REDD+ Project complies with the validation criteria for projects set out in VCS Version 4. ESPL has reviewed the project description documents and subsequently carried out the review of supporting documentary information, site visit, overflight, land tours and interviews to confirm the fulfilment of stated criteria.

The project proponent applies in adequate manner the VM0015 methodology for avoiding unplanned deforestation (AUD) (VERRA, 2012a) under the VCS program. The baseline has been determined in accordance with the stated approved baseline methodology and all the relevant modules and tools described and used by the project.

As summary the validation team able to conclude that:

- The project is in line with all relevant host country criteria (Brazil) and all relevant VCS version 4 program guidelines requirements.

- The project additionality is sufficiently justified in the PD and support information provided by the project.

- The monitoring plan is transparent and adequate and in line with applied baseline and monitoring methodology.

The calculation formulas and use of parameter for the project emission reductions estimation is transparent and in line with the requirement of the applied methodology. The ex-ante projection of emission reductions given is found to be appropriate, conservative and in line with all the requirements. The project also applies on adequate manner a buffer of 10% due to the Non-Permanence-Risk calculation to the validation process.

The implementation of the initial project activity instance will result in reduction of GHG emissions through the conservation of the project area of 10,636.02 hectares who conserve a representative sample of the Amazone biome, located in the municipality of Altamira, in the State of Pará, Brazil, generating a baseline emissions reduction of 4,042,715.39 tCO_2e over the 30 years in the validated crediting period of 31st of August, 2022 to the 30th of August 2052, representing annual average GHG emission reductions and removals 134,757.18 tCO_2e.

The validation process of the GHG statement was conducted in accordance with criteria of the ISO 14064-3; 2019. Validated GHG emission reductions and removals in the above period are resumed in Table 15 of section 3.3.6 of VR.

Approved by

Dr. Kaviraj Singh

CEO
Earthood Services Limited

Date:09-09-2025
Place: Gurugram, Haryana

APPENDIX 1: <DOCUMENTATION PROVIDED BY THE PROJECT>

FOLDERS	SUBFOLDERS/ FILES				
Non-Permanence Risk	Annexes	1. Internal Risk	221014_CV Rodrigo Camargo english.pdf		
			221014_Project Agrocortex REDD Verra PD v5.pdf		
			221014_Project CIKEL REDD Verra PD.pdf		
			221014_Project Vale Florestar Project Design.pdf		
			221014_Resume Adriano Grigolo.pdf		
			221014_Resume Larissa Paulista.pdf		
			221014_Resume Linkedin André Gomide.pdf		
			221014_Resume Linkedin Bibiana Duarte.pdf		
			221014_Resume Linkedin Isabella Erzinger.pdf		
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			221014_Resume Linkedin Thiago Ricci.pdf		
			221014_Resume Manuela Padilha.pdf		
			221014_Resume Nathalia Aguiar.pdf		
			221014_Resume Nicole Chacon.pdf		
			221014_Resume Rafael Brown.pdf		
			221014_Resume Rodrigo Collet.pdf		
			221014_Resume Thiago Viscondi.pdf		
			221014_Systemica-Didácio contract.pdf		
			221020_Resume Marcus Pereira.pdf		
			221226_Systemica-Sefer contract.pdf		
			230206_Santa_Marta_Livestock.pdf		
			230309_TdX_Cashflow	Consultoria	2022-05-04v1a – Preguntas.docx
					2022-05-04v1b – Preguntas.docx
					2022-05-05v1c – Preguntas.docx
					2022-05-13 Anotacoes
					2022-05-13 Reuniao com Consultor Marcione.docx
					2022-05-20 Respostas.docx
					2022-05-23 Respostas – Anotado(uso interno).docx
					2022-05-24 – Preguntas – Resolver Pendencias.docx
					2022-05-26 – Pendencias.docx
					2022-06-02 – Pendencias.docx
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					2022-06-07b – Ultimas Pendencias.docx
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					Vtn-2021pdf
				Modelos Referenciais	22-02-10 – Fundo de Aval v5a.xlxs
					2021-11-09 - PiauiAgroModelagemEconomicaGanhoEstado.xlxs

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					ITR.jpeg
					Modelo Agroflorestal – BETA -37.xlxs
				Parametros Externos	Modelo de Pecuaria – Parametros Externos – v1.docx
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				230308_Senado_2023.pdf	
				230308_Vehicle.pdf	
				230309_Fuel_price.xlxs	
				230309_Signaling Plate.pdf	
				230309ª_TdX_CashFlow.xlxs	
				Pasture_references.zip (contiene las carpetas descritas al inicio)	
		2. External Risk	221014_Socioeconomics_IndigenousLands.pdf		
			221014_Socioeconomics_QuilombolaCommunities.pdf		
			221014_Socioeconomics_Settlements.pdf		
			221014_Systemica-Didácio contract-pdf		
			221226_Systemica-Sefer contract.pdf		
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				230308_ITERPA Retiro Encantado.pdf	
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				230308_ITERPA Fazenda Patacho.pdf	

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			221014_CV - Marco Aurélio - Aug2022.pdf	
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			IBGE2022.pdf
			INPE2022a
			INPE2022b.pdf
			INPE2022c.pdf
			IPAM2019.pdf
			Loft2011.pdf
			MMA2022a
			MMA2022b NÃO ESTÁ CITADO NO DOC.pdf
			PDRSXingu2010.pdf
		3.Aplication of Methodology	ABIEC2022.pdf
			AmazonFund2022.pdf
			Barbosa2015.pdf

FOLDERS	SUBFOLDERS/ FILES		
			Bartholomeu2012.pdf
			BCB2018.pdf
			Breiman2001.pdf
			CETEM2014.pdf
			Chander2009.pdf
			Coelho-Junior2022.pdf
			Costa2013.pdf
			daSilva2014.pdf
			DCANTT2020.pdf
			Deutsche2020.pdf
			dosSantos2017.pdf
			FAOUN2021.pdf
			Farr2007.pdf
			ForestCode2012.pdf
			ForestService2006.pdf
			Fuchs2020.pdf
			G12021a.pdf
			G12021b.pdf
			Hashizume2021.pdf
			Hashizume2018.pdf
			IBGE2012.pdf
			IBGE2020.pdf
			IBGE2022a.pdf
			IBGE2022b.pdf
			Imazon2015.pdf
			Imazon2022.pdf
			InfoAmazônia2020.pdf
			INPE2022a.pdf
			INPE2022b.pdf
			ISA2012.pdf
			Justice2006.pdf
			Kottek2006.pdf
			MapBiomas2022.png
			Margulis2003.pdf
			Margulis2004.pdf
			NationalPolicyForPES2021.pdf
			NotíciasAgrícolas2022.pdf
			PNMA1981.pdf
			RedeXingu+2021.pdf
			Riveiro2009.pdf
			Rosa2016.pdf
			SNUC2000.pdf
			SoaresFilho2002.pdf
			Souza2017.pdf
			SouzaJúnior2020.pdf
			TdXCreationDecree2006.pdf
			TerraBrasilis2022.pdf

FOLDERS	SUBFOLDERS/ FILES		
			UnBCiência2016.pdf
			Verra2019.pdf
			Vieilledent2021.pdf
			VM0015-Methodology-for-Avoided-Unplanned-Deforestation-v1.1.pdf
			VT0001v3.0.pdf
			Wan1999
			WWF2018.pdf
			WWF2020.pdf
			WWF2022.pdf
		4.Quantification	G12021.pdf
			IBGE2022.pdf
			IMAZON2022.pdf
			IPCC1995.pdf
			IPCC2006a.pdf
			IPCC2006b.pdf
			IPCC2006c.pdf
			IPCC2006d.pdf
			IPCC2006e.pdf
			Nogueira2014.pdf
			VM0015-Methodology-for-Avoided-Unplanned-Deforestation-v1.1.pdf
		5.Monitoring	Assis2019.pdf
			IBGE2022.pdf
			InfoAmazônia2020
			INMET2022.png
			INPE2022.png
			IPCC1995.pdf
			IPCC2006a.pdf
			IPCC2006b.pdf
			IPCC2006c.pdf
			IPCC2006d.pdf
			IPCC2006e.pdf
			MacDicken1997.pdf
			MapBiomas2022.png
			Nogueira2014.pdf
			Penman2003.pdf
			SilvaJunior2020.pdf
			VM0015-Methodology-for-Avoided-Unplanned-Deforestation-v1.1.pdf
	VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230314c.pdf		
	VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230314c-Aud.pdf		
	VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522.pdf VCS_PD_TriunfoDoXinguGroupedREDD+Project_v231016.pdf		
Maps Georef	Mapa_TDX_legenda_LEAKAGE.pdf		
	Mapa_TDX_legenda.pdf		
230309a_DocumentManagement.pdf			

APPENDIX 2: <FINDINGS>

FAR ID	01	Date: 03/04/2025
Description of FAR		
In October 2024, State Secretariat for the Environment and Sustainability of Pará (SEMAS) listed the Pará REDD+ Program under the Art TREE Registry[10] with a start date of 1 January 2023. The project proponent must demonstrate that the risk of double counting/double-claiming will continue being assessed during future verification periods.		
Project participant response		Date: XX/XX/XXXX
Documentation provided by project participant		
DOE assessment		Date: XX/XX/XXXX

CAR ID	01	Date: 15/05/2023
Description of CAR		
Regarding the Belcon, Santa Marta, Retiro Encantado, Vó Lina, Patacho and Campo Lindo farms (columns D to I of the attached Worksheet), only copies of the Land Regularization Processes before ITERPA, proposed by the occupants/applicants of Santa Maria Pecuária and Byblos Agronegócio Holding LTDA, with the purpose of obtaining and legitimizing the ownership of these properties, all located in Altamira and São Felix do Xingu Pará, and included in Gleba Altamira II (larger area of "matrícula" 1075 Book 2-C RGI Altamira) collected by the state of Pará, in the form of Exchange ("Permuta") under the terms of State Law n. 8.878/2019 and Regulatory Decree 1.190/2020 Art. 86. The proposal for regularization and legitimization of these areas occupied by Byblos and Santa Maria is still in progress before ITERPA, given that, although the Technical Division of ITERPA has manifested itself in a favorable manner to the request of the applicants, since apparently the legal requirements have been complied with, such manifestation is still subject to the Legal Opinion, to verify the legitimacy of the applicants, as well as the final approval of the Presidency of ITERPA, which are still pending. According to the information available, the technical division of ITERPA, manifested itself in favor of the regularization procedure, informing: (i) that the applicant has exercised quiet and peaceful possession for more than 20 years over the area, which has a livestock destination and activity; (the Project Proponent is requested to confirm/evidence the initial term of possession, whether by purchase or simple occupation, as well as providing the Registration of the Greater Area of Glebe Altamira II - Registration 1075). PENDING (ii) That the area is located in the APA Triunfo do Xingu;		

[10] https://art.apx.com/mymodule/reg/TabDocuments.asp?r=111&ad=Prpt&act=update&type=PRO&aProj=pub&tablename=doc&id1=124

CAR ID	01	Date: 15/05/2023

(iii) who is the holder/assignee of other titles located in Gleba Altamira VI - Trairão, which are intended to be exchanged, considering that they affect the Menkragnoti Indigenous Land in addition to the acquisition of certain surplus areas for the value of the VTN of ITERPA;

(iv) There is similar information in other ITERPA processes of interest to applicants and third parties who request the same modality of regularization claiming the ownership of the same lots subject to exchanges ("permutas"). In this sense, there is an express determination for ITERPA's Legal Department to analyze the question of legitimacy to grant the request.

(v) The processes are pending the manifestation of the DEAF - Technical Opinion (some) and the Legal Opinion of ITERPA (all) for their continuation and eventual final approval by the Presidency, in addition to the discharge of the value of the surplus areas after and if the approval.

In this sense, due to the absence of a "matrícula" or a definitive decision on the land regularization procedure, we understand that the possession of these properties (Farms Belcon, Santa Marta, Retiro Encantado, Vó Lina, Patacho and Campo Lindo - columns D to I of the Spreadsheet) still it is not supported by a just Title. PENDING

In addition, the documentation presented by the Project Proponent does not guarantee compliance about the topics:

a) CCIR: the CCIR of Belcome, Santa Maria, Retiro Encantado, Vó Lina, Patacho, and Campo Lindo farms were not provided. PENDING

b) ITR: proof of payment of ITR for the last 5 years' exercises of the Nossa Senhora Aparecida, Belcome, Santa Maria, Retiro Encantado, Vó Lina, Patacho, and Campo Lindo farms were not provided. PENDING

c) CAR: the CAR of Belcome, Santa Maria, Retiro Encantado, Vó Lina, Patacho and Campo Lindo farms were not provided. PENDING

d) Certificates from the Federal and State Public Ministry were also not made available from all project farms. PENDING

e) Certificate of debts in the name of Byblos Agronegócio Holdings LTDA was not provided. PENDING

f) Certificates issued by the State Environmental Agencies of all project farms were not provided. PENDING

g) Nossa Senhora Aparecida farm: The Project Proponent provided the certificate issued by the State Court of Justice from Pará and Distrito Federal and it were identified two processes. It is not clear that such processes do not imply restriction or liens about the Property. PENDING

Project participant response	Date: 13/06/2023

Initially, we would like to reiterate that, at this time of the VCS validation audit, we are unable to present all the requested documents proving ownership of the entire project area, since a large part of this area

CAR ID	01	Date: 15/05/2023

(eligible forest in Rafael Sefer's farms) is currently undergoing a land regularization process. However, as supported by the VCS standard v4.4 and argued below, we assure that the documents already submitted for the audit team are sufficient to satisfy the requirements of the VCS program at validation.

According to section 3.7 of the VCS Standard, whose relevant excerpts are copied at the end of the text, "Project ... proponents must demonstrate that they have the legal right to control and operate project ... activities". In order to demonstrate such legal right, the VCS Standard states that the project description must be accompanied by "evidence establishing project ownership accorded to the project proponent". In the specific case of the Triunfo do Xingu Grouped REDD+ Project, the applicable evidence follows from the following VCS Standard's sentence: "An enforceable and irrevocable agreement with the holder of the ... property or contractual right in the land ... that generates GHG emission reductions ... which vests project ownership in the project proponent". The contracts (annex: "221014_Systemica-Didácio contract.pdf"; "230515_DidacioContract_AnnexIII.pdf"; and "221226_Systemica-Sefer contract.pdf") between Systemica and the landowners constitute an enforceable and irrevocable agreement with the holders of the lands that generate GHG emission reductions which effectively vests project ownership in the project proponent. Therefore, at this time, in order to complete the evidencing of the project proponent's legal right to control and operate the project activities, it only remains to demonstrate that the aforementioned landholders have ownership or contractual rights over the entire project area.

However, item 3.11.4 of the VCS standard, whose relevant passages are also copied at the end of the text, brings specific remarks for AFOLU projects regarding how the "project proponent shall demonstrate control over the entire project area with documentary evidence establishing project ownership". In particular, the following note is applicable to the Triunfo do Xingu Grouped REDD+ Project: "Where the project proponent does not yet have control over the entire area at validation, the entire project area ... is to be validated as if it were under control and the project is ready to be implemented". That is, the absence of project-ownership documentary evidence demonstrating control over the entire project area does not prevent project validation. In fact, where "less than 80 percent of the total proposed area of the project is under current control at validation", "project shall be verified within five years of validation", which indicates that control over the project area is required to be demonstrated only at project verification, when "the size of the project becomes fixed".

Nonetheless, although evidencing control of the entire project area is not necessary at validation, great efforts have been directed at updating and presenting documentary evidence of land ownership to the best of our ability at this time. In addition, we would like to emphasize that, as already demonstrated, both landowners hold quiet and peaceful possession of the project area and the pending land regularization processes have positive prognoses. That is, there is no foreseeable threat or risk to the control and operation of project activities.

Next, we thoroughly clarify each point of interest raised by the auditors or by our own due diligence procedure. And for each new document that corroborates to the "TdX Proof of Title" folder has been accordingly updated into the "230613_TdX Proof of Title.zip".

(i) It is possible to prove the possession exercised by Santa Maria Agropecuaria LTDA. and Byblos Agropecuaria Holding LTDA. through the technical report of view carried out by the Instituto de Terras do Estado do Pará - ITERPA, which are in the attachment "230602_ITERPA's inspectionreports.pdf". The registration number 1075 of the RGI of Gleba Altamira II is in the attachment "230526_Registrationanddominialchain.1075AltamiraII.pdf".

(iv) The process 2022/872406, whose proponent was Sebastião Rogério Coelho Morais, was archived due to a desistance request from the proponent himself for lack of documentation. Although this information is

CAR ID	01	Date: 15/05/2023

not contained in process 2022/873384 (titling of the Belcom Farm), the process has been filed since October 18, 2022, according to the attachment "230602_ ITERPA process2022872406.pdf", which rules out the allegation of duplicity.

(v) As stated at the beginning of our response, pending documents that would evidence, through proof of ownership, control over the entire project area should not prevent project validation. Despite this, we present below the requested documentation or the current status of the process for obtaining it.

a) The farms Belcon, Patacho, Santa Marta, Vó Lina, Campo Lindo, Retiro Encantado e Vó Lina are not yet registered in the CCIR, due to the ongoing titration process, files attached as: “230602_ITERPAProcess(SeferFarms).zip”. After the process is concluded, the registration will be provided at the time of the first verification of the project, in accordance with the VCS Standard v4.4.

b) The ITR of the Nossa Senhora Aparecida farm is in compliance, being proven by the Debt Clearance Certificate that is attached “230526_negativecertificateofdebitsITR_NossaSenhoraAparecida.pdf”. The farms Belcon, Patacho, Santa Marta, Campo Lindo, Retiro Encantado e Vó Lina are not yet registered in the ITR, due to the ongoing titration process “230602_ITERPAProcess(SeferFarms).zip”. After the process is concluded, the registration will be provided at the time of the first verification of the project, in accordance with the VCS Standard v4.4.

c) The CAR document of the farms was attached as “230526_CARfarmsAltamira.pdf” and updated in the “230613_TdX Proof of Title.zip”.

d) The certificates from the Federal Public Ministry are in the attachment "230526_Federalpublicministrynegativecertificates.pdf".

The certificates from the State Public Ministry were requested for the agency, but they are not issued immediately, which means that they would remain pending to be made available by the agency. In the attachment "230526_Requestsfornegativecertificatefromthestatepublicministry.pdf" follows the requirements made to obtain them from the State Public Ministry. However, the request for the documents with the endorsement of several Pará state prosecutors' offices has no direct relation to land ownership or land tenure issues in the project area. The Public Ministry of Pará only issues these negatives indicating the existence of processes in the name of Sefer and Didácio (legal owners), which will not necessarily imply a sentence against them or any onus on them. The possession of the land is guaranteed by all the land documents already provided.

e) The certificate of debts in the name of Byblos Agronegócio Holdings LTDA is in the attachment “230526_negativecertificateofdebts_Byblos.pdf”

f) The certificates were requested from the State Environmental Agency, but they are not issued immediately. In the attachment "230602_applicationforenvironmentalagencycertificate.SEMAS.pdf" follows the requirements made to the agency. We believe that the certificates will be available in the coming weeks.

g) The lawsuit nº 0703752-08.2021.8.07.0009, in progress at the Court of Justice of the Federal District does not refer to the project area. Thus, there is no direct or indirect relationship that may interfere with the project. As per attachment "230602_ Report - RSA - TJDFT.pdf".

CAR ID	01	Date: 15/05/2023

According to the attachment "230602_ Report - RSA - TJPA.pdf", lawsuit n° 0003326-69.2012.8.14.0005, in progress before the Court of Justice of Pará does not represent risks to the project, considering:

There is no formal evidence that the area discussed in the lawsuit refers to the project area. The only existing evidence is a croquis unilaterally produced by the Claimant;

The subject of the lawsuit is the former possession of an area supposedly corresponding to a portion of the Nossa Senhora Aparecida farm, a totally unfounded discussion considering the valid property title in the name of Didácio Milhomens;

The landowner, Didácio Milhomens, has all the regular land documentation since 2015, in addition to the quiet and peaceful possession of the property, at least throughout this period;

The supposed possessory squatting alleged in the initial action would have been practiced by a third party (Alexandre Borges Bernardes), not Didácio Milhomens, which characterizes the procedural measure adopted as totally inadequate;

The action is not based on any documentary evidence, and the Claimant itself states that it voluntarily left possession of the area in 2008 and has not exercised any dominion over the area since then.

Response references:

VCS Standard v4.4

3.7 Ownership

Project and jurisdictional proponents must demonstrate that they have the legal right to control and operate project or program activities.

Requirements

3.7.1 The project description shall be accompanied by one or more of the following types of evidence establishing project ownership accorded to the project proponent(s), or program ownership accorded to the jurisdictional proponent(s), as the case may be (see the VCS Program document Program Definitions for definitions of project ownership and program ownership). To aid the readability of this section, the term project ownership is used below, but should be substituted by the term program ownership, as appropriate:

6) An enforceable and irrevocable agreement with the holder of the statutory, property or contractual right in the land, vegetation or conservational or management process that generates GHG emission reductions or removals which vests project ownership in the project proponent.

3.11 Project Location

AFOLU Projects

3.11.4 The project proponent shall demonstrate control over the entire project area with documentary evidence establishing project ownership, noting the following:

2) Where the project proponent does not yet have control over the entire area at validation, the entire project area (that shall be specified in accordance with Section 3.11.2) is to be validated as if it were under control and the project is ready to be implemented.

3) Where less than 80 percent of the total proposed area of the project is under current control at validation, the following applies:

CAR ID	01	Date: 15/05/2023

a) It shall be demonstrated that the result of the additionality test is applicable to the project area at the time of validation and to the entire project area to come under control in the future.

b) The monitoring plan shall be designed such that it is flexible enough to deal with changes in the size of the project.

c) The project shall be verified within five years of validation. At verification, the size of the project becomes fixed.

Documentation provided by project participant

Annexes:
230613_TdX Proof of Title.zip
230602_ITERPA's inspectionreports.pdf
230526_Registrationanddominialchain.1075Altamiral.pdf
230602_ITERPA process2022872406.pdf
230602_ITERPAProcess(SeferFarms).zip
230526_negativecertificateofdebitsITR_NossaSenhoraAparecida.pdf
230526_CARfarmsAltamira.pdf
230526_Federalpublicministrynegativecertificates.pdf
230526_Requestsfornegativecertificatefromthestatepublicministry.pdf
230526_negativecertificateofdebts_Byblos.pdf
230602_application for environmental agency certificate.SEMAS.pdf
230602_ Report - RSA - TJDFT.pdf
230602_ Report - RSA - TJPA.pdf
221014_Systemica-Didácio contract.pdf
230515_DidacioContract_AnnexIII.pdf
221226_Systemica-Sefer contract.pdf
230519_STA MARTA_Title.pdf
230519_VÓ LINA_Title.pdf

DOE assessment	Date: 11/07/2023

1. In relation to the Santa Marta and VóLina Farms, the land regularization processes concluded in the administrative phase with the signing of the Change Title and homologation of the regularization of these areas in February 2023, only pending the opening of the registry before the Competent Property Registry.

2. In relation to the Retiro Encantado Farm, the administrative regularization process is already included in the Favorable Declaration of the Legal Department of ITERPA in January 2023, pending the signing of the Stock Title and approval of the regularization of this area, as well as the opening registration with the competent Land Registry.

3. Regarding the Belcón, Patacho and Campo Lindo fields, ITERPA's Legal Opinion is still pending, as well as the final approval of the ITERPA Presidency, so that the Title of Change can be signed and the regularization of this area approved. as well as the opening of the registration before the competent Property Registry.

4. In relation to the other documents, pending issues are detailed below (See proof of title form):

(i) CCIR, the proponent of the project delivered the one for Fazenda Nossa Senhora Aparecida, while the others are pending.

(ii) Georeferencing, we only received that of Fazenda Nossa Senhora Aparecida, while the rest are pending due to the land regularization process.

CAR ID	01	Date: 15/05/2023

(iii) ITR, we only received the Debt Settlement Certificate from Fazenda Nossa Senhora Aparecida, the rest being pending.

(iv) Environmental Certificates, we receive Liquidation and Embargo certificates from IBAMA, the Environmental Certificates from the State Authority are needed.

(v) Certificates from the Federal and State Public Ministry, the MPF Qualification Certificates were delivered, the Certificates from the State Public Ministry are missing.

Considering the lack of evidence mentioned above, the CAR remains open

Project participant response	Date: 25/07/2023

It is important to reiterate that, as stated in the previous response, proof of control over the project areas through ownership should only be provided during the verification according to the methodology. However, Systemica team is committed to addressing all issues raised given its current capacity. All new documents are also updated in the "*230721_TdX Proof of Title.zip".*

1. The properties already titled, Santa Marta and Vó Lina, are close to starting the registration process with the competent authorities (INCRA, the Brazilian Federal Tax Service and the General Registry of Real Estate). At this moment, there is no documental update to be presented to the audit body.

2. The Retiro Encantado farm is in the expected process of titling and regularization of the remaining land documents. It is important to note that the State has already recognized the previous ownership of the area by the applicant (Survey Report) and the possibility of title exchange (DEAF Decision). The remaining bureaucratic procedures for the issuance of the requested documents are still pending. To conclude, Systemica wishes to point out that the Right and Domain over the farm is duly characterized. The titling process is shown in the attachment "*230602_ITERPAProcess(SeferFarms).zip*".

3. Both Farms Belcon and Patacho had the publication of the homologation of the exchange of rights process published in the "*Diário Oficial"* from the Pará State, nº 35.467 of July 12, 2023. As the attachment "*230712_DOEPA.PublicaçõesdosTítulosBelconePatacho.pdf*". The Campo Lindo farm is in the expected process of titling and regularization of the remaining land documents.

4. In relation to the other documents, pending issues are answered below:

(i) Mr. Rafael Sefer's properties do not yet have CCIR registration, as their registration is subject to the opening of the General Real Estate Registry. Once the titles have been granted, these procedures will be carried out.

(ii) The areas of Mr. Rafael Sefer already have georeferencing, according to the Descriptive Memorial and CAR. The georeferencing registered in the SNCR (SIGEF) depends on the issuance of other documents that are in progress.

(iii) The properties owned by Mr. Rafael Sefer have not yet been registered for collection of the Rural Territorial Tax due to the ongoing land titling process. It is important to note that the ITR declaration requires registration in the National Rural Property Registry - CNIR, which in turn depends on the CIB registry that requires titling and registration, which will be carried out after the concession of titles and the proper opening of registration in the competent Real Estate Registry. As soon as all this procedure is completed, the registration will be provided to comply with the relevant tax obligations.

(iv) The official certificates issued by the Environment and Sustainability State Secretary are included in the attachment "*230720_CertidõesSEMASPA.pdf*" and it is possible to evaluate that the project proponents are in a regular position with the municipality.

(v) The requests were duly submitted, as evidenced by the requests sent to the Public Prosecutor's Office of the Pará State "230526_Requestsfornegativecertificatefromthestatepublicministry ". However, so far, the

CAR ID	01	Date: 15/05/2023

State Public Prosecutor's Office has only issued the certificate of the owner Didácio Milhomens Barros, as attached "*230720_CertidãoNegativaMPPA.pdf*".
However, it is important to emphasize that Systemica and the Landowner are committed to solving that aspect of the authorship, despite the lack of manifestation of the agency regarding the certificates of Santa Maria Agropecuária LTDA. and Byblos Agronegócio Holding LTDA. Furthermore, it is understood that the project should not be harmed by the lack of answers from third parties. The project proponent will continue to monitor and seek a position from the Public Prosecutor's Office, so that all stages of the project can move forward with security and transparency.
In addition, the negative certificates of legal action prove that there are no ongoing legal proceedings that could compromise the control of the area by the landowners.

It is reiterated as argued in the previous response, that the request for the documents with the endorsement of several Pará state prosecutors' offices has no direct relation to land ownership or land tenure issues in the Project Area.

Documentation provided by project participant

Annexes:
230602_ITERPAProcess(SeferFarms).zip
230712_DOEPA.PublicaçõesdosTítulosBelconePatacho.pdf
230720_CertidõesSEMASPA.pdf
230526_Requestsfornegativecertificatefromthestatepublicministry.pdf
230720_CertidãoNegativaMPPA.pdf
230721_TdX Proof of Title.zip

DOE 2nd assessment	Date: 05/08/2023

1. About Belcome, Santa Marta, VóLina, and Patachó farms, the land regularization processes were concluded in the administrative phase with the signing of the approval of the procedure for these areas by ITERPA and the signing of the terms of exchange for the Santa Marta and VóLina farms in February 2023, pending the signature of the terms of exchange of the Belcome and Patachó farms, and the opening of the 4 (four) registrations (*matrículas*) before the competent Real Estate Registry.

2. About the Retiro Encantado farm, the administrative process of regularization already recevied a Favorable Manifestation of the Legal Department of ITERPA in January 2023, pending the signature of the Exchange Title and approval of the regularization of this area, as well as the opening of the registration before the competent Property Registry.

3. Regarding the Campo Lindo farm, ITERPA's Legal Opinion is still pending, as well as the final approval of the ITERPA Presidency, so that the Title of Change can be signed and the regularization of this area approved, as well as the opening of the registration before the competent Property Registry.

4. In relation to the other documents, pending issues are detailed below (See proof of title form). It is well noted that most of which depend upon conclusion of regularization process with ITERPA and opening of respective Autonomous Real State Record (*matricula*):

> (i) CCIR, the proponent of the project delivered the one for Nossa Senhora Aparecida farm. About the other farms, according to information from the proponent, the regularization of the INCRA CCIR and CIB/NIRF registrations of the Federal Revenue will be carried out after the regular opening of registrations.
>
> (ii) Georeferencing, we only received that of Nossa Senhora Aparecida farm, while the rest are pending due to the land regularization process.

CAR ID	01	Date: 15/05/2023

(iii) ITR, we only received the Debt Settlement Certificate from Nossa Senhora Aparecida farm, About the other farms, according to information from the proponent, the regularization of the INCRA CCIR and CIB/NIRF registrations of the Federal Revenue will be carried out after the regular opening of registrations.

(iv) Certificates from the Federal and State Public Prosecutor's Office, we received the Clearance Certificates from the MPF, pending the Certificates from the State Public Prosecutor's Office of the district of the properties. Please note that the certificate from the Public Ministry of Belém do Pará does not cover the counties of São Felix do Xingu and Altamira.

With the above reservations, we understand that the project proponent partially complies with the Proof of Title of this project. In short, for 6 of the 7 farms, land ownership is demonstrated, with the approval of the regularization process by ITERPA, but some legal documents related to ownership and legal compliance are still pending. Whereas for 1 farm (Campo Limpo), the final approval from ITERPA is envisaged, but still pending.

In compliance with VCS Standard v4.4 requirement 3.7.1, the Project Proponent provided evidence to comply with "*an enforceable and irrevocable agreement with the holder of the statutory, property or contractual right in the land, vegetation or conservational or management process that generates GHG emission reductions or removals which vests project ownership in the project proponent*".
Requirement 3.11.4 of VCS Standard v4.4 states "*demonstrate control over the entire project area with documentary evidence establishing project ownership*". The PP demonstrated that has undisputed possession of all the project areas but does not have yet all documentation to demonstrate conclusively the property ownership of Campo Limpo farm. The PP provided strong evidence that it is in the process of land tenure regularization of the farms that make up the project and is expected to have full legal control over the entire Project area shortly.
Requirement 3.11.4 also states that "*Where the project proponent does not yet have control over the entire area at validation, the entire project area (which shall be specified by Section 3.11.2) is to be validated as if it were under control and the project is ready to be implemented*", which is the case of TdX project.

According with the property rights analysis developed by the audit team, there are some documents that the project proponent should be included in the evidence of the project to the first verification.

However, accordingly with the PRR requirements from Verra, the VVB includes one FAR at the end of the present appendix.

Finding closed successfully.

CAR ID	02	Date: 24/04/2023

Description of CAR

VCS-Program-Guide_v4, 3.15.2 Quality management procedures to manage data and information shall be applied and established. Where applicable, procedures to account for uncertainty in data and parameters shall be applied in accordance with the requirements set out in the methodology.

1. The Project Proponent did not provide or does not cited correctly some supports, among others:

a) Section 1: UNEP, 2022; BAMA, 2022; DE & INDÚSTRIAS, 2006; Ramírez & Morales, 2021; FG Assis et al., 2019; ISA, 2021; PMA, 2021; SFB, 2019; SEMAT, 2012; HRW, 2019; Brasil, 2019.

b) Section 2: IBGE, 2022c; IBAMA (2022); DE & INDÚSTRIAS, 2006.

c) Section 3; GEE, 2022; Gillies, 2019; QGIS, 2022; INPE, 2020; GFW, 2022; LÁU, 2006; Bonham Carter & Bonham Carter, 1994; Xingumais, 2021; IMAZON, 2022a; SEMA, 2006; IMAZON 2022b; Brasil, 2021;

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Brasil, 2000; SEMA, 2006; Brasil, 2006; Brasil, 1981; PTS, 2022; ICMBIO, 2022; FundoAmazonia, 2022; CNN, 2022.

d) Section 5: FG Assis et al., 2019.

e) NPR Natural Risk: Fonseca et al.; IBAMA, 2022; INMET, 2022.

2. The subtitle of Figure 1.2 of PD v1.04 does not correspond to that shown on the map (the subtitle mentions the year 2020 and the map shows the deforestation of 2022).

3. The subtitle of Figure 1.6 describes UPA instead of APA Triunfo do Xingu.

4. There is a typo in the title of section 2.5 of PD v1.04.

5. PD v1.04, page 76: the PCxi variable is described in Portuguese.

6. There is a typo in the first paragraph on page 85 of PD v1.04:

> The possible transitions in the historical maps are schematized in Table 3.9 and the meaning of each transition is explained in
>
> Table 3.10.[71] Persistence-type transitions are omitted since they are trivial. We should mention that in future predictions only the "Deforestation" transition occurs – regeneration is not accounted for in the baseline period.

7. PD v1.04 section 3.4.1 – "Map accuracy assessment" states "The precision values obtained year by year can be consulted in the Map Biomas platform https://mapbiomas.org/estatisticas".

The Project Proponent describes throughout PD v1.04 that the MapBiomas maps used in the project are from Collection 6. However, the link to the MapBiomas website leads to the page with the statistics of Collection 7.

8. The years described in the legend of Table 3.16 – "Confusion matrix for validating the 2021 and 2022 coverage maps" do not correspond to the values expressed in the table:

Table 3.16: Confusion matrix for validating the 2021 and 2022 coverage maps.

Class	Confusion Matrix - 2021		Total	Confusion Matrix - 2019		Total
	Non-Forest	Forest		Non-Forest	Forest	
Non-Forest	54000	15300	69300	66600	11700	78300
Forest	1800	153900	155700	2700	144000	146700
Total	55800	169200	225000	69300	155700	225000

9. In section 3.4.2 of PD v1.04, there is a error in chart name:

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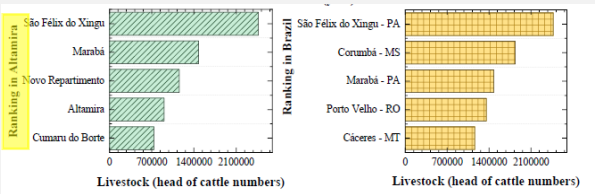

10. PD v1.04 section 3.4.3 states "These models are calibrated and tested according to the "spatial domains" approach described in the previous section. The calibration and confirmation domains were defined by tiling the reference region with 1 km wide (side to side) hexagons and randomly assigning half of them to each domain (Figure 3.13)." Reference to Figure 3.13 is incorrect.

11. PD v1.04 section 3.5.1, step 1a. "Identify credible alternative land use scenarios to the proposed VCS AFOLU project activity - i. Continuation of the pre project land use (BAU activities occurring)" states "São Felix do Xingu is the region of Brazil with the biggest number of cattle heads, having 2.468 million of them (IBGE, 2021b). For comparison purposes: the second municipality with the second highest number of cattle heads in Brazil is the municipality of Corumbá, with 1.835 million. Although Altamira does not have the amount of São Felix do Xingu's cattle heads, it is in the tenth position of Brazil with 9.042 million. Cattle ranching is a usual practice in the region (Xingumais, 2021), and farms can be implemented within the limits of the Forest Code, being able to deforest up to 20% of the property for pasture."

The number of cattle heads in Altamira is inconsistent with the beginning of the text because the number of cattle heads is greater than in the other municipalities mentioned.

12. Table 3.30 "General CAPEX for infrastructure and equipment" of section 3.5.1, sub-step 2b. "Option I. Apply simple cost analysis" of the PD v1.04, is inconsistent with the CAPEX table of the "230314_TdX_SimpleCost" spreadsheet.

13. PD v1.04 section 4.1 states "The carbon stock changes and GHG emission estimation in baseline were made beside modules VM0015 Methodology for Avoided Unplanned Deforestation, v1.1 (VERRA, 201 2a) The Triunfo do Xingu (TdX) project has a total area of 9,246.83 ha of forest. The project proponent is the Systemica company (MYS E JLFL TREINAMENTO GERENCIAL LTDA). The project area (Figure 41) is composed of (i) 9,229.23 ha with one owner called Rafael Sefer distributed by six farms denominated: Patacho, Campo Lindo, Belcon, Santa Marta, Retiro Encantado, and Vó Lina; and (ii) 1,406.79 ha with the other owner called Didário Barros owner of Nossa Senhora Aparecida farm, totaling 10,636.02 ha project area."

The total value of the Triunfo do Xingu project area is not consistent.

14. Table 4.14 of PD v1.04, column "Year", it is not in the format of the template (DD-Month-YYYY-DD-Month-YYYY).

15. In Table 5.5. "Ex-ante assessment of baseline GHG emissions parameters from forest fires in the project area" of PD v1.04 section 5.3.2, the table number of VM0015 (second column) for the parameter "Ex post estimated non-CO2 emissions from forest fires in the leakage belt area." is incorrect.

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16. In section 2.2.1, the first bullet was incorrectly placed at the beginning of the paragraph:

> 2.2.1 Methodology
>
> The work methodology was defined after successive meetings and alignments between the consulting team that would go to the field and Systemica's technical team. During these meetings it was promoted a joint construction of strategies and the choice of the best tools to be used with the communities.
>
> - The bullet points below shows the methodology defined to engage and mobilize the local population, aiming to be effective in the consultation process with surrounding communities and stakeholders. As defined by the VCS standards, the following was done:

17. PD v1.04 section 3.3.3 "Landscape configuration and ecological conditions – Forest Classes" states "Regarding PA, 48% are Forest Transition, 8.4% are Ombrophilous Forest of Dense canopy and 42.8% are forests classified as Ombrophylous Open canopy. Figure 3 3 shows the spatial representation of these vegetation types in the PA and RR."

The sum of the Project Area forest cover percentage does not add up to 100%.

18. PD v1.04 section 3.3.3 "Landscape configuration and ecological conditions – Slope analysis" states "Figure 37 describes the slope distributions in the PA and the RR, demonstrating the similarity between them, where 100% of the PA has slopes ranging between 1% and 144%, while 100% of the RR is located on slopes of 1% and 161%, although both have more than 90% of the slope distribution between 1% and 50%."

The text of PD v1.04, quoted above, is not consistent with Figure 37, where the slope range goes from 1-103% for PA and 1-136% for RR.

Project participant response	Date: 22/05/2023

1. Corrections:
   a) Section 1:
      UNEP, 2022 (pdf included, correct year is 2020)
      IBAMA, 2022 (pdf included, correct year is 2009)
      DE & INDÚSTRIAS, 2006 (name corrected and pdf included)
      Ramírez & Morales, 2021; (pdf incluído)
      FG Assis et al., 2019 (name corrected)
      ISA, 2021; (pdf included, year changed to 2023)
      PMA, 2021;(pdf included)
      SFB, 2019; (pdf included, year changed to 2020)
      SEMAT, 2012; (pdf included)
      HRW, 2019; (pdf included)
      Brasil, 2019. (pdf included with law number StateLawN°8,878of2019)
   b) Section 2:
      IBGE, 2022c; (pdf had already been included, but named as IBGE2022; pdf included with the correct name)
      IBAMA, 2022; (pdf included, correct year is 2009)
      DE & INDÚSTRIAS, 2006. (name corrected and pdf included)
   c) Section 3:
      GEE, 2022; (pdf included)
      Gillies, 2019; (pdf included)

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QGIS, 2022; (pdf included)
INPE, 2020; (pdf included)
GFW, 2022; (pdf included)
LÁU, 2006; (pdf included)
Bonham Carter & Bonham Carter, 1994 (not possible to include the pdf, please use the ISBN: 978-0080424200);
Xingumais, 2021; (pdf included)
IMAZON, 2022a; (pdf had already been included, but named as Imazon2022; pdf included with the correct name)
SEMA, 2006; (pdf included)
IMAZON 2022b; (pdf included)
Brasil, 2021; (pdf had already been included, but named as NationalPolicyForPES2021; pdf included with law number FederalLawN°14,119of2021)
Brasil, 2000; (pdf had already been included, but named as SNUC2000; pdf included with law number FederalLawN°9,985of2000)
SEMA, 2006; (pdf included)
Brasil, 2006; (pdf had already been included, but named as ForestService2006; pdf included with law number FederalLawN°11,284of2006)
Brasil, 1981; (pdf had already been included, but named as PNMA1981; pdf included with law number FederalLawN°6,938of1981)
PTS, 2022; (pdf included)
ICMBIO, 2022; (pdf included)
FundoAmazonia, 2022; (pdf had already been included, but named as AmazonFund2022; pdf included with the correct name)
CNN, 2022. (pdf included)

d) **Section 5:**
FG Assis et al., 2019. (pdf had already been included, but named as AmazonFund2022; pdf included with the name FGAssis2019)

e) **NPR Natural Risk:**
Fonseca et al.; (pdf had already been included, but named as Mangueira2021; pdf included with the name Fonseca2021)
IBAMA, 2022; (pdf included, correct year is 2009)
INMET, 2022; (pdf included)
UNEP, 2020. (pdf included)

2. Subtitle corrected in the PD v2.0.
3. Subtitle corrected in the PD v2.0.
4. Title corrected
5. Variable described now in English.
6. Paragraph correct
7. *"The precision values obtained year by year can be consulted in the Map Biomas platform https://mapbiomas.org/accuracy-statistics?cama_set_language=en#content2".*
8. Table corrected in the PD v2.0.

Class	Confusion Matrix - 2021		Total	Confusion Matrix - 2022		Total
	Non-Forest	Forest		Non-Forest	Forest	
Non-Forest	54000	15300	69300	66600	11700	78300
Forest	1800	153900	155700	2700	144000	146700
Total	55800	169200	225000	69300	155700	225000

9. Chart name corrected
10. Cross-reference corrected
11. Number of cattle heads corrected.
12. Tables are now consistent, after adding the motorcycle to the PD v.2.0
13. Project area corrected in the Pd v2.0
14. The format is now in the form of only year (YYYY)
15. Text corrected in the PD v2.0.

CAR ID	02	Date: 24/04/2023

16. Text and figure corrected in the PD v2.0. In the histogram presented the slope unit was in percent, while the correct is in degree, as shown in new text and new figure.
17. The sum is now 100%
18. Slope range described in the text is now consistent with Figure 3.7

Documentation provided by project participant

VCS_NPRR_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

Annexes:
230314_Simple_costs.zip

DOE assessment	Date: 02/07/2023

1. The Project Proponent provided and cited correctly all project supports. **OK**

2. The Project Proponent updated the subtitle of Figure 1.2 of PD v2.0 and the subtitle corresponds to what is shown on the map. **OK**

3. The Project Proponent updated the subtitle of Figure 1.6. **OK**

4. The Project Proponent updated and the title of section 2.5 of PD v2.0 is correct. **OK**

5. The Project Proponent updated the PD v2.0 and the PC_{xi} variable is described in English. **OK**

6. The Project Proponent did not correct the typo in the first paragraph on page 91 of PD v2.0. **PENDING**

7. The Project Proponent updated section 3.4.1 of PD v2.0, the link to access the MapBiomas website, Collection 6. **OK**

8. The Project Proponent updated Table 3.16 "*Confusion matrix for validating the 2021 and 2022 coverage maps*" and the title corresponds to the values expressed in the Table. **OK**

9. The Project Proponent updated the chart name and there is consistency between the subtitle of Figure 3.19 and the chart's title. **OK**

10. The Project Proponent updated the reference to Figure 3.36 in section 3.4.3 in PD v2.0. **OK**

11. The Project Proponent updated the text of PD v2.0, section 3.5.1, step 1a, and the number of cattle heads in Altamira is consistent with the other municipalities mentioned. **OK**

12. The Project Proponent updated Table 3.30 of PD v2.0 and is consistent with the CAPEX table of the "*230314_TdX_SimpleCost*" spreadsheet. **OK**

13. The Project Proponent updated section 4.1 of PD v3.0 and the Triunfo do Xingu project area is consistent. **OK**

14. vcs-project-description-template-v4.2-final, section 4.4:

CAR ID	02	Date: 24/04/2023

Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated net GHG emission reductions or removals (tCO_2e)
Year A (DD-Month-YYYY-- DD-Month-YYYY)				
Year B				
Year C				
Year...				
Total				

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522, Table 4.17:

Table 4.17. Estimated net GHG emission reductions or removals

Year	Estimated baseline emissions or removals (tCO_2e)	Estimated project emissions or removals (tCO_2e)	Estimated leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)	Buffer pool allocation (tCO_2e)	Tradable GHG emissions (tCO_2e)
2022	36,656.64	3,820.49	3,820.49	29,015.66	2,901.57	26,114.10
2023	559,946.57	58,353.81	58,353.81	443,238.96	44,323.90	398,915.06
2024	400,740.29	41,731.26	41,731.26	317,277.76	31,727.78	285,549.98
2025	254,272.89	26,488.66	26,488.66	201,295.58	20,129.56	181,166.02
2026	480,497.59	50,074.50	50,074.50	380,348.58	38,034.86	342,313.73
2027	664,191.34	69,198.82	69,198.82	525,793.70	52,579.37	473,214.33
2028	303,986.96	31,664.25	31,664.25	240,658.45	24,065.85	216,592.61
2029	905,263.43	94,346.01	94,346.01	716,571.41	71,657.14	644,914.27
2030	234,145.43	24,368.10	24,368.10	185,409.22	18,540.92	166,868.30
2031	296,803.36	30,914.84	30,914.84	234,973.68	23,497.37	211,476.31

Table 4.17 of PD v2.0, column "*Year*" is not in the format of the Template. **PENDING**

15. The Project Proponent updated Table 5.5 and the table number of VM0015 for the parameter "*Ex post estimated non-CO2 emissions from forest fires in the leakage belt area.*". **OK**

16. The Project Proponent updated section 2.2.1 and corrected the first bullet paragraph. **OK**

17. The Project Proponent updated section 3.3.3 of PD v2.0 and the sum of the Project Area forest cover percentage is 100%. **OK**

18. The Project Proponent updated section 3.3.3 – "*slope analysis*" of PD v2.0 and the PA and RR slope values were corrected to degrees. Figure 3.8 has also been updated and is consistent with the description for slope analyses. **OK**

Considering the lack of evidence mentioned above, the CAR remains open

Project participant response	Date: 25/07/2023

Corrective actions to "PENDING" topics:

6. The typo in the first paragraph on page 91 of the "*VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf*" was corrected.

14. The date of the table was corrected in "*VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf*" to be in conformance with the table of VCS template v4.2.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf

DOE 2nd assessment	Date: 31/07/2023

6. The Project Proponent updated PD v2.1 and corrected the typo in the first paragraph on page 91. **OK**

CAR ID	02	Date: 24/04/2023
14. The Project Proponent updated Table 4.17 of PD v2.1 and the Table is in conformance with the Template. **OK**		
Finding closed successfully		

CAR ID	03	Date: 24/04/2023
Description of CAR		

Compliance of the contents required in *vcs-project-description-template-v4.2-final:*

Section 1.1 "*Provide a summary description of the project to enable an understanding of the nature of the project and its implementation, including the following (no more than one page):*
• An explanation of how the project is expected to generate GHG emission reductions or removals.
• A brief description of the scenario existing prior to the implementation of the project.
• An estimate of annual average and total GHG emission reductions and removals"

1. The Project Proponent did not include in section 1.1 of PD v1.04, a summary description of all Template requirements.

2. Table 1.1 of PD v1.04 does not show the date, described in the second column, according to the Template model (DD-Month-YYYY).

Section 1.13 "*For AFOLU projects in all other cases, include the present and prior environmental conditions of the project area, including as appropriate information on the climate, hydrology, topography, relevant historic conditions, soils, vegetation and ecosystems."*

3. The Project Proponent did not provide appropriate information about all the items described in Template in section 1.13 do PD v1.04.

Section 2.2 *"For AFOLU projects, also demonstrate how the project has or will communicate the following:*

- *The project design and implementation, including the results of monitoring.*
- *The risks, costs and benefits the project may bring to local stakeholders.*
- *All relevant laws and regulations covering workers' rights in the host country."*

4. The Project Proponent did not describe completely the evidence that the project design and its implementation, including the information on the project monitoring, risks, costs and benefits to local stakeholders, according with the text of the template. The cited evidence in sections 2.2.1 and 2.2.2 of the PD, does not support all the conditions of the template.

Section 2.5 "*For AFOLU projects, provide details on the following:*

- *Local stakeholder identification process and a description of results.*
- *Risks to local stakeholders due to project implementation and how the project will mitigate such risks.*
- *Risks to local stakeholder resources due to project implementation and how the project will mitigate such risks, including the plans to ensure the project will not impact local stakeholder's property rights without the free, prior and informed consent.*
- *Processes to ensure ongoing communication and consultation with local stakeholders, including a grievance redress procedure to resolve any conflicts which may arise between the project proponent and local stakeholders.*

For AFOLU projects with no impacts on local stakeholders, provide evidence of such."

CAR ID	03	Date: 24/04/2023

5. The Project Proponent did not provide a grievance redress procedure to resolve any conflicts which may arise between the project proponent and local stakeholders, as requested by Template.

Project participant response	Date: 22/05/2023

Item 1

In the summary, the information about the GHG emissions reduction was: "A reduction of 2,071,988.77 tCO2e of GHG is expected over the next six years for the first baseline developed". This information was reformulated as in the finding ID14, it was required to change some of the default factors, and also because the value represents the net GHG emissions reductions, instead of the gross GHG emissions reductions.
Addressing the VCS Standard for including "*An estimate of annual average and total GHG emission reductions and removals",* in the pd v2.0 the paragraph changed to:
"A reduction of 2,396,305.31 tCO2e of GHG is expected over the next six years for the first baseline developed and presented in this PD, associated with the avoided deforestation of 6,167.07 ha. Also the total GHG emission reductions and removals of 4,136,504.49 tCO2e over the 30 years crediting period, representing an annual average GHG emission reductions and removals 137,883.48 tCO2e."

Item 2. "Table 1.1 of PD v1.04 does not show the date, described in the second column, according to the Template model (DD-Month-YYYY)."

The month format of the table has been correct as shown in the image bellow:

Table 1.1 Audit history

Audit Type	Period	Program	VVB Name
Validation	09-~~04~~April-2023	VCS	Earthood Services Private Limited

Item 3

The **hydrology section, in section 1.13.4 of the PD v2.0** has been included as follows:

1) Hydrology

The reference region is located in the Xingú River Basin (IBGE, 2021c), and within the RR it has three sub-basins called the Iriri River Basin, the Pardo River Basin, and the "Igarapé do Pontal" Basin. The properties are located in the Iririri Basin, and have a small overlap with the "Igarapé do Pontal" Basin. Also represented in the Figure 0.1 are the main hydrographs (ANA, 2012) such as the Igarapé da Bala River, as well as its headwaters and smaller rivers (FBDS, 2022).

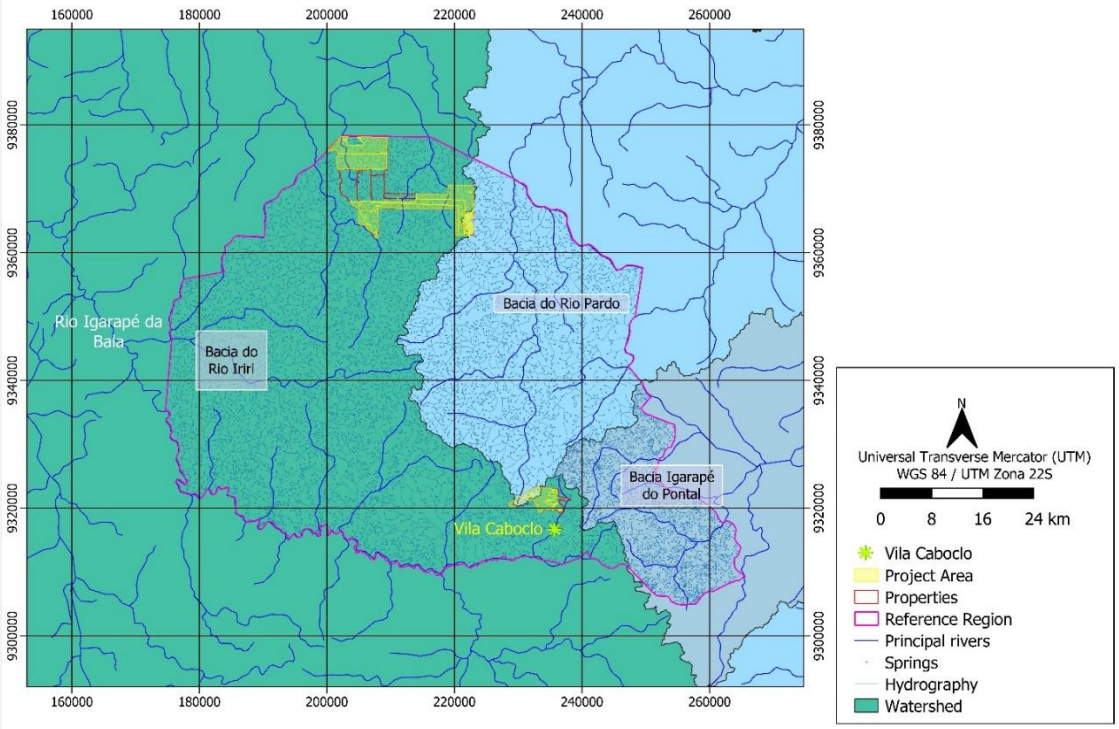

Figure 0.1 TdX Reference region and project area Hydrology

Item 4.

In section 2.2.1 we have changed the following paragraph:

"The bullet points below show the methodology defined to engage and mobilize the local population, aiming to be effective in the consultation process with surrounding communities and stakeholders. As defined by the VCS standards, the following was done.

- *Application of simplified questionnaire with actors and members of interest for recognition/identification of the scenarios constituted in the territories under study;*
- *Signing of an authorization term for the use of information and images;*
- *Conducting a presentation/opening meeting of the project for the target public to be mobilized during fieldwork (**Annex: 230515_REDD+_Capacity_Building.zip**);*
- *Survey of primary information, through visits that will be documented, which will subsidize the production of a social diagnosis of the communities of interest to the project;*
- *Active search for the project's stakeholders, including the institutional ones and potential partnerships, aiming at the consultation and presentation of the project and its premises;*
- *Promotion of specific approaches with the delivery of an informative pamphlet containing the permanent communication channels for the project (e-mail: triunfodoxingu@systemica.digital and WhatsApp number: (11) 5039-1386).*

*Development of a communication procedure to be approved with the community that aims to propose organized communication flows between Systemica, Caboclo Village and other local stakeholders of the project, where communication will be planned to present the risks, costs and benefits that the project may bring to local stakeholders, as well as all relevant laws and regulations covering workers' rights (**Annex: 231605_Communication_Procedure.pdf**)."*

which therefore partially answers the requirement of section 2.2 *"For AFOLU projects, also demonstrate how the project has or will communicate the following:*

- *The project design and implementation, including the results of monitoring.*
- *The risks, costs and benefits the project may bring to local stakeholders.*

CAR ID	03	Date: 24/04/2023

- *All relevant laws and regulations covering workers' rights in the host country."*

together with the attached "**230515_REDD+_Capacity_Building.zip**" and "**231605_Communication_Procedure.pdf**" mentioned.

This change was made to demonstrate that communication about the project design and implementation have already been carried out, as shown in the annex **230515_REDD+_Capacity_Building.zip** and the results of monitoring, the risks, the costs, the benefits the project may bring to local stakeholder and all relevant laws and regulations covering workers' rights are foreseen in the methodology of communication and consultation with Local Stakeholders, as evidenced by the annex **231605_Communication_Procedure.pdf.**

In section 2.2.2., we have included the annex "**230515_REDD+_Capacity_Building.zip**" to the paragraph:

*"It is noteworthy that during these activities the participation of the communities was prioritized, as well as the clarification of doubts about the project, in addition to being an opportunity to discuss, along with the populations of interest, some of the REDD+ capabilities, with the facilitator focusing mainly on the following topics: (i) reducing emissions from deforestation; (ii) reducing emissions from forest degradation; (iii) how to contribute to the increase of forest carbon stocks; (iv) actions and attitudes that can contribute to the control of climate change and global warming (**Annex: 230515_REDD+_Capacity_Building.zip**)."*.

We have also included the annex "**231605_Communication_Procedure.pdf**" to the paragraph:

*"It is important to stress that all comments regarding the project implementation received through our communication channels previously mentioned in this section will be addressed individually and therefore documented. In addition, any arising complaints or suggestions for improvement will also be taken into consideration and judged internally by the project proponent, according to the communication procedure (**Annex: 231605_Communication_Procedure.pfd**). If the complaint or suggestion is pertinent and related to the scope of the project's obligations, it will be implemented."*

and finally we have added the annex "**230513_ Audit_Warning_Posters.pdf**" and also changed the paragraph:

*"The communication about project design and implementation, including information about project monitoring, risks, costs and benefits to local stakeholders, relevant laws and regulations, and auditing processes is planned and will be carried out according to the communication procedure that will be approved with the community. In addition, the local community was informed about the upcoming visit of the validation body of the VCS Program (Annex: **230513_ Audit_Warning_Posters.pdf**)."*

which therefore fully answers the requirement of section 2.2 *"For AFOLU projects, also demonstrate how the project has or will communicate the following:*

- *The project design and implementation, including the results of monitoring.*
- *The risks, costs and benefits the project may bring to local stakeholders.*
- *All relevant laws and regulations covering workers' rights in the host country."*

Once again, these changes were intended to clarify that the communication about the project has already been done and that the communication about the results of monitoring, the risks, the costs, the benefits the project may bring to local stakeholders and all relevant laws and regulations covering workers' rights is foreseen in the communication procedure that still needs to be approved together with the community Caboclo Village, as described in the text.

Item 5.

In section 2.5.3. we have changed the following paragraphs:

CAR ID	03	Date: 24/04/2023

*"All technical aspects of the project were presented to the Caboclo Village community during interviews, training and through pamphlets and emails. In these meetings the entire VCS validation and verification process was addressed (**Annex: 230515_REDD+_Capacity_Building.zip** and **Annex: 221014_Stakeholder Consultation-Caboclo Village-Questionnaires.pdf**). The project has developed a communication procedure and intends to evaluate and validate it with the community of Caboclo Village. The monitoring results, and the intentions, risks, costs, and benefits of the project are foreseen and will be communicated according to the communication procedure (**Annex: 231605_Communication_Procedure.pdf**).The communication procedure foresees some communication channels that are already active and serve to allow the exchange and answer any questions that may arise from the interested parties (WhatsApp groups whith Caboclo Village members) (**Annex: 230516_Communication_Established.pdf**)."*

and

*"The communication procedure provides that all comments regarding project implementation or complaints and conflicts received through our communication channels will be treated individually and therefore documented (**Annex: 230519_Conflicts_and_Grievances_Form.xlsx**). In addition, any complaints, suggestions or conflicts that arise will also be taken into consideration and judged by an internal committee according to Systemica's Code of Ethics and Conduct (**Annex: 230519_Systemica's Code of Ethics and Conduct.pdf**) and, if pertinent and related to the scope of the project obligations, will be implemented, as is described in the conflict resolution procedure that is described within the communication procedure.."*

which therefore answers the requirement of section 2.5 "*For AFOLU projects, provide details on the following:*

- *Local stakeholder identification process and a description of results.*
- *Risks to local stakeholders due to project implementation and how the project will mitigate such risks.*
- *Risks to local stakeholder resources due to project implementation and how the project will mitigate such risks, including the plans to ensure the project will not impact local stakeholder's property rights without the free, prior and informed consent.*
- *Processes to ensure ongoing communication and consultation with local stakeholders, including a grievance redress procedure to resolve any conflicts which may arise between the project proponent and local stakeholders.*

For AFOLU projects with no impacts on local stakeholders, provide evidence of such."

together with the attached "**230515_REDD+_Capacity_Building.zip**", "**231605_Communication_Procedure.pfd**" and "**230516_Communication_Established.pdf"** mentioned.

These changes were intended to clarify and better evidence the ongoing communication with the Caboclo Village through annex "2**30516_Communication_Established.pdf"** and the conflict resolution procedure that is described within the communication procedure yet to be approved with the community, presented in annex "**231605_Communication_Procedure.pdf**".

Throughout section 2, minor changes were also made to maintain the coherence of the text, with emphasis on the following paragraph described in section 2.2:

"From the information collected, it is understood that there are no direct or indirect risks to local stakeholders associated with project activities, since the owners do not allow any kind of extractivism or permanence within the project areas, therefore, there are no communities occupying the internal part of the project area and the only identified community dependence is the use of the caboclo stream for fishing and swimming, considering that part of its water regulation and water quality is provided through a preserved catchment located in part of the project area, as shown in Figure 2.2.1. As the project activities have a preservation objective, the provision of these ecosystem services will not be harmed in any way, in fact, it will only be more assured. ..."

CAR ID	03	Date: 24/04/2023

where the inclusion of the dependence of Vila Caboclo to the project area, for water quality and water regulation of the Caboclo Stream, was made to better clarify the points related to the community.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522

Annexes:
230515_REDD+_Capacity_Building.zip;
231605_Communication_Procedure.pdf;
230516_Communication_Established.pdf;
221014_Stakeholder Consultation-Caboclo Village-Questionnaires.pdf;
230513_Audit_Warning_Posters.pdf
230317b_Stakeholder_List.xlsx
230519_Conflicts_and_Grievances_Form.xlsx
230519_Systemica's Code of Ethics and Conduct.pdf

References:
ANA2012.pdf
FBDS2022.pdf
IBGE2021c.pdf

DOE assessment	Date: 02/07/2023

1. The Project Proponent updated section 1.1 of PD v2.0 and thus meets all the Template requirements. **OK**

2. The Project Proponent updated Table 1.1 of PD v2.0 but the second column "*Period*" is still not describing the date the way the Template requires: **PENDING**

Audit Type	Period	Program	VVB Name	Number of years
Validation/ Verification	(DD-Month-YYYY– DD-Month-YYYY)			
	Year...			
Total				

3. The Project Proponent updated section 1.13.4 of PD v2.0 and included the "*Hydrology*" section. In this way, the PP provided appropriate information about all the items described in Template. **OK**

4. The Project Proponent updated sections 2.2.1 and 2.2.2 of PD v2.0, including information on how the project will communicate the project monitoring, risks, costs and benefits to local stakeholders, according to the text of the template. Additionally, the PP included as reference in PD v2.0 and provided the "*230515_REDD+_Capacity_Building*" documents, containing the material presented during the REDD+ capacity building, and "*230516_Communication_Procedure*", which is the communication procedure that is being implemented and approved together with the Caboclo Village community. **OK**

5. The Project Proponent provided the "*230516_Communication_Procedure*" and section 6.a) "*Conflict resolution procedure*" describes the procedure to resolve any conflicts which may arise between the PP and local stakeholders. Additionally, the PP updated section 2.5.3 of PD v2.0 and included reference documents to support the actions described in the text of the section. **OK**
Considering the lack of evidence mentioned above, the CAR remains open

Project participant response	Date: 25/07/2023

Corrective actions to "PENDING" topics:

CAR ID	03	Date: 24/04/2023

2. The column period was corrected in "*VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf*" to be in conformance with the table of VCS Template v4.2.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf

DOE 2nd assessment	Date: 31/07/2023

2. The Project Proponent updated Table 1.1 of PD v2.1 and the Table is in conformance with the Template.
OK
Finding closed successfully

CAR ID	04	Date: 24/04/2023

Description of CAR

Project Ownership, Section 3.1.7 of VCS Standard v4.4, incise 1):

1. The Project Proponent described in Table 1.5 that the "*Owner of the Patacho and Campo Lindo farms*" is "*BYBLOS AGRONEGÓCIO HOLDING LTDA*." and in Table 1.6 that the "*Owner of the Belcon, Santa Marta, Retiro Encantado, and Vó Lina farms*" is "*SANTA MARIA PECUARIA E AGRONEGOCIO LTDA*.". In addition, according to the "*221226_Systemica-Sefer contract.pdf*" file, the contract is signed between Systemica and the aforementioned companies, the representative being the managing partner Rafael Bemerguy Sefer.
The Project Proponent did not provide support ("contrato social" of the two companies) to evidence that Rafael Bemerguy is the legal representative of the companies Byblos Agronegócio Holding LTDA and Santa Maria Pecuária e Agronegócio LTDA.

2. Table 1.7, section 1.6, describes that Didácio Milhomens Barros has the "*Title*" of "*Owner of the Nossa Senhora Aparecida farm*". However, in the "*221014_Systemica-Didácio contract*" file, it is not described that the object of the contract is Nossa Senhora Aparecida farm, area of the Triunfo do Xingu Project.

Project participant response	Date: 22/05/2023

1. Both "BYBLOS AGRONEGÓCIO HOLDING LTDA." and "SANTA MARIA PECUARIA E AGRONEGOCIO LTDA." social contract have been added to the project ownership documentation, evidencing the relationship between Rafael Sefer and their companies, also demonstrating that only Rafael Sefer is the legal representative of the companies.

2. The document that evidences the relationship between Didácio Milhomens and the Nossa Senhora Aparecida farm is in "ANEXO III do Contrato de Projeto - Faz. Nsra Aparecida - Didácio Milhomens.pdf" of the contract with Systemica.

Documentation provided by project participant

Annexes:
230427_STAMARIA_SocialContract.pdf
230427_BYBLOS_SocialContract.pdf
ANEXO III do Contrato de Projeto - Faz. Nsra Aparecida - Didácio Milhomens.pdf

DOE assessment	Date: 02/07/2023

1. The Project Proponent provided the "*230427_BYBLOS_SocialContract*" and "*230427_STAMARIA_SocialContract*", social contract of the companies Byblos Agronegócio Holding LTDA and Santa Maria Pecuária e Agronegócio LTDA. The documents show that Rafael Sefer is the sole managing partner and legal representative of the two companies. **OK**

2. The Project Proponent provided the "*ANEXO III do Contrato de Projeto - Faz. Nsra Aparecida - Didácio Milhomens*", annex to the contract between Didácio Milhomens and Systemica. This document describes

CAR ID	04	Date: 24/04/2023

that the "*Property Area*" is 1,880.88 ha and Table 1.10 of PD v2.0 describes that the property "*Nossa Senhora Aparecida Farm*" has 1,888.01 ha.
The Nossa Senhora Aparecida farm area is not consistent between support and PD v2.0. **PENDING**

Dados do Imóvel

Área do imóvel: **1.880,88 ha**

Considering the lack of evidence mentioned above, the CAR remains open

Project participant response	Date: 25/07/2023

Replies and corrective actions to "PENDING" topics:

2. It is important to clarify that in "*ANEXO III do Contrato de Projeto - Faz. Nsra Aparecida - Didácio Milhomens.pdf*" of the contract with Didácio Milhomes and Systemica, more than one official document referring to the area of Fazenda Nossa Senhora Aparecida was attached (see images below). The project calculations were based on the more reliable SIGEF database. The reported area value (1,880.197 ha) was computed directly from the SIGEF's shapefile using the projected coordinate system EPSG:32722, and agrees with the value found in the property's CCIR (1,880.1982 ha) and the "*Certidão Negativa de Débitos*" (1,880.1 ha). The value documented in the (Figure 3 SIGEF) is slightly different (1,878.5662 ha), but this variation is within what is expected from the adoption of different conventions during GIS analysis (for instance, the use of different projection coordinates when computing the polygon's area).

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MINISTÉRIO DA AGRICULTURA, PECUÁRIA E ABASTECIMENTO - MAPA
INSTITUTO NACIONAL DE COLONIZAÇÃO E REFORMA AGRÁRIA - INCRA
CERTIFICADO DE CADASTRO DE IMÓVEL RURAL - CCIR
EMISSÃO EXERCÍCIO 2022

DADOS DO IMÓVEL RURAL PÁG.: 1 / 1

CÓDIGO DO IMÓVEL RURAL	DENOMINAÇÃO DO IMÓVEL RURAL			
999.903.436.399-4	Fazenda Nossa Senhora Aparecida			
AREA TOTAL (ha)	CLASSIFICAÇÃO FUNDIÁRIA	DATA DO PROCESSAMENTO DA ÚLTIMA DECLARAÇÃO	AREA CERTIFICADA*	
1.880,1982	Grande Propriedade Produtiva	14/03/2017	0,0000	
INDICAÇÕES PARA LOCALIZAÇÃO DO IMÓVEL RURAL		MUNICÍPIO SEDE DO IMÓVEL RURAL		UF
Estrada Vicinal A Vila Caboclo, KM, 200 a Direita 10 KM		SÃO FÉLIX DO XINGU		PA
MÓDULO RURAL (ha)	Nº MÓDULOS RURAIS	MÓDULO FISCAL (ha)	Nº MÓDULOS FISCAIS	FRAÇÃO MÍNIMA DE PARCELAMENTO (ha)
90,0047	20,89	75,0000	25,0693	4,00

SITUAÇÃO JURÍDICA DO IMÓVEL RURAL (ÁREAS REGISTRADAS)

UF/MUNICÍPIO DO CARTÓRIO	DATA REGISTRO	CNS OU OFÍCIO	MATRÍCULA OU TRANSCRIÇÃO	REGISTRO	LIVRO OU FICHA	AREA (ha)
PA/SÃO FÉLIX DO XINGU	03/02/2017	67389	4583	AV02	2AB	1.880,1982

ÁREA DO IMÓVEL RURAL (ha)

REGISTRADA	POSSE A JUSTO TÍTULO	POSSE POR SIMPLES OCUPAÇÃO	AREA MEDIDA
1.880,1982	0,0000	0,0000	1.880,1982

Figure 12 CCIR

Informações da parcela

Código	666d12df-716a-4e04-9121-ae58fa312f5c
Denominação	FAZENDA NOSSA SENHORA APARECIDA - 001
Área	1878,5662 ha
Data de Entrada	04/11/2015
Situação	Certificada - Sem Confirmação de Registro em Cartório Parcela certificada pelo SIGEF de acordo com a Lei 6.015/73 e pendente de confirmação do registro da certificação em cartório

Figure 3 SIGEF

CAR ID	04	Date: 24/04/2023

MINISTÉRIO DA FAZENDA
Secretaria da Receita Federal do Brasil
Procuradoria-Geral da Fazenda Nacional

CERTIDÃO NEGATIVA DE DÉBITOS RELATIVOS AOS TRIBUTOS FEDERAIS E À DÍVIDA ATIVA DA UNIÃO DE IMÓVEL RURAL

Número do Imóvel na Receita Federal - NIRF: 8.693.651-4
Nome do Imóvel: FAZENDA NOSSA SENHORA APARECIDA

Município: SAO FELIX DO XINGU UF: PA
Área total (em hectares): 1.880,1

Contribuinte: DIDACIO MILHOMENS BARROS
CPF: 121.548.061-04

Figure 14 "Certidão Negativa de Débitos"

Furthermore, it is important to note that in Table 1.10 of the PD v2.0 in question, raised by the auditors, the value of the area of Fazenda Nossa Senhora Aparecida is incorrect, most likely due to a simple typing error. **The value was properly corrected in Table 1.10 of the VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf**. It is also worth mentioning that these small mistaken values do not affect and did not affect any of the calculations performed for baseline modeling, leakage, or quantification of GHG emission reductions.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf

Annexes:
ANEXO III do Contrato de Projeto - Faz. Nsra Aparecida - Didácio Milhomens.pdf

DOE 2nd assessment	Date: 31/07/2023

2. The Project Proponent updated Table 1.10 of PD v2.1 and corrected the area of Fazenda Nossa Senhora Aparecida farm. Additionally, the PP clarified and provided support for the small differences of the area value between the documents of the farm, but these differences did not affect any of the calculations performed for baseline modeling. **OK**

Finding closed successfully

CL ID	05	Date: 24/04/2023

Description of CL

<u>Project Start Date supports:</u>

The Project Proponent attached the annex "*221014_First project implementation activity*" as support to Project Start Date. The annex states "*Você está participando de uma pesquisa para formar o Diagnóstico Socioeconômico e Cultural para o empreendimento Triunfo do Xingu Grouped Redd+ Project, em conjunto com a empresa Systemica – Inteligência em Sustentabilidade*".

PD v1.04 section 1.8 states "*Evidence shows that presential meetings were done to present the TdX project, to bring elements of environmental education to local communities near the project areas, develop REDD+ capacity building activities and to understand their opinion about it.*"

It is not clear from the support presented by the Project Proponent how the elements of environmental education to develop REDD+ capacity building activities were addressed during the meeting on 31 August 2022.

Project participant response	Date: 22/05/2023

CL ID	05	Date: 24/04/2023

In section 2.5.3. we have included the annex "**230515_REDD+_Capacity_Building.zip"** in the following paragraph:

"The VM0015 methodology (VERRA, 2012a) adopted states in Section 1.2.2 that the start date is the date when additional activities have started to avoid unplanned deforestation. Then, despite a lot of previous conversations with landowners and project viability analysis, the 31st of August 2022 represents the first date when local activities started to be implemented by Systemica. Evidence (Annex: ***230515_REDD+_Capacity_Building.zip*** and Annex: 221014_First project implementation activity.pdf) *shows that presential meetings were done to present the TdX project, to bring elements of environmental education to local communities near the project areas, develop REDD+ capacity building activities and to understand their opinion about it. This is one of the many activities proposed by the TdX project. Engaging the local community helps to spread the existence of REDD+ to them, which is still not very popular among the larger amount households of the Amazon biome, and then, show them the benefits the project implementation can bring not only to the environment, but also to the local communities"*

Which responds to the clarification in section 1.8 with the details and testimony of the professional who delivered the content during the meeting on 31 August 2022, with emphasis on the elements of environmental education to develop REDD+ capacity building activities that can be found on slide 6 of the PowerPoint presentation with the name "230515_REDD+_Capacity_Building_Presentation" and on the second bullet point of the content statement document that can be found with the name "230515_Content_Declaration".

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

Annexes:
230515_REDD+_Capacity_Building.zip

DOE assessment	Date: 02/07/2023

The Project Proponent updated section 1.8 of PD v2.0 and included the reference 8 "*Annex: 230515_REDD+_Capacity_Building.zip*". This zip file consists of 3 documents:

1. "*230307_REDD+CapacityBuilding_31-08-22*" – document containing photo evidence and attendance list of the socio-environmental diagnosis carried out by Systemica at Caboclo Village, on August 31, 2022.

2. "*230515_Content_Declaration*" - testimony of the professional who delivered the content during the meeting on 31 August 2022, with emphasis on the elements of environmental education to develop REDD+ capacity building activities.

3. "*230515_REDD+_Capacity_Building_Presentation*" – power point presentation with the content presented during the meeting on 31 August 2022. It contains information about Systemica, about how REDD projects work, SDG and carbon credit projects, Triunfo do Xingu Grouped REDD+ Project, Project area and stakeholders, methods and tools for socio-environmental diagnosis, audit date forecast and communication channel.

In this way, it is clear from the support presented by the PP how the elements of environmental education to develop REDD+ capacity building activities were addressed during the meeting on 31 August 2022. **OK**

Finding closed successfully

CAR ID	06	Date: 24/04/2023

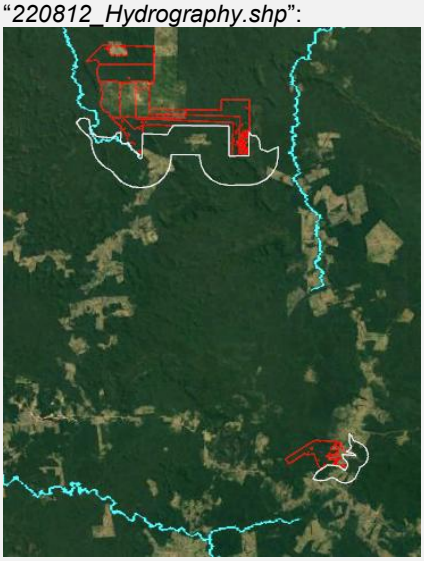
Description of CAR

<u>VCS Standard, Project Location (Section 3.11.2), Legal Compliance:</u>

1. PD v1.04 section 1.14 states "*At a federal level, one most important legislation is Law Nº 12.651 of 25/05/2012 that created the newest Brazilian Forest Code.*"

CAR ID	06	Date: 24/04/2023

"*220812_Hydrography.shp*":



It was mentioned during interviews with stakeholders that Didácio's property (Nossa Senhora Aparecida farm) has a river that runs close to the farm's headquarters and two springs within the forest area. However, according to the support "*220812_Hydrography.shp*", there are no rivers or springs on Didácio's property, only a river that runs on the southern border of Rafael Sefer's property.

The Project Proponent did not demonstrate in PD v1.04 how Law No 12.651 of 25/05/2012 is being complied with in relation to APPs of rivers and springs. At the mapping scale of the project area, it is not possible to visualize whether APP areas are excluded, in compliance with legal requirements, according to the contents of section 3.3.2 of PD v1.04.

2. PD v1.04 section 1.13.4 states "*Geology, Topography and Soils - About 75% of the project area has a slope <1 5 %, although slopes 1 5% are found in 25% of the areas, mainly to the east of the properties, and the altitude in the project area ranges from 169 to 500 meters. To obtain elevation and slope information, a mosaic of digit al elevation models, provided by NASA, with a spatial resolution of 30 meters (Farr et al., No areas above 500 meters were found within the project area (Figure 1.11).*"

Law Nº 12.651 of 25/05/2012, art. 4º states:
"*Art. 4º Considera-se Área de Preservação Permanente, em zonas rurais ou urbanas, para os efeitos desta Lei: IX - no topo de morros, montes, montanhas e serras, com altura mínima de 100 (cem) metros e inclinação média maior que 25°, as áreas delimitadas a partir da curva de nível correspondente a 2/3 (dois terços) da altura mínima da elevação sempre em relação à base, sendo esta definida pelo plano horizontal determinado por planície ou espelho d'água adjacente ou, nos relevos ondulados, pela cota do ponto de sela mais próximo da elevação;*"

The Project Proponent did not demonstrate in PD v1.04 how Law No 12.651 of 25/05/2012 is being complied with about the top of hills ("*topo de morros*") APPs.

Project participant response	Date: 22/05/2023

1. The analyses conducted, geoprocessing data used as support are in the folder "*230515_APP_with_deforestation.zip*" shows how the legislation regarding the APPs of rivers and springs is being complied with. An intersection/overlapping of these areas was made with PRODES (INPE, 2022), deforestation data, and a year-to-year survey of deforested areas was conducted. After the analysis, was found that there is deforestation occurring in riparian and spring protection areas throughout the reference region and project area (Figure 1), because overlapped occurred between deforestation and rivers and springs APP. It In the project areas, degraded protection areas have old deforestation, as shows the table in Figure 1. The new shapefile "*230515_Hydrography.zip*" represents on a smaller scale hydrography and springs in the RR.

CAR ID	06	Date: 24/04/2023

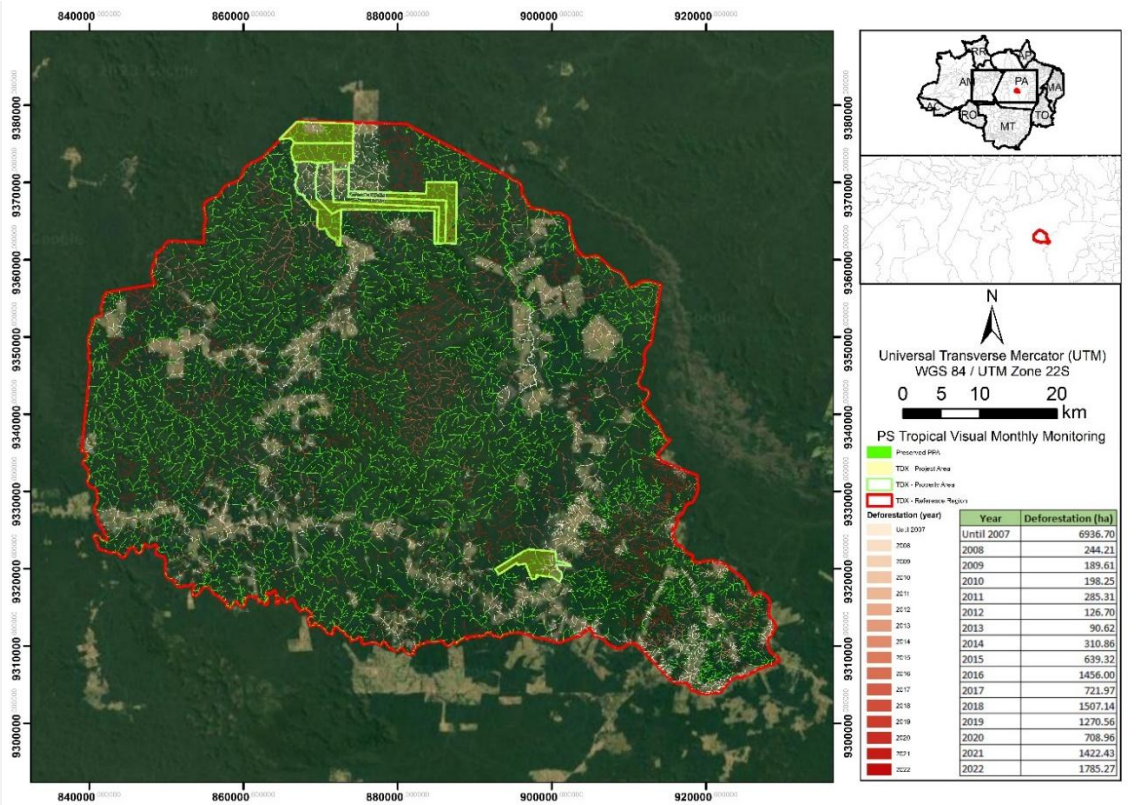


Figure 1. River and springs PPAs in the reference region with the properties and project areas.

2. To comply with Brazilian legislation regarding the protection of areas with steep slopes (areas with 45 degrees or more of inclination), an analysis of sloping areas was carried out based on the digital elevation model, geoprocessing data used as a support are in the folder "230515_APP_slope". An intersection/overlapping of these areas was made with PRODES (INPE, 2022), deforestation data, and a year-to-year survey of deforested areas was conducted. The sloping areas found in the project area and the reference region are preserved, because no overlapped occurred between deforestation and slope APP (Figure 2).

CAR ID	06	Date: 24/04/2023

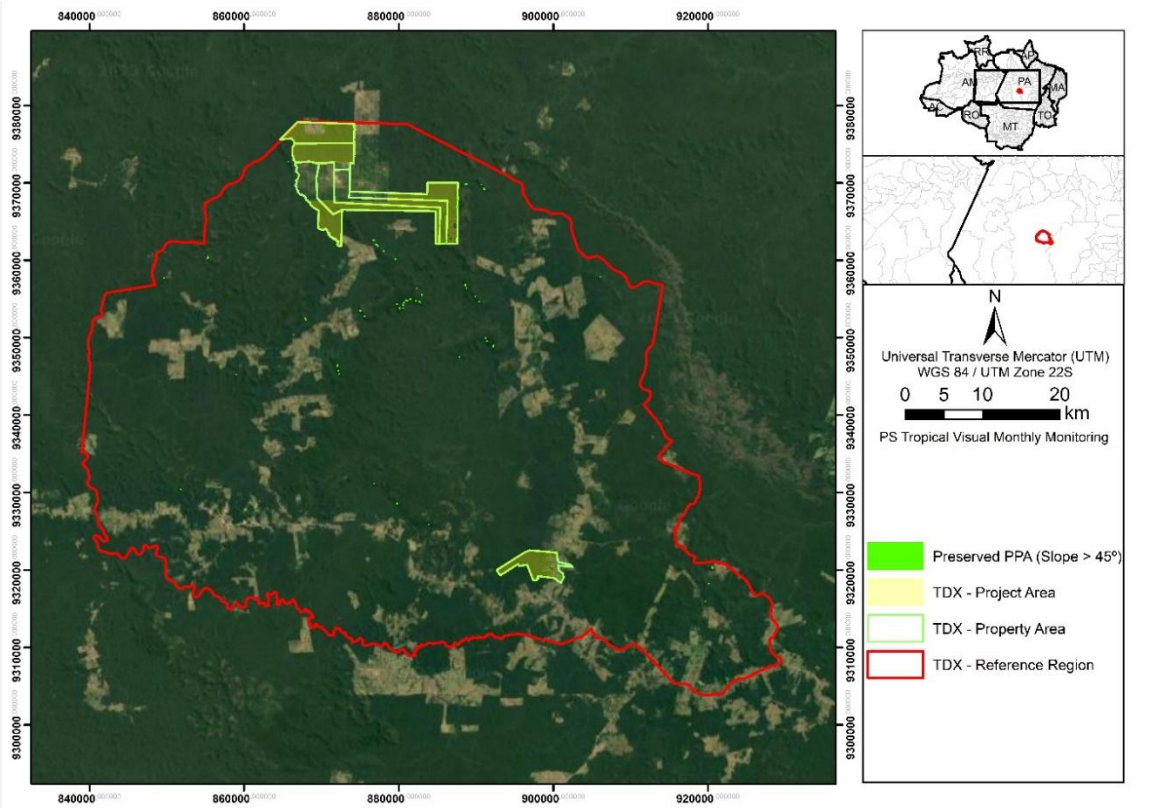


Figure 2. Slope PPAs in the reference region with the properties and project areas.

Similarly, an analysis of hilltop areas for protection was carried out, following Brazilian legislation. An intersection/overlapping of these areas was made with PRODES (INPE, 2022), deforestation data, and a year-to-year analysis of deforested areas was conducted. After the analysis, the sloping areas found in the project area and the reference region are preserved, because no overlapped occurred between deforestation and slope APP (Figure 3), geoprocessing data used as support are in the folder " 230515_APP_slope".

CAR ID	06	Date: 24/04/2023

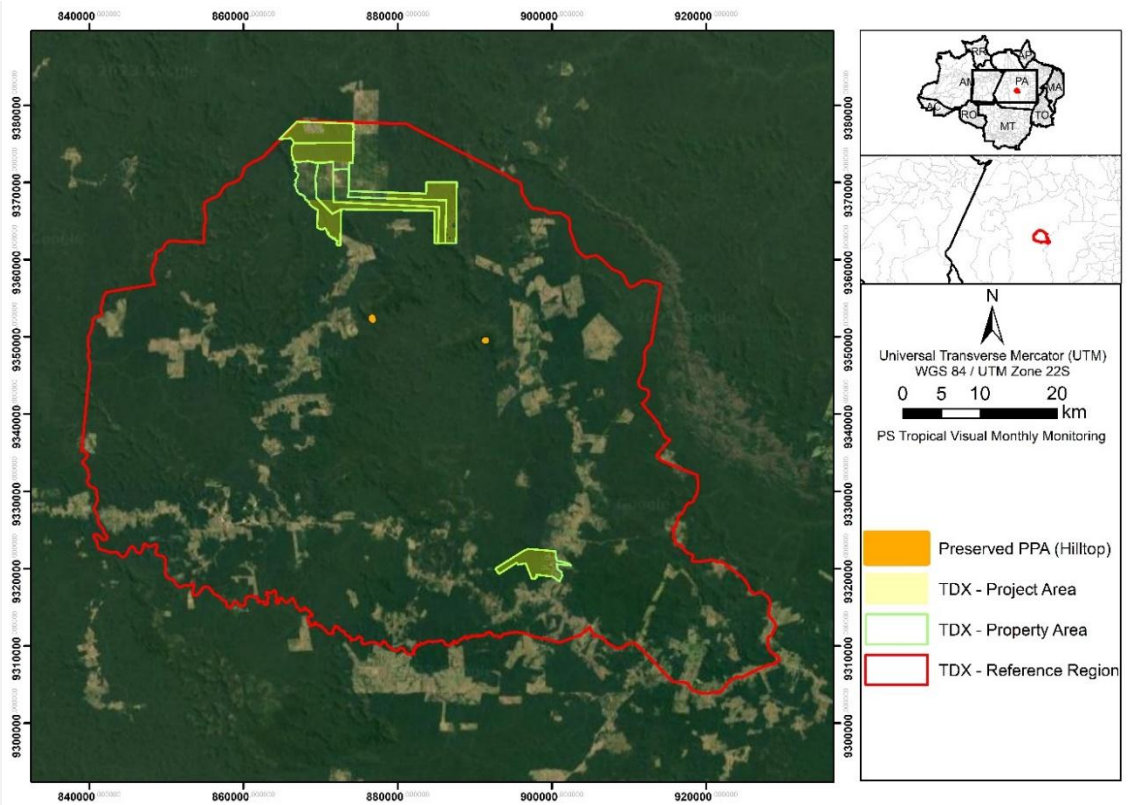


Figure 3. Hilltop PPAs in the reference region with the properties and project areas.

From the reference region of the TDX project, the riparian protection areas were obtained through metadata from the Brazilian Foundation for Sustainable Development (FBDS, 2022). For river protection areas, a radius of 30 meters from the bed and a radius of 50 meters for the spring points were considered. An intersection/overlapping of these areas was made with PRODES (INPE, 2022), deforestation data, and a year-to-year survey of deforested areas was conducted.

Protection areas with steep slopes (above 45 degrees) were mapped using data from the SRTM (NASA, 2013) mission as a basis. The digital elevation model (DEM) was used in the "Slope" tool, which generated a raster file with the slope areas. This file was then converted to a shapefile format, where all polygons with values greater than or equal to 45 (slope degrees) were considered for protection. An intersection/overlapping of these areas was made with PRODES (INPE, 2022), deforestation data, and a year-to-year survey of deforested areas was conducted.

To protect hilltop areas, Brazilian legislation establishes certain criteria. These include having a slope greater than 25 degrees, being above 100 meters in altitude and being in the upper third of the hill.

Tools in GIS software were used, which aim to apply spatial and statistical filters to a digital elevation model. A raster of the DEM obtained by the SRTM mission was used as the reference area base.

To detect these areas, a methodology was applied as follows:

- The "Fill" tool was first applied, which corrects the file to be hydrologically consistent with the terrain, analyzing pixels and the terrain's design to correct imperfections for better representation of reality.
- Next, the raster was adjusted with the "Raster Calculator" tool by subtracting values to detect the base of the terrain and hills more easily.
- The "Flow Direction" tool was applied to delimit the flow direction of the runoff.
- In the next step, the "Basin" tool was applied, delimiting the watershed based on the foot of the hills.
- The resulting file was converted to a shapefile.
- A slope (in degrees) was also generated from the corrected and hydrologically consistent raster.

CAR ID	06	Date: 24/04/2023

- With these files, it was necessary to include the average slope obtained with the "Slope" in each polygon generated from the "Basin" tool. For this, zonal statistics were applied to generate a table with this data and join it with the shapefile using the IDs as a parameter.
- The same process was repeated, but with data from the raster corrected by the "Fill" command to obtain the minimum and maximum altitude and its amplitude.
- A column was then created in the attribute table of this shapefile where the altitude of the hill's upper third (protection area) was calculated. For this, the amplitude was divided by 3 and used to subtract from the maximum altitude value for each observation. The result then indicates at what altitude the upper third begins.
- A selection by attributes was then made, applying Boolean logic and selecting only observations where the slope is greater than 25 degrees and the amplitude is greater than 100 meters.
- These observations were exported to a new shapefile and converted back to raster format.
- Using the hydrologically consistent file as a base, a filter was applied, with only values greater than or equal to those obtained with the new file generated in the previous step. The result is a raster with pixels ranging from 0 to 1, where 0 represents altitudes lower than the upper third and 1 represents those above the upper third.
- The raster was converted back to a shapefile, and only observations with a value of 1 were selected.
- The areas were then intersected with deforestation mapped by PRODES (INPE, 2022).

References:

Fundação Brasileira para o Desenvolvimento Sustentável (FBDS). 2022. Available in <.http://geo.fbds.org.br/>. Accessed in 15th may, 2023.

INSTITUTO NACIONAL DE PESQUISAS ESPACIAIS. COORDENAÇÃO GERAL DE OBSERVAÇÃO DA TERRA. PROGRAMA DE MONITORAMENTO DA AMAZÔNIA E DEMAIS BIOMAS. Desmatamento – Amazônia Legal. 2022. Available in <.http://terrabrasilis.dpi.inpe.br/downloads/>. Accessed in 15th may, 2023.

NASA. NASA Shuttle Radar Topography Mission Global 1 arc second [Data set]. NASA EOSDIS Land Processes DAAC. 2013. Available in <. https://doi.org/10.5067/MEaSUREs/SRTM/SRTMGL1.003>. Accessed in 15th may, 2023.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

Annexes:
230515_Hydrography.zip
230515_APP_with_deforestation.zip
230515_APP_slope.zip

DOE assessment	Date: 02/07/2023

1. The Project Proponent provided the "*230515_APP_with_deforestation.zip*" and these files demonstrate that most of the deforestation in the APP area on the farms is old. However, according to the "*230515_Prodes_TDX_APP*" file, it is possible to verify some deforested/degraded areas in APP within the project area.

CAR ID	06	Date: 24/04/2023

With the information provided by PP in response to this finding, it is still unclear how Law No 12.651 of 25/05/2012 is being complied with about APPs of rivers and springs within the project area. **PENDING**

1.a) In addition, some APPs on the border of the property apparently were recently deforested (they are in dark red). Therefore, it is not clear whether these more recently deforested and degraded APPs are within the project area and whether they had forest cover 10 years before the implementation of the TdX Project. **PENDING**

1.b) Considering that the APP areas are of legal compliance, it is not clear why the Project Proponent did not exclude these areas from the project and it is mandatory that the owner preserve the APPs. **PENDING**

2. The Project Proponent provided a full analysis of how Law No 12.651 of 25/05/2012 is being complied with about the top of hills APPs, using official and reliable databases and data processing in a suitable tool.
It is clear from the explanation and the result presented in the "*230515_Topo_Morro_TDX*" file that the project does not have areas with a top of hills APPs and in this case, Law No 12.651 of 05/25/2012 does not apply. **OK**

Considering the lack of evidence mentioned above, the CAR remains open

Project participant response	Date: 25/07/2023

Replies to "PENDING" topics:

1. The Project Proponent provided the "*230515_APP_with_deforestation.zip*" and these files demonstrate that most of the deforestation in the APP area on the farms is old. However, according to the "*230515_Prodes_TDX_APP*" file, it is possible to verify some deforested/degraded areas in APP within the project area.

With the information provided by PP in response to this finding, it is still unclear how Law No 12.651 of 25/05/2012 is being complied with about APPs of rivers and springs within the project area.

To address the issues raised by the reviewer it is important to have in mind the following points:

- The coverage maps from the MapBiomas platform constitute the primary dataset employed in the TDX project.
- The PRODES yearly deforestation raster constitutes an independent dataset that combines multiple deforestation patches observed at different years into a single map (and consequently, the only yearly transition that can be inferred from the PRODES raster is "forest to non-forest").
- Although yearly transition maps derived from these sources will generally agree, the agreement is not perfect, as one should expect.

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- MapBiomas was selected as the primary dataset for it allows, by means of temporal analysis, the identification of secondary vegetation and thus the distinction between non-eligible forests less than 10 years of age and eligible forests more than 10 years of age. The project area, to be sure, includes only eligible forests.
- Therefore, *by definition*, there are no deforested/degraded APPs areas within the project area, *according to the selected MapBiomas dataset.*

Now, while the resolution of the original JPEG map is such that the zoomed-in snapshots included in the reviewer's comment end up having poor resolution, inadequate to investigate the layers of the original image, it is nevertheless true that some parts of APP areas inside the project area appear with a "deforested" color code in the map.

This conflict, however, arises because the image combines data from both MapBiomas and PRODES, that is: project areas correspond to eligible forests according to MapBiomas, but the color codes in the APPs shapefile were assigned according to PRODES deforestation classes. Since these are independent data sources, one must be careful when drawing conclusions from the map.

Consider the case of Didácio's farm, depicted in Figure 1. It can be observed that APPs were deforested within property boundaries before 2012 (in fact, before 2007; see the annexed high-resolution map "230724_TDX_APP_PRODES.jpeg"), and that a significant amount of regeneration has taken place in the affected areas (evidenced by large patches of "Secondary Forest" class), with even fully regenerated eligible forests appearing where once deforestation occurred. In this case, the regeneration further increases discrepancies between PRODES and MapBiomas coverage classes. Again, these discrepancies between independent dataset are perfectly normal and expected.

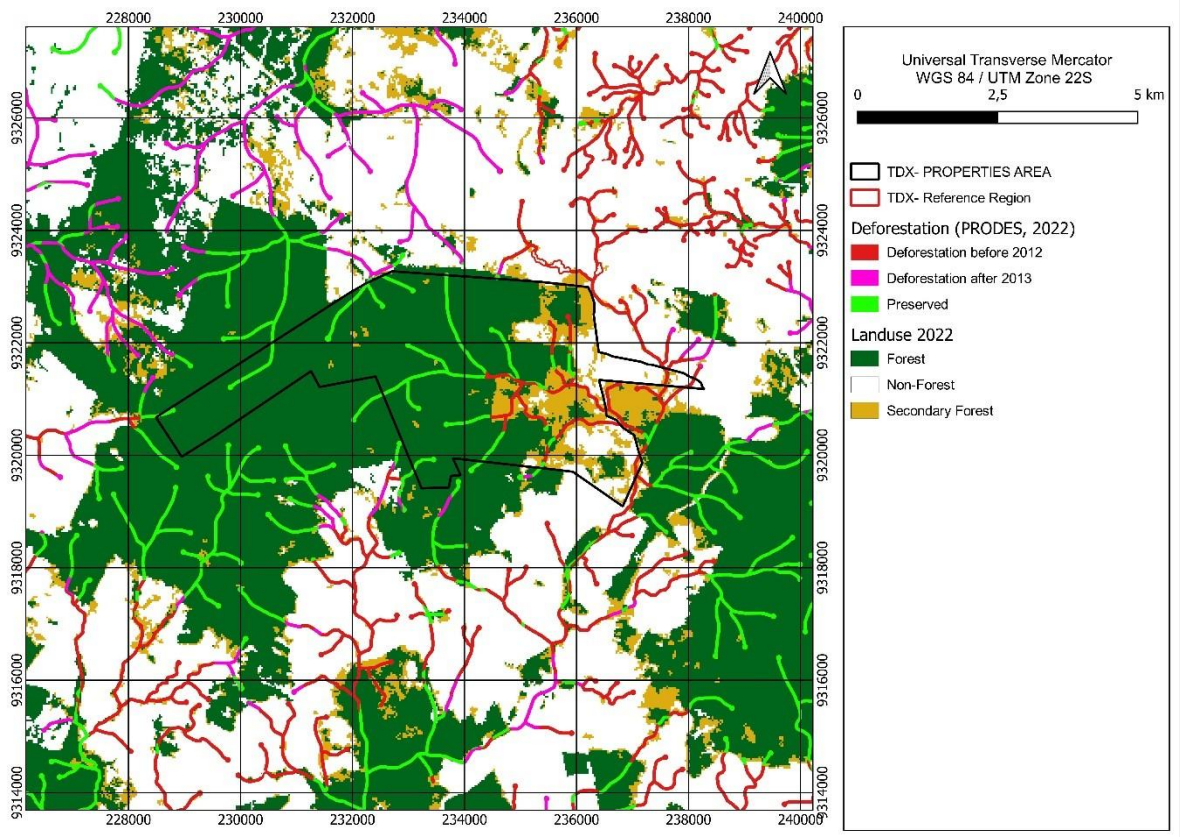

Figure 1. (230724_TDX_APP_PRODES_MapBiomas_2022_Didacio.jpeg) Map showing APPs at Didádio's property and its surroundings, colored according to PRODES deforestation classes, and the relevant land-use classes from our base maps derived from MapBiomas.

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1.a) In addition, some APPs on the border of the property apparently were recently deforested (they are in dark red). Therefore, it is not clear whether these more recently deforested and degraded APPs are within the project area and whether they had forest cover 10 years before the implementation of the TdX Project.

The reviewer refers to Sefer's property; the farms and its surroundings are depicted below in Figure 2, with APP areas superimposed. Once more, it is possible to observe that APPs within property boundaries have been deforested before 2012 (in fact, before 2007; see the annexed high-resolution map "230724_TDX_APP_PRODES.jpeg"). Here the agreement between PRODES and MapBiomas is better, partly because affected areas don't display signs of regeneration. Indeed, in this case, the origin of the conflict noted by the reviewer seems to be much trivial: in the zoomed-in snapshot added in the comment property boundaries are represented with thick lines and do not allow a proper distinction between APP segments inside and outside the project area. When the map is analyzed at better resolution one concludes that recently deforested/degraded APPs are, in fact, located outside the property (except, of course, for possible tiny discrepancies due to the use of the independent datasets).

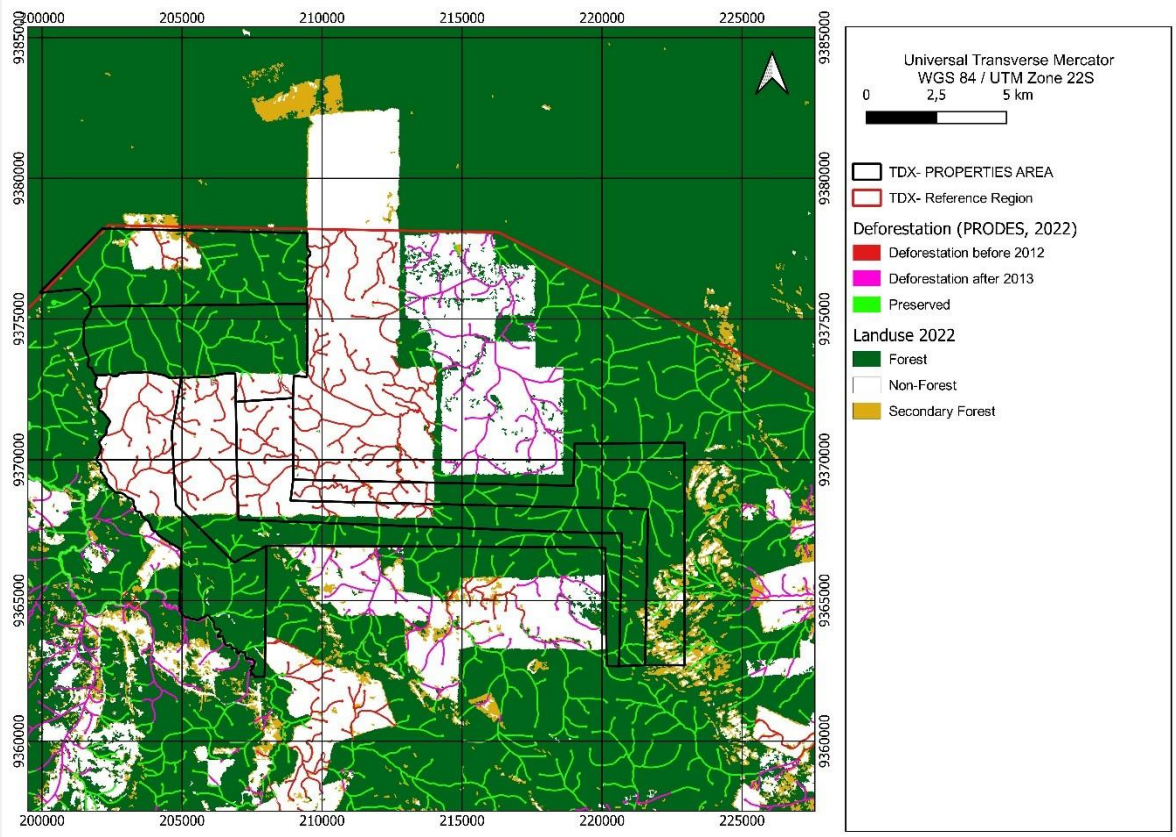

Figure 2. (230724_TDX_APP_PRODES_MapBiomas_2022_Sefer.jpeg) Map showing APPs at Sefer's property and its surroundings, colored according to PRODES deforestation classes, and the relevant land-use classes from our base maps derived from MapBiomas.

1.b) Considering that the APP areas are of legal compliance, it is not clear why the Project Proponent did not exclude these areas from the project and it is mandatory that the owner preserve the APPs.

As explained above, all APP areas within the project area are preserved since, by its very definition, the project area consists only of eligible forests more than 10 years of age. The apparent conflict originates from these APP maps being produced by a combination of MapBiomas and PRODES data (the latter through the color code assigned to the APP segments) which agree only approximately. Moreover, the vegetation has already regenerated in some of the affected areas, making the discrepancy more pronounced. Finally, the JPEG images made available to the reviewer did not have sufficient resolution to allow for an adequate inspection at a high zoom level, which created further confusion.

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An updated, higher resolution JPEG image of the APPs in the TDX reference region is included in the annexed files, alongside the auxiliary figures used in this response.

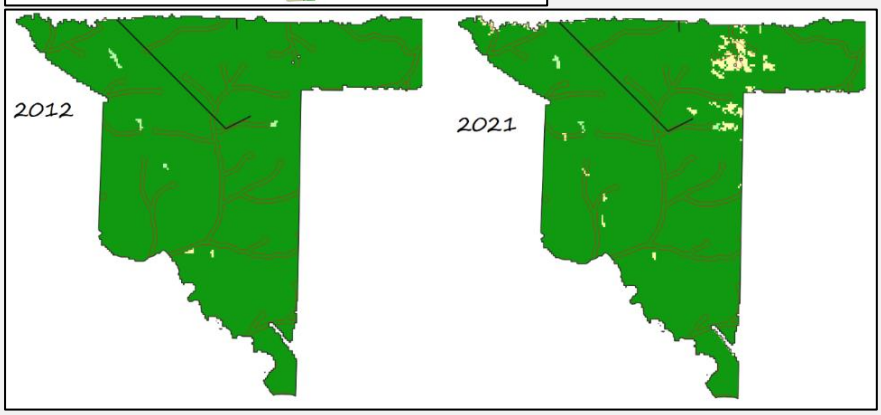
Documentation provided by project participant

Annexes:

- 230724_APP_with_deforestation.zip:
  - APP_Prodes_2022 (shapefile directory)
  - 230724_TDX_APP_PRODES.jpeg
  - 230724_TDX_APP_PRODES_MapBiomas_2022_Didacio.jpeg
  - 230724_TDX_APP_PRODES_MapBiomas_2022_Sefer.jpeg

DOE 2nd assessment	Date: 03/08/2023

1. and 1.a) The audit team analyzed the MapBiomas images from 2012 and 2021 and, comparing with the Project Area, it was found that there is a land cover change in some points, including APP areas, as shown in light yellow in the images below:



As such, it is not clear how the Project Proponent is complying with the eligibility requirements and with Law No 12.651 of 25/05/2012 about APPs of rivers and springs within the project area. **PENDING**

1.b) It is clear from the explanation of the Project Proponent that were included in the Project Area forests with more than 10 years of age. However, the above finding found some inconsistencies related to eligibility.

CAR ID	06	Date: 24/04/2023

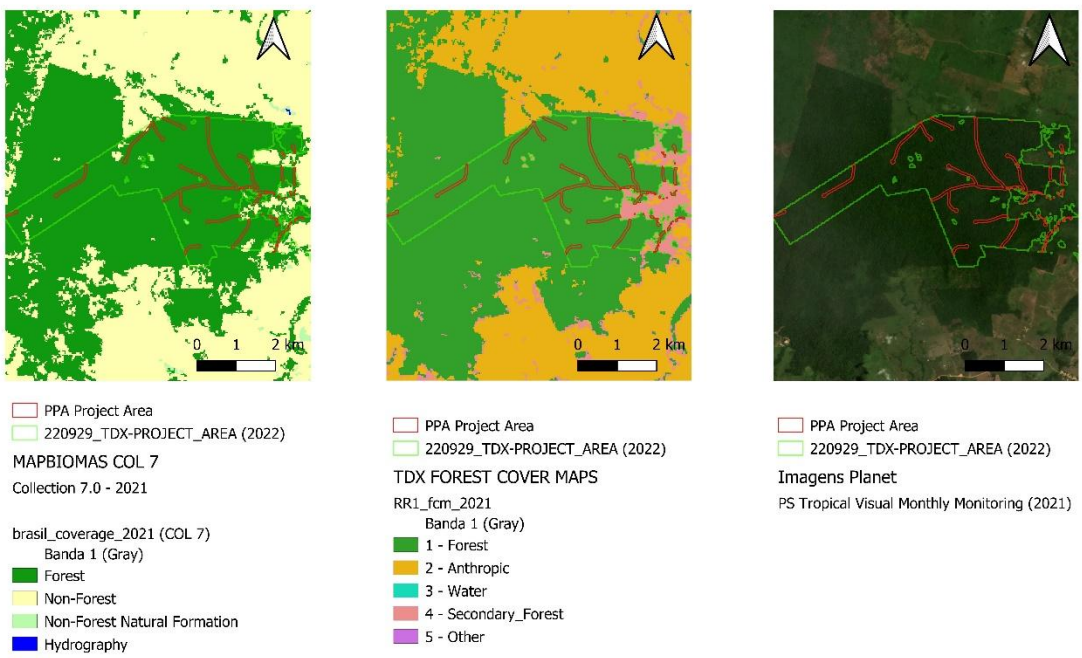
Furthermore, the PP does not completely answer the question of this finding item. Considering that the APP are mandatory preservation areas to comply with National Law No 12.651 of 05/25/2012, it is not clear whether the APPs are within or outside the project area**. PENDING**

Considering the lack of evidence mentioned above, the CAR remains open

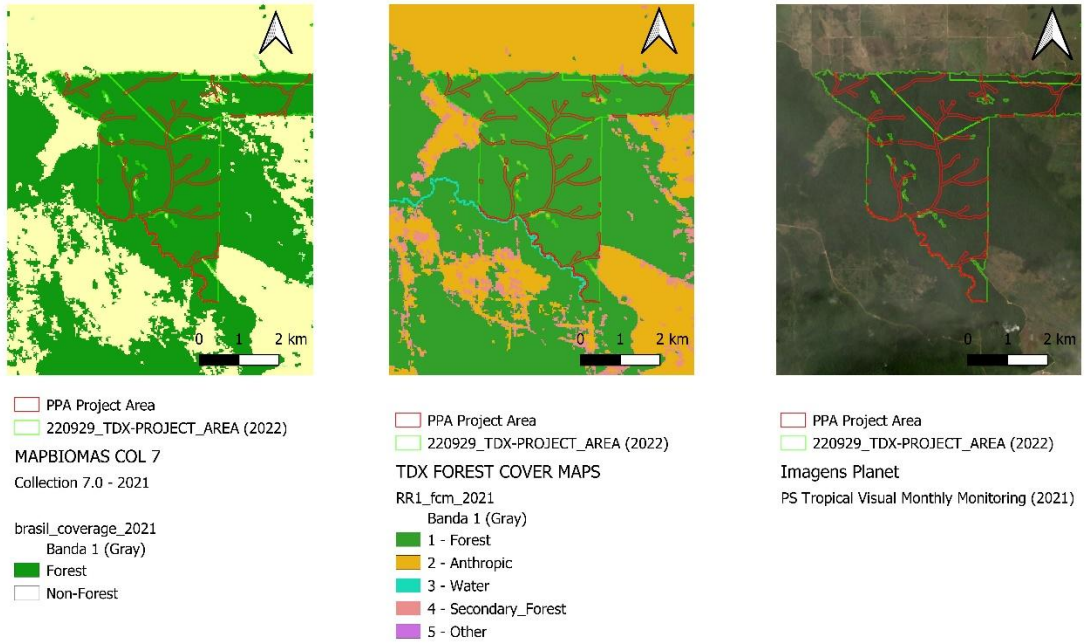
Project participant response	Date: 31/08/2023

1 and 1.a) It is important to point out that, in the analyzes that led to the definition of the eligible forest for the project area, the MapBiomas' classified land cover maps, from Collection 6, were only used up to the year 2020. As explained in section 3.4.1 of the Project Description, MapBiomas' maps for the years 2021 and 2022 were not available during the preparation of the document (the land cover map for 2021, used by the audit team in the recent assessment, only became available upon release of Collection 7). For the years 2021 and 2022, classified land cover maps prepared by Systemica's team were used, as presented in the file "221019_TDX-Annex-Historical_Maps.pptx" of the annex "221020_TDX-GIS_DATA_PROCEDURES.zip". As also detailed in section 3.4.1, the map classification process followed all guidelines of methodology VM0015, such as the imposition of minimum classification accuracy of 80%.

It is very important to bear in mind that different land cover classifications may provide slightly different results (Foody, 2022), due to the acceptable margin of error in these processes. As shown in the figures below, Systemica's (middle panel) and Mapbiomas' Collection 7 (left panel) classified land cover maps for 2021 have minor differences for the project area. However, as shown by the satellite image below (right panel), in the specific case of land cover for the project area, Systemica's classification proves to be correct. Conservatively, the Systemica's team was concerned with verifying, against satellite images, the land cover classification prepared for the project area.



CAR ID	06	Date: 24/04/2023



Moreover, land cover changes were analyzed year by year, not just at the extremes of the time period. In this way, the definition of the eligible forest, which composes the project area, was carried out in a very precise and conservative manner, excluding all changes in land cover that occurred in the period of 10 years prior to the start date of the project. It is not clear from the figures presented by the audit team, but areas without forest cover indicated by the MapBiomas classification in 2012 are indeed excluded from the project area, as evidenced by the original annex "221014_project_area_TdX.kml" and in the figures above.

Therefore, as explained above, the project proponent complies with all requirements for defining the project area, which is composed only of eligible forest, in complete agreement with the methodological guidelines. Consequently, the project area complies with the forestry code (Law 12.651 of 2012), in particular regarding APPs, since the entire project area, by construction, is covered with forest.

1.b) As explained above, the apparent inconsistencies pointed out by the audit team are the result of valid differences between the classified land cover maps prepared by MapBiomas and by Systemica's team. It must be emphasized that the MapBiomas' map for 2021 was not used in the design of the project, being used, for that year, a classification prepared by the Systemica's team, which strictly followed the methodological guidelines. Furthermore, as evidenced above by satellite images, the classification prepared by Systemica's team is factually correct in the project area. Therefore, the project area is composed only of eligible forest, in accordance with the methodological requirements. As a direct result, all APPs within the project area are covered by forest and, consequently, in accordance with the forest code.

The following paragraph and figures, indicating the PPAs size and locations within the project area, have been included in section 3.3.2 "Project Area" of the Project Description:

"As shown in Figure 0.15 and Figure 0.16, a relevant part of the project area consists of permanent protection areas (PPAs). Within the Didácio Milhomens' property, 101.24 ha are PPAs out of the 1,406.79 ha of eligible forest, i.e., 7.2% of the project area. Similarly, in Rafael Sefer's properties, 893.93 ha are PPAs out of the 9,229.23 ha of eligible forest, i.e., 9.7% of the project area. Therefore, considering the complete first project instance, 995.20 ha of PPAs are part of the 10,636.02 ha of project area, that is, the PPAs represent 9.4% of the total project area. As discussed respectively in sections 3.4 and 3.5, AUD activities on PPAs are additional and, consequently, the deforestation of these areas is part of the project baseline scenario."

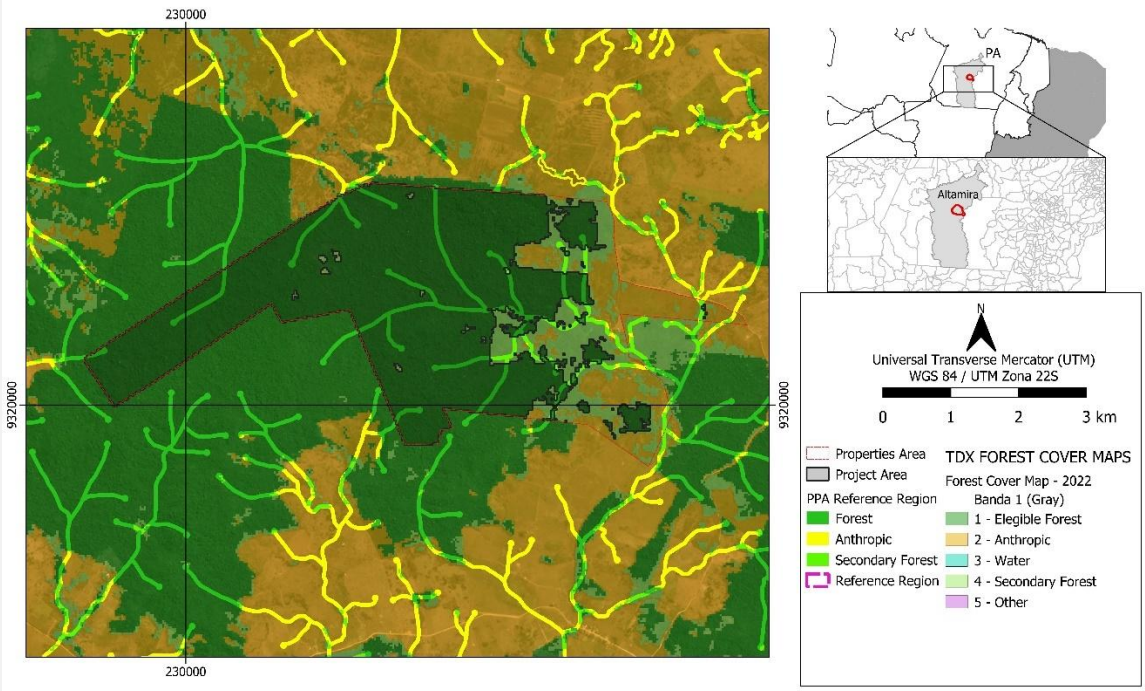


Figure 0.15 TdX Forest cover map with PPAs – Didácio Milhomens' property

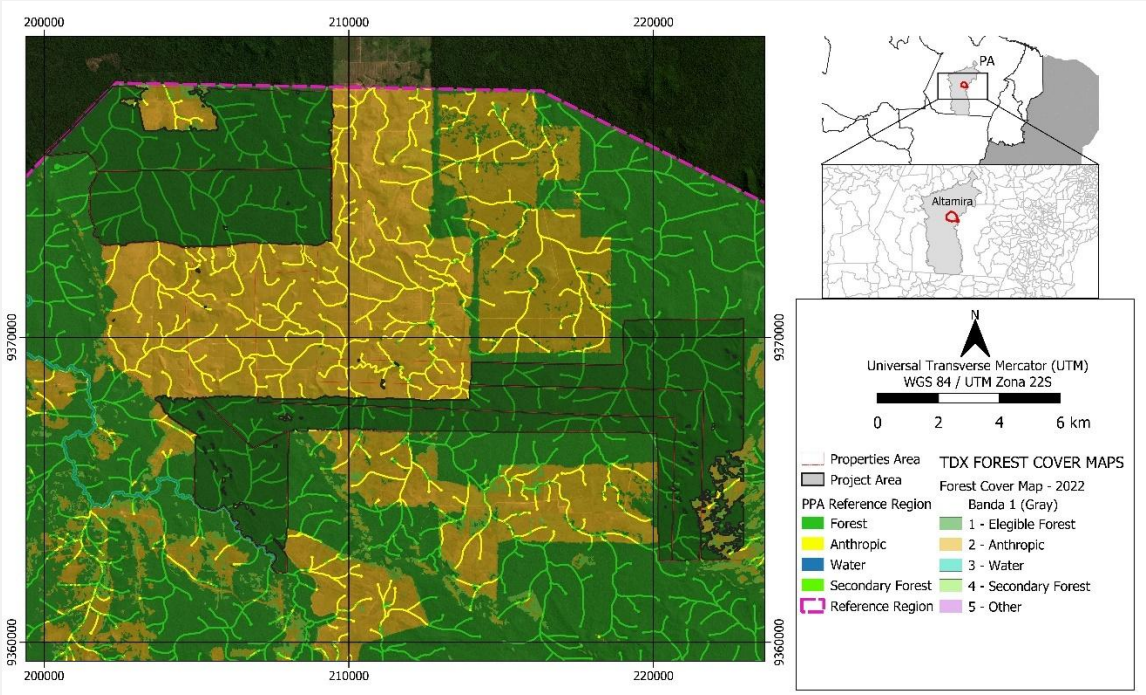


Figure 0.16 TdX Forest cover map with PPAs – Rafael Sefer's properties

The following paragraphs and figures, discussing the additionality of project activities on PPAs, have been included in section 3.5.1, sub step 1b "Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations" of the Project Description:

"As discussed in section 3.4.1 and evidenced by Figure 0.19, within the project's reference region, unplanned deforestation makes no distinction between permanent protection areas (PPAs) and other forest areas. Moreover, according to the following discussion and Figure 0.7 and Figure 0.8, in which classified land use maps from the

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MapBiomas's Collection 6 for the year 2021 are considered, the same situation is found in the municipality of Altamira and in the APA Triunfo do Xingu, which are respectively the smallest administrative unit and the environmental conservation unit encompassing the project area.

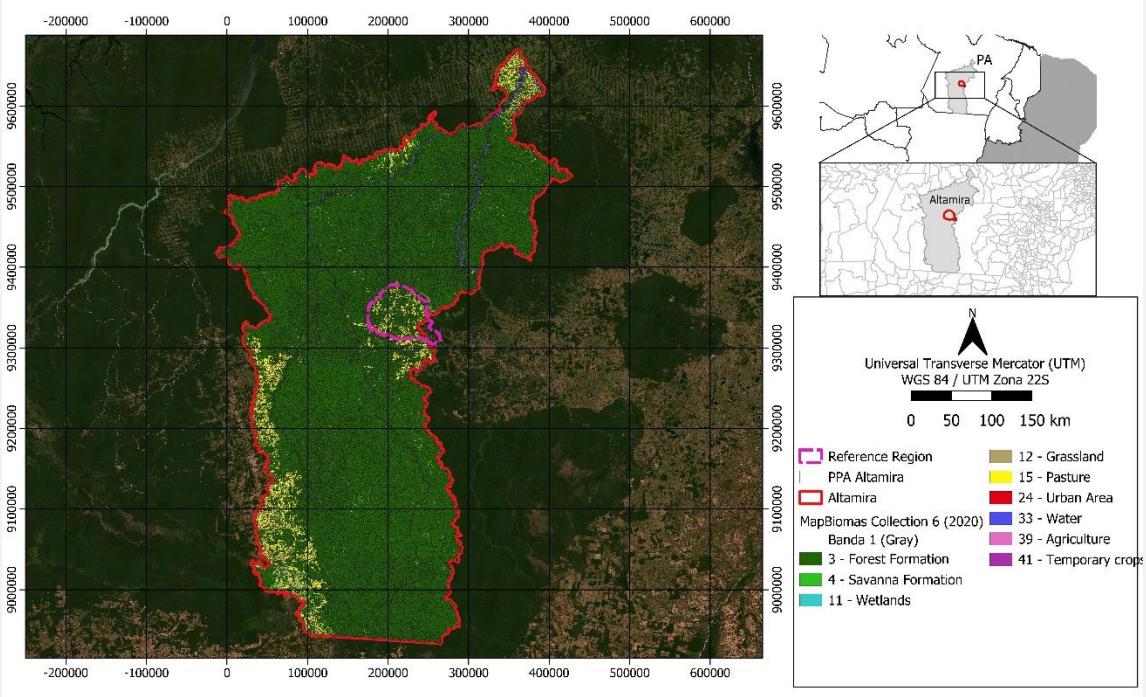

Figure 0.7 Altamira's Forest cover map with PPAs

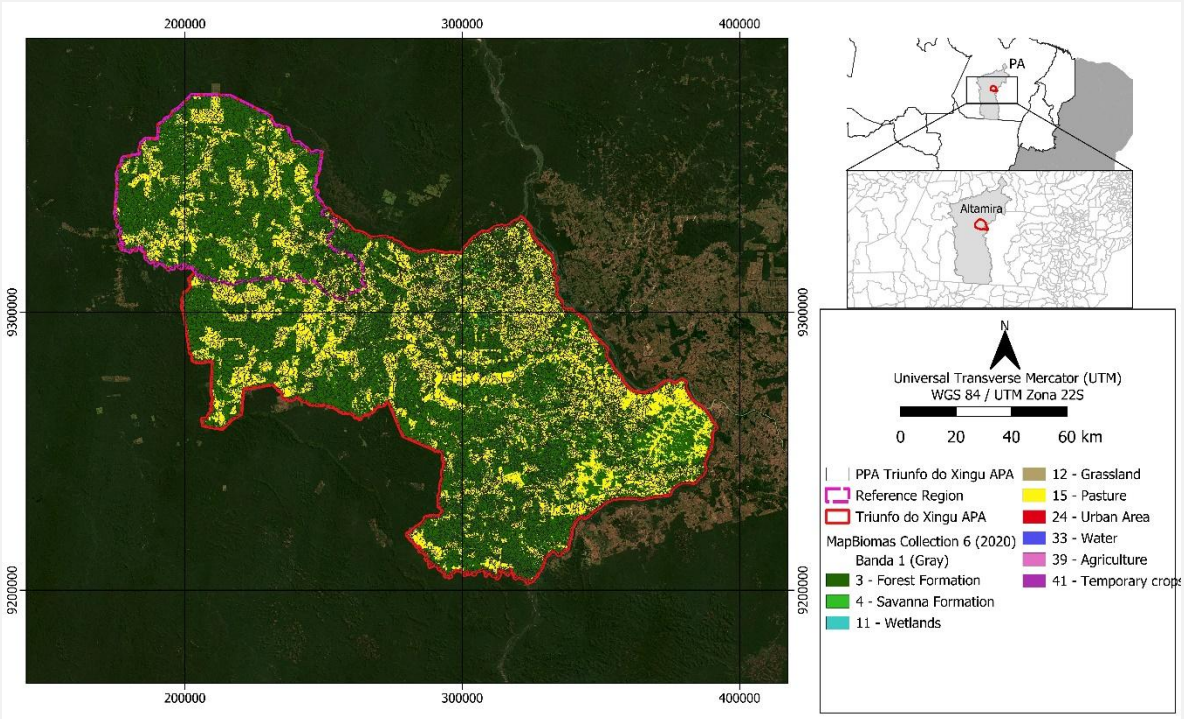

Figure 0.8 Triunfo do Xingu APA Forest cover map with PPAs

As shown in Figure 0.7, 7.04% of the municipal area of Altamira has undergone anthropic changes in land use, while 6.01% of PPAs in the municipality have been deforested. Analogously, as shown in Figure 0.8, 36.19% of

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the area of the APA Triunfo do Xingu has undergone anthropic modifications, while 34.71% of the PPAs in this conservation unit have been deforested. Therefore, there is an evident proportionality between deforestation of PPAs and other forest areas considering the administrative and environmental conservation units analyzed here. In other words, the unplanned deforestation of PPAs in conjunction with other forest areas is a prevalent behavior in the entire area of the smallest administrative unit and the environmental conservation unit where the project area is located. Consequently, it is concluded that the Brazilian Forest Code (Law 12,651/2012), which mandates the preservation of PPAs, is systematically not enforced and non-compliance with it is widespread, in agreement with the criteria established in VT0001, version 3.0.
According to the concept of additionality brought by the VCS standard, version 4.4, a project activity is additional if its resulting emission reductions represent an excess of what would be achieved under the "business as usual" scenario and such activity would not have occurred in the absence of the financial incentives of the carbon market. Therefore, it is concluded that the deforestation of PPAs is part of the common practice and, consequently, of the "business as usual" scenario in the project's region. Although the Brazilian Forest Code (Law 12,651/2012) mandates the preservation of PPAs, their actual protection and resulting emission reductions would not occur in the absence of AUD project activities, which in turn are not required by law. Consequently, the inclusion of PPAs in the project area, as indicated by Figure 0.15 and Figure 0.16 of section 3.3.2, is indeed additional.

The following paragraph and figure, indicating the role of PPAs in the project baseline, have been inserted in section 3.4.1 "Analysis of historical land-use and land-cover change" of the Project Description:

"*As evidenced in Figure 3.21, within the project's reference region, deforestation is widely observed in permanent protection areas (PPAs). In fact, according to the classified land cover map for the year 2022, 33.2% of the reference region's total area has undergone anthropic changes in land use, while 30.8% of the PPAs within the same region have suffered the same fate. As demonstrated by these numbers, unplanned deforestation in the reference region does not show significant distinction between PPAs and other forest areas. Therefore, deforestation of PPAs is also considered indistinctly in the baseline scenario and in its modeling.*"

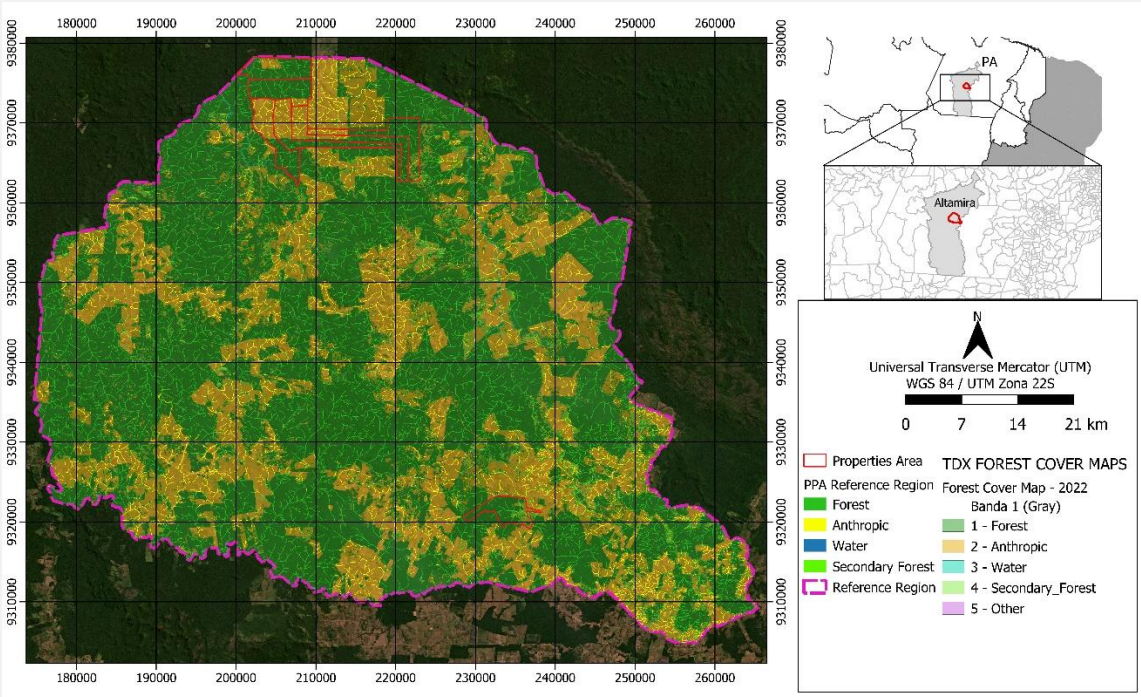


Figure 0.19 TdX Forest cover map with PPAs

Documentation provided by project participant

References:

- Foody, G. M. (2002). Status of land cover classification accuracy assessment. Remote sensing of environment, 80(1), 185-201. (Foody2002.pdf)

CAR ID	06	Date: 24/04/2023

Annexes:

221019_TDX-Annex-Historical_Maps.pptx
221020_TDX-GIS_DATA_PROCEDURES.zip
221014_project_area_TdX.kml

DOE 3rd assessment	Date: 05/09/2023

1 and 1.a) The Project Proponent justified and explained the process for analyzing eligible areas for the project, which are areas with forest cover 10 years prior to the project start date. The PP also justified and described in PD that the MapBiomas images were used until the year 2020 since the results for 2021 and 2022 were not available during the preparation of the PD. The analyses of the maps for the years 2021 and 2022 were carried out by the project team and followed the map classification by the guidelines and accuracy of 80% of the methodology.

The Audit Team verifies the contents and relevance of the support information included in References and Annexes to support the answer to the point.

In this way, the PP met the eligibility requirements of the methodology and, consequently, is complying with Law No 12.651 of 05/25/2012 about APPs of rivers and springs within the project area. **OK**

1.b) The project proponent justifies in adequate manner the answer and the criteria to consider additional the APPs and include these areas in the Project Area, The audit team confirms the updating of the PD in sections 3.3.2, 3.4.1 and 3.5.1 and consider the pertinence of the changes. **OK**

Finding closed successfully

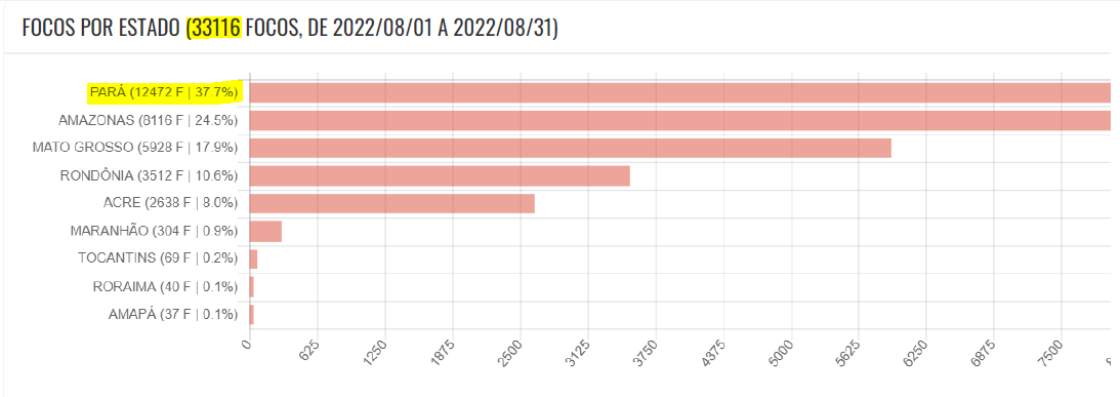
CL ID	07	Date: 24/04/2023

Description of CL

1. PD v1.04 section 2.1 states "*This scenario is even more aggravating if we consider that high deforestation numbers result in a proportional increase in the number of fires. In August 2022, in the period between 01 and 31 was detected an alarming volume of heat foci, with a record of 47,507 outbreaks in the Brazilian Amazon, of which 26.3% (INPE, 2022b)*".

PD v1.04 section 2.1 states "*Between August 1, 2022 and October 5, 2022, Pará was responsible for 34.3% of all the fires recorded in the Amazon biome (INPE, 2022b)*."

INPE, 2022b reference:



The values described in PD v1.04 are inconsistent with the values presented in the reference.

2. PD v1.04 section 2.1.1 states "*The territory surrounding the borders of project properties consists of an area of demographic emptiness, and does not present, in the satellite image studies in the primary data surveys carried out throughout the fieldwork, and in secondary data through desk research, the occurrence of Indigenous Lands,*

CL ID	07	Date: 24/04/2023

registered Quilombola Communities, Settlement Projects, and Traditional Communities (riparian,extractivism, fishing or gathering communities)".

The project does not mention the source of secondary data used for the occurrence analysis of Indigenous Lands, Quilombola Communities, Settlement Projects, and Traditional Communities.

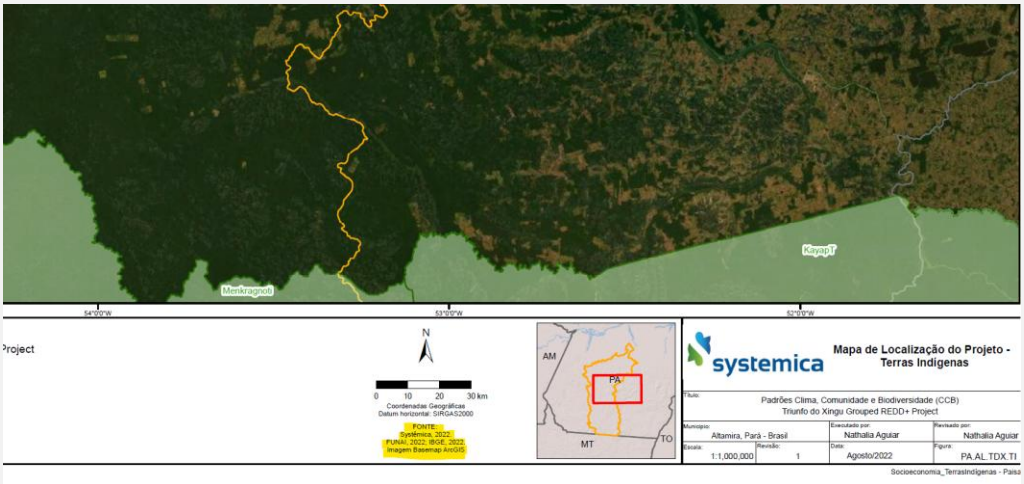
Project participant response	Date: 22/05/2023

1. **Reference with data from the Brazilian Amazon Biome x Reference with data at the Brazilian level and different periods.** In the first paragraph of the text we use the values at the Brazilian level, but the print refers to the values at the level of the Brazilian Amazon biome. In the second paragraph, the values refer to a different period than in the print.

   The print screen has been redone. The reference to the values in the first paragraph has been readjusted to the Brazilian territory level.
   Updated text: "*This scenario is even more aggravating if we consider that high deforestation numbers result in a proportional increase in the number of fires. In August 2022, in the period between 01 and 31 was detected an alarming volume of heat foci, with a record of 47,507 outbreaks in the Brazilian Territory, of which 26.3 were registered in the state of Pará, which has been leading, along with the Amazonas and Mato Grosso, the process of degradation of the Amazon biome in the country in the last three years (INPE, 2022b).*"

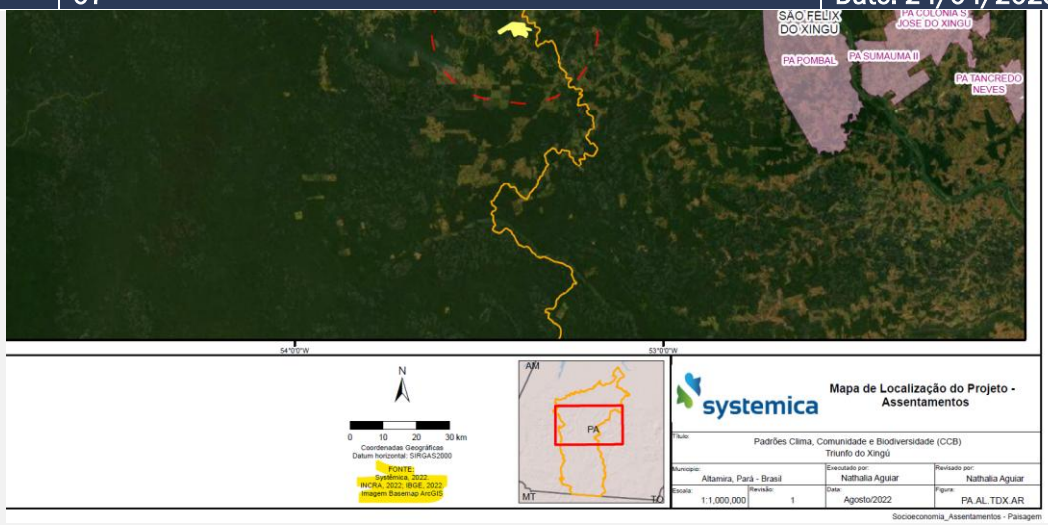
   The values in the second paragraph were slightly incorrect, the correct value for the period being 33.9%.
   Updated text: *"Between August 1, 2022 and October 5, 2022, Pará was responsible for 33.9% of all the fires recorded in the Amazon biome (INPE, 2022b)."*

2. The source of each of the socioeconomic maps is referenced in the maps themselves, as shown in the images below. However, these references were not included in the text because it is an annex to the PD. Therefore, they were included below each of the maps of the annexes to clarify the source link of each of the references.

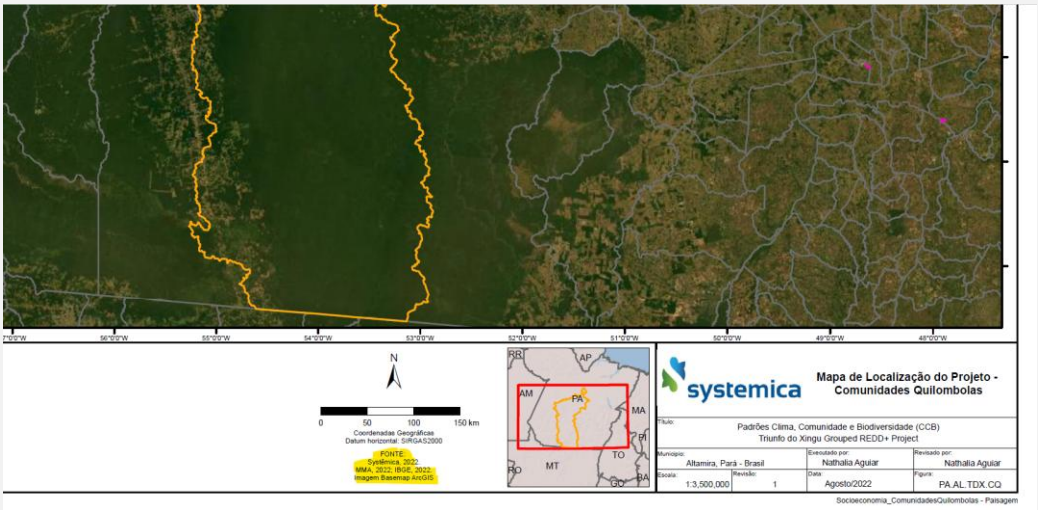


   221014_Socioeconomics_IndigenousLands_rev.pdf: Fundação Nacional do Índio. Files in shapefile format. Available at: https://www.gov.br/funai/pt-br/atuacao/terras-indigenas/geoprocessamento-e-mapas

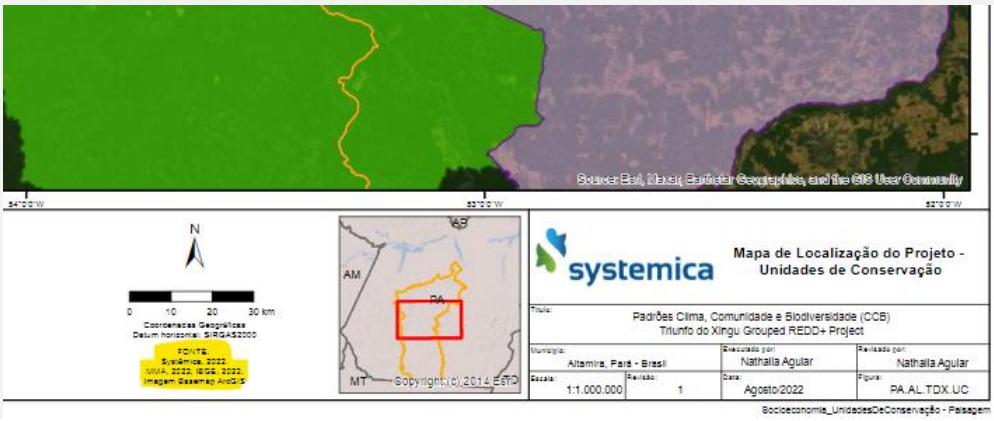
CL ID	07	Date: 24/04/2023



221014_Socioeconomics_SettlementProjects_rev.pdf: Instituto Nacional de Colonização e Reforma Agrária. Files in shapefile format. Available at: http://certificacao.incra.gov.br/csv_shp/export_shp.py



221014_Socioeconomics_QuilombolaCommunities_rev.pdf: Instituto Chico Mendes de Conservação da Biodiversidade. Populações Tradicionais. Files in shapefile format. Available at: https://www.gov.br/icmbio/pt-br/assuntos/populacoes-tradicionais



CL ID	07	Date: 24/04/2023

221014_Socioeconomics_ConservationUnits_rev2.pdf: Instituto Chico Mendes de Conservação da Biodiversidade. Populações Tradicionais. Files in shapefile format. Available at: https://www.gov.br/icmbio/pt-br/assuntos/populacoes-tradicionais.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

Annexes:
221014_Socioeconomics_ConservationUnits_rev2.pdf:
221014_Socioeconomics_QuilombolaCommunities_rev.pdf
221014_Socioeconomics_SettlementProjects_rev.pdf
221014_Socioeconomics_IndigenousLands_rev.pdf:

References:
INPE2022b.pdf

DOE assessment	Date: 02/07/2023

1. The Project Proponent updated section 2.1 of PD v2.0 and attached support for the values described in this section. In this way, the PD values are consistent with the presented support. **OK**

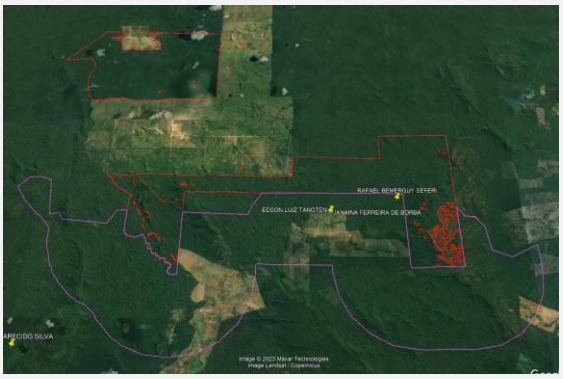
2. The Project Proponent clarified that the source of secondary data used for the occurrence analysis of Indigenous Lands, Quilombola Communities, Settlement Projects, and Traditional Communities were described in the maps, as presented in the finding response.
In this way, the PP provided the source of each socioeconomic maps. **OK**

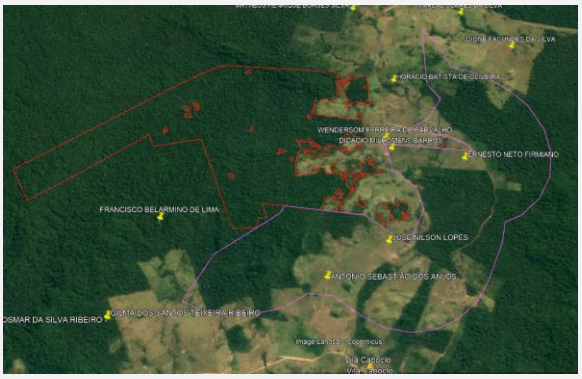
Finding closed successfully

CL ID	08	Date: 24/04/2023

Description of CL

"221014_Social_diagnosis", "*221014_project_area_TdX*" and "*221003_TDX-LEAKAGE_BELT*" kml files:





PD v1.04 section 1.11 "*Leakage control: The project proponent together with the landowners comprehends the conceptual complexity and difficulties of implementing a policy for preventing potential leakage. Therefore, the Project proponents will adopt a proactive initiative for fighting leakage sources. This adoption will be based on a cooperative effort with local stakeholders to promote a new approach to forest use and land use in the region. To objective of those efforts will be directed to raise awareness on the people leaving in the nearby areas about environmental education. In order to mitigate leakage, the Project proponents foresee continuous monitoring and interventions in areas surrounding the Project (Leakage Belt), which will be mapped by satellite.*"

It was verified through the "*221014_Social_diagnosis*" kml file that there are 5 neighbors within the Leakage Belt area of the project and that these neighbors do not have the names listed in the "*230317b_Stakeholder_List*" file.

CL ID	08	Date: 24/04/2023

According to the description of the project activity "*Leakage control*", it is not clear why these neighbors were not considered as project stakeholders and whether they will be included in the proposed leakage control activities.

Project participant response	Date : 22/05/2023

According to the description of the project activity "Leakage control", in the paragraph, it is listed some activities that will be implemented in order to prevent leakage. To clarify which measures will be implemented, it´s important to go through some parts of the described in the PD.

2) It´s mentioned that "***the Project proponents will adopt a proactive initiative for fighting leakage sources***". This statement means that the Systemica company will take appropriate measures to prevent sources of leakage;
3) ***"This adoption will be based on a cooperative effort with local stakeholders to promote a new approach to forest use and land use in the region.".*** Stakeholders better defined in the PD v2.0, Section 2.2 will have a relevant role in leakage control. The stakeholders of the project are those listed in the TdX stakeholders list (230317b_Stakeholder_List.xlsx). This list does not include the neighbors who are not part of the Caboclo Village community (the primary stakeholder of the project), as they do not represent a community.;
4) ***"To objective of those efforts will be directed to raise awareness on the people leaving in the nearby areas about environmental education."***. Description of the main objective of the leakage prevention actions that will be done with the local stakeholders (Caboclo Village);
   To clarify the statement should change "people" to "stakeholder" and include the "Caboclo Village" as the focus of the environmental education activities. The new statement is: "To objective of those efforts will be directed to raise awareness among the stakeholders leaving in the nearby areas (Caboclo Village) about environmental education.
5) *"**In order to mitigate leakage, the Project proponents foresee continuous monitoring and interventions in areas surrounding the Project (Leakage Belt), which will be mapped by satellite."*** Description of the activities that will be carried out inside the leakage belt, which includes primarily the neighbors inside the leakage belt. On the neighbors, there will be no project activities that impact their customs and ways of life, as the only activity that involves them is remote monitoring.
   Therefore, the use of the term intervention is incorrect and has been reformulated as follows: *"In order to mitigate leakage, the Project proponents foresee continuous remote monitoring of the areas surrounding the Project (Leakage belt) and interventions with the local stakeholders in the surrounding areas (Caboclo Village)."*

Following **item 3.18.12 of the v4.4 of the VCS Standard** and what was explained in **section 2.2 of the PD v2.0,** the local stakeholders are only those who are impacted by the project in some way. No intervention is planned with the neighbors who are not part of Caboclo Village, they were only mapped and remote monitoring will be done in order to mitigate and evaluate eventual leakage, therefore, these neighbors are not impacted by the project activities. Attached is also an updated stakeholder list (230317b_Stakeholder_List.xlsx), because it better defines the importance of each of the stakeholders.

New paragraph included in section 2.2 of the PD v2.0:
"*The Local Stakeholders were identified based on section 3.18.12 of the VCS Standard v4.4. Therefore, the groups that will be impacted by the project were included as local stakeholders, as presented in the list of stakeholders in XLS spreadsheet. They include the Vila Caboclo community (community stakeholder), as it is the closest community to the project, where the REDD+ capacity building activities were applied, and also depend on water resources partly provided within the project areas, as it is further detailed in the paragraphs below in this section; relevant institutions (institutional stakeholders), as the project performs activities synergistic to its objectives; and the administrators of the project farms (other stakeholders), as they will participate in local management and monitoring activities."*

(VCS Standard v4.4, 3.18.12)
*"**Local Stakeholder Identification and Background***
3.18.12 The project proponent shall conduct a thorough assessment of the local stakeholders that will be impacted by the project. The project description shall include information on local stakeholders at the start of the project, including:
1) The process(es) used to identify local stakeholders likely impacted by the project and a list of such stakeholders;
2) Identification of any legal or customary tenure/access rights to territories and resources, including collective and/or conflicting rights, held by local stakeholders;
3) A description of the social, economic and cultural diversity within local stakeholder groups and the differences and interactions between the stakeholder groups;
4) Any significant changes in the makeup of local stakeholders over time;

CL ID	08	Date: 24/04/2023

5) The expected changes in well-being and other stakeholder characteristics under the baseline scenario, including changes to ecosystem services identified as important to local stakeholders;
6) The location of communities, local stakeholders and areas outside the project area that are predicted to be impacted by the project; and
7) The location of territories and resources which local stakeholders own or to which they have customary access."

Documentation provided by project participant

Annexes:
230317b_Stakeholder_List.xlsx

DOE assessment	Date: 03/07/2023

The Project Proponent updated the description of the project activity "*Leakage control*" and clarified that the neighbors that are in the Leakage area are not considered stakeholders because there will be no project activities that impact their customs and ways of life. Thus, the only activity that involves them is remote monitoring of the Leakage.
Project stakeholders are listed at "*230317b_Stakeholder_List.xlsx*" and educational activities will be carried out with local stakeholders (residents of Caboclo Village). **OK**

Finding closed successfully

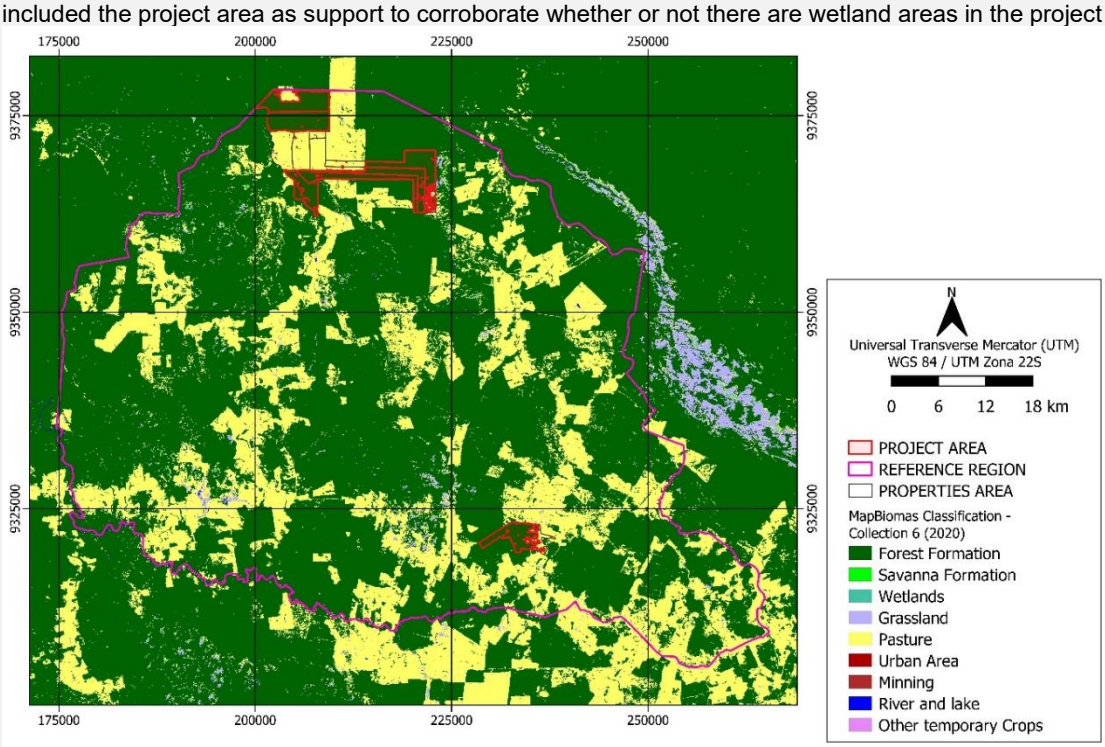
CL ID	09	Date: 24/04/2023

Description of CL

The Project Proponent provided the annex "*221014_classificationmapbiomes*" as support that there are no forested wetlands within the Project Area. This support presents the land cover classification in the Reference Region, but the delimitation of the Triunfo do Xingu Project area is not included to corroborate whether or not there are wetland areas in the project area.

Project participant response	Date: 22/05/2023

The attachment *'221014_classificationmapbiomes'* has been replaced by *230509_mapbiomasclassification,* included the project area as support to corroborate whether or not there are wetland areas in the project area.



Documentation provided by project participant

CL ID	09	Date: 24/04/2023

230509_mapbiomasclassification.jpeg

DOE assessment	Date: 03/07/2023

The Project Proponent provided the "*230509_mapbiomasclassification*" map, indicating the Reference Region, the Project Area, and the types of land cover according to the Map Biomas classification, allowing verification that there are no wetlands in the project. **OK**

Finding closed successfully

CAR ID	10	Date: 24/04/2023

Description of CAR

Compliance with Methodology VM0015:

Section 1.1.1 "*The boundary of the reference region is the spatial delimitation of the analytic domain from which information about rates, agents, drivers, and patterns of land-use and land-cover change (LU/LC-change) will be obtained, projected into the future and monitored.*
The reference region should contain strata with agents, drivers and patterns of deforestation that in the 10-15 year period prior to the start date of the proposed AUD project activity are similar to those expected to exist within the project area.

The boundary of the reference region shall be defined as follows:

4. A geographic area is relevant for determining the baseline of the project area when agents, drivers and overall deforestation patterns observed in it during the 10-15 year period preceding the start date of the proposed AUD project activity represent a credible proxy for possible future deforestation patterns in the project area."

The Project Proponent describes throughout the PD that illegal mining takes place in the APA Triunfo do Xingu and section 3.3.3 states "*Agents and drivers of deforestation*" states "*Agent groups: APA Triunfo do Xingu has a very strong problem of land grabbing in its territory, with constant pressure from large companies and large ranchers for land. The destruction of forests is mainly related to the activities of mining companies, illegal logging activities and occupation by ranchers and ranchers (COSTA, 2013).*"
In addition, during the audit, it was verified during the overflight that there are mining areas with high environmental impact near Vila Canopus, mainly in the Fresco River roundabout.

PD v1.04 section 3.3.3 "*Agents and drivers of deforestation*" states "*Other spatial drivers expected to influence the Project Area: The southwest region of the RR, around Canopus Village, suffers from the advance of the agricultural frontier and land conflicts, which involve local communities and farmers to powerful national economic groups. The area is the target of land grabbers, gunmen, prospectors, and illegal loggers, due to their large stocks of hardwoods, ores, and public and vacant lands (ISA, 2012). However, it is worth noting that this reality is limited only to the extraction region, which takes place in the same area where the mine was explored three decades earlier and involves both regular activity and illegal mining was explored three decades earlier and involves both regular activity and illegal mining (Cetem, 2014). In this first instance, the properties involved in the Project are about 40 kilometers from the aforementioned Canopus Village (as can be seen in Section 1.13), so this situation is not found and does not represent the Project Area.*

It was verified during the interviews with the stakeholders that, despite knowing Vila Canopus and the mining activity that takes place in the region, mining does not impact directly the project area because it is too far away, and the spatial analysis developed by the project proponent does not use this variable to define the projection of the future deforestation.

The Project Proponent describes in PD v1.04 that activities of mining companies are part of the agent group of deforestation, but that this situation is not found in the in the road trip to Vila Caboclo and the Didacio farm, nor evidenced in the overflight and does not clear how represent the Project Area. VM0015 v1.1 describes that the boundary of RR should be defined by deforestation patterns observed in it during the 10-15 year period preceding the start date of the proposed AUD project activity representing a credible proxy for possible future deforestation patterns in the project area.

CAR ID	10	Date: 24/04/2023

1. According to the arguments described above, it is not completely supported why the Project Proponent included the mining area in the Reference Region and what is the similarity of this agent and driver of deforestation within the Project Area.

2. PD v1.04 section 3.3.3 "*Landscape configuration and ecological conditions – Forest Classes*" uses the source "*IBGE, 2022a*" to reference the forest classes and the amount of coverage in % in the Reference Region. However, the source "*IBGE, 2022a*" presents data on the cattle herd in the cities of the state of Pará.

3. PD v1.04 section 3.3.3 "*Socio-economic and cultural conditions - Legal status and tenure of the land*" states "*Figure 3 8 displays the location of private properties within the RR. In addition to the Sustainable Use Conservation Unit, APA Triunfo do Xingu, the region has other private lands registered in CAR and SIGEF. The RR was defined to cover as much of the territory as possible, reconciling the similarity of socio-economic and cultural conditions with the Project Area, which is allocated on private property. So, in terms of land tenure and legal status, 100% of PA is similar to RR, meeting methodology requirements*."

Most of the map in Figure 38 "*Location of private properties showing the legal status and tenure of the land in Reference Region.*" is covered by properties represented by the CAR. However, it is known that the CAR is self-declaratory, that is, any person or owner can make the CAR declaration of ownership, and that one of the official geographic bases of land ownership in Brazil is the SIGEF, which is also included in the map.
It was also verified during the interviews with the stakeholders that the land regularization in the state of Pará has many gaps and difficulties, including in the Reference Region of the project.

Therefore, it is not clear whether the similarity analysis of "*Socio-economic and cultural conditions - Legal status and tenure of the land*" was carried out based on CAR or SIGEF data or both and whether this analysis takes into account the legal status (legal ownership or possession) of the lands.

<u>Leakage Management Area:</u>

4. Section 1.1.4 "*These are non-forest areas located outside the project boundary in which the project proponent intends to implement activities that will reduce the risk of activity displacement leakage, such as afforestation, reforestation or enhanced crop and grazing land management<u>. The boundary of such areas must be defined according to existing management plans or other plans related to the proposed AUD project activity.</u> Such plans shall be made available to the VCS Validation/Verification Body (VVB) at the time of validation. The boundary of leakage management areas must be clearly defined using the common projection and GIS software formats used in the project and shall be reassessed and validated at each fixed baseline period.*"

The project proponent did not describe or define in PD v1.04 the boundaries of the leakage management area, but the monitoring plan (section 5.2, page 174) states that planned activities in leakage management areas that result in a decrease in carbon stocks will be monitored annually, when significant.

5. VM0015 v1.1 section 1.4 "*Sources of GHG emissions: For excluded sources, briefly explain why the exclusion is conservative".*

The Project Proponent did not describe the "*Justification/Explanation*" of the sources of emissions not included in Table 3.6 of PD v1.04 "*Sources and GHG included or excluded within the boundary of the proposed AUD project activity*" (fourth column of the table).

6. Section 3.2 "*For each of these two sets of variables:*
1) List the 1 to 5 key driver variables and provide any relevant source of information that provides evidence that the identified variables have been a driver for deforestation during the historical reference period.
2) Briefly describe for each main agent group identified in step 3.1 how the key driver variables have and will most likely impact on each agent group's decision to deforest.
3) For each identified key driver variable provide information about its likely future development, by providing any relevant source of information.
4) For each identified driver variable briefly describe the project measures that will be implemented to address them, if applicable."

The Project Proponent did not describe for each identified key driver variables all the items required by section 3.2 VM0015, in section 3.4.2 of PD v1.04.

CAR ID	10	Date: 24/04/2023

7. Section 2.2 "*The following criteria shall be used to define the LU/LC classes:*
- In most cases one single Land-Use and Land-Cover Map representing the spatial distribution of forest classes at the project start date will be sufficient. However, where certain areas of land are expected to undergo significant changes in carbon stock due to growth or degradation in the baseline case, a sequence of Land-Use and Land-Cover Maps representing the mosaic of forest-classes of each future year may be generated.".

The Project Proponent did not present in section 3.4.1 in the PD v1.04 "*Definition of classes of land-use and land-cover*" the Land-Use and Land-Cover Map representing the spatial distribution of forest classes at the project start date or a sequence of Land-Use and Land-Cover Maps representing the mosaic of forest-classes of each future year.

8. Section 4.2.1 "*To create the Factor Maps use one of the following two approaches:*
- Empirical approach: Categorize each Distance Map in a number of predefined distance classes (e.g. class 1 = distance between 0 and 50 m; class 2 = distance between 50 and 100 m, etc.). In a table describe the rule used to build classes and the deforestation likelihood assigned to each distance class. The deforestation likelihood is estimated as the percentage of pixels that were deforested during the period of analysis (i.e. the historical reference period).
- Heuristic approach: Define "value functions" representing the likelihood of deforestation as a function of distance from point features (e.g., saw mills) or linear features (e.g., roads), or as a function of polygon features representing classes (e.g. of soil type, population density) based on expert opinion or other sources of information. Specify and briefly explain each value function in the PD.
(…)"

It is not clear in section 3.4.3 of PD v1.04 "*Projection of the location of future deforestation – Preparation of factor maps*" which of the two approaches (Empirical or Heuristic approach) was used to create the Factor Maps.

Project participant response	Date: 22/05/2023

For clarity of exposition, each finding's description was reproduced below in abbreviated form.

1. […] it is not completely supported why the Project Proponent included the mining area in the Reference Region and what is the similarity of this agent and driver of deforestation within the Project Area.

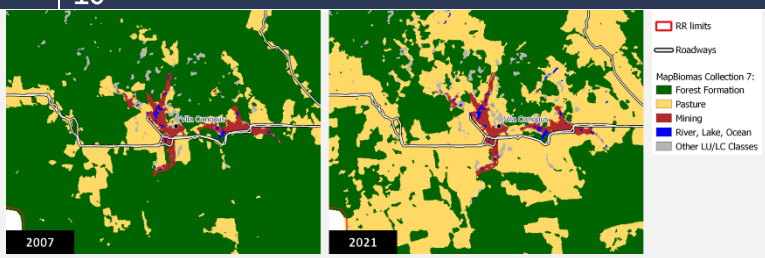
The reviewer points to the apparent conflict between us acknowledging the existence of a mining site within the RR while being aware that its presence is not directly linked to the actions of the main agents of deforestation (land grabbers and their collaborators) that represent a risk to the Project Area. However, this is neither a conflict nor a violation of VM0015 guidelines for defining the RR, as we shall argue next.

The chain of events that explain the present situation in Vila Canopus is a recurring theme in the PD. For example, in section 1.13.2, we cite the work (COSTA, 2013) which establishes a timeline of deforestation-related activities in the region and describes their causal links. In section 2.5.2, an excerpt from (Escada et al, 2005) is reproduced which also summarizes the succession of activities that took place in Vila Canopus and its surroundings. In short: the roads created to enable the mining enterprise were later used by logging companies and finally by land grabbers engaged in precisely the sort of operations currently responsible for the widespread deforestation in the RR.

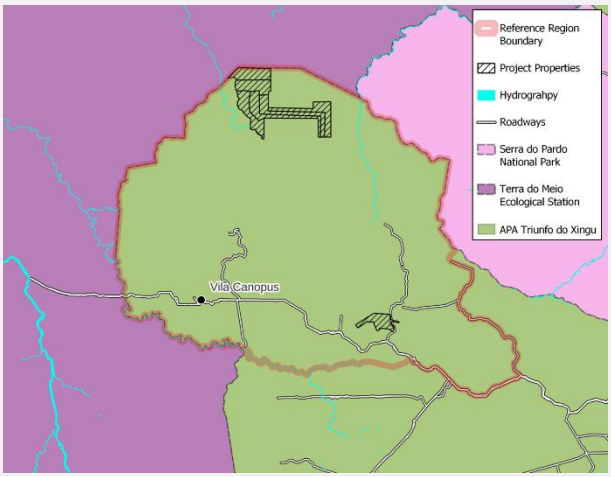
The chain of events is also imprinted in the geospatial data. The mining site in Vila Canopus is mapped since the first available year of the most recent MapBiomas dataset (Collection 7) *; its expansion stagnates before 2007 (that is, more than 15 years before the project start date) and therefore it does not impact the historical deforestation analysis. In the following years, an expansion of pasturelands takes place in the neighboring areas, consistent with the deforestation patterns caused by the interplay of cattle ranches and land grabbers and in accordance with the timeline mentioned earlier. This is evidenced in the figure below, which compares the LU/LC maps from 2007 and 2021 for the relevant MapBiomas' classes.

Thus, the mining activity is no longer a primary deforestation driver in the surroundings of Vila Canopus – the deforestation presently taking place can be decisively attributed to the same agents that operate in the remaining of the RR and pose a threat to the TdX project areas.

CAR ID	10	Date: 24/04/2023



We should also mention that the TdX RR boundary is defined according to clear and straightforward geographic criteria. (Since the prevalent agents and drivers are common to most deforestation frontiers in the Brazilian Amazon, the primary criteria for defining reference regions tend to be, in practice, related to topographic and land tenure factors.) As depicted in the figure below, the RR is simply the part of APA Triunfo do Xingu (a sustainable use conservation unit where all project properties are located) limited in its southern border by a river, and in its southeast border by a set of interlinked roadways (also satisfying all the methodological requirements of relative size and similarity to project areas).



The above figure makes clear that removal of Vila Canopus from the RR would result in a failure to properly capture the effects of rivers and road infrastructure, both important variables when designing baseline models.

Corrective actions:

- The text in section 3.3.3 (which indeed contained ambiguities) was corrected and now it clearly distinguishes between historical and currently active agents of deforestation in the region.
- The first figure presented in this item, which illustrates the expansion of pasturelands around Vila Canopus, was added to the PD, clarifying the discussions related to the role of the mining site in the RR (Figure 3.3 in the updated version).
- The second figure, that illustrates the criteria used to define the RR boundary, is included in the updated annex "230518_TDX-Annex-Historical_Maps.pptx".

* The dataset originally used during PD development was MapBiomas Collection 6, which does not show the mining class within the RR. One of the improvements in MapBiomas Collection 7 precisely concerns the identification of mining sites, and the mining site at Vila Canopus features in the new data.

2. PD v1.04 section 3.3.3 "Landscape configuration and ecological conditions – Forest Classes" uses the source "IBGE, 2022a" to reference the forest classes and the amount of coverage in % in the Reference Region. However, the source "IBGE, 2022a" presents data on the cattle herd in the cities of the state of Pará.

Corrective actions:

- The reference has been corrected.

CAR ID	10	Date: 24/04/2023

3. […] it is not clear whether the similarity analysis of "Socio-economic and cultural conditions - Legal status and tenure of the land" was carried out based on CAR or SIGEF data or both and whether this analysis takes into account the legal status (legal ownership or possession) of the lands.

The analysis was performed using both the SIGEF and CAR databases, from where the polygons displayed in Figure 3.8 were obtained.

The criterion used in the PD for evaluating the similarity of these areas with the project properties was whether they can be classified as "private", irrespective of their documental situation being "legal ownership" or "possession" or something else. In other words, the legal status attributed to project areas and considered for the purposes of the similarity analysis is simply "private".

This was in fact necessary since, presently, the project properties themselves are found in distinct situations – for instance, Didacio has legal ownership of farm "Fazenda Nossa Senhora Aparecida", with a certified status in the SIGEF database; farms owned by Sefer, on the other hand, are only registered in the self-declaratory CAR database, with an "under analysis" or "pending documentation" status. *

This mixed situation is characteristic of the RR, as evidenced in Figure 3.8. Thus, our approach for the similarity analysis is in full accordance with methodological requirements – as stated in VM0015 section 1.1.1: *"The legal status of the land (private, forest concession, conservation concession, etc.) in the baseline case within the project area must exist elsewhere in the reference region."*

Use of both SIGEF and CAR to access the distribution of private properties in RR is further justified by the complementary nature of these databases, explained in the following argument, which is reproduced in the updated PD:

> The Land Management System (SIGEF, acronym in Portuguese) was developed by INCRA aiming to promote the management of land information in the Brazilian rural environment. The reception, validation, organization, and regularization of georeferenced data of registered rural properties is carried out through the SIGEF system, which also makes the data publicly available (INCRA, 2023).
>
> However, in the state of Pará only ~24 million hectares are currently registered in the SIGEF system, making it one of the Brazilian states with the fewest number of certified rural properties, according to statistics provided by the Territorial Governance Platform (2023). The historical gap in the land titling process and the lack of access to technologies that make registration possible are among the impediments that landowners find when trying to adhere to the system. It is also important to point out that in Brazil there are about 117 million hectares with a "disputed land" status due to issues related to property title, non-fulfilment of environmental legislation, and processes for the demarcation of areas being held up in court.
>
> In view of the above-mentioned limitations to register and certify all Brazilian rural properties in the SIGEF system, the Rural Environmental Registry (CAR) emerges as a complementary tool that helps the analysis of private properties within the TdX RR.
>
> The CAR is a national electronic public registry, mandatory for all rural properties. It was conceived as a database for aiding environmental and economic planning and to allow action to be taken against illegal deforestation. It is important to emphasize that, although self-declaratory, the CAR information is validated by the Brazilian Forest Service to guarantee the veracity and quality of the informed rural data (BFS, 2023).
>
> Thus, the SIGEF and CAR databases are complementary tools to identify private properties in the state of Pará, where the landholding situation is complex, and it is important to consider both to correctly assess the situation of private properties in the RR.
>
> INCRA (2023). Sistema de Gestão Fundiária.
> Available in: https://sigef.incra.gov.br. Access: 2023/05/08.
> Territorial Governance Platform (2023). SIGEF Statistics.
> Available in: https://sigef.incra.gov.br/consultar/estatisticas. Access: 2023/05/08.
> Brazilian forest service – BFS (2023). Cadastro Ambiental Rural.
> Available in: https://www.car.gov.br. Access: 2023/05/08.

CAR ID	10	Date: 24/04/2023

Duarte, D.A. (2023). Brasil tem mais de 117 milhões de hectares de terra sob disputa jurídica. Available in: https://news.agrofy.com.br/noticia/201263/brasil-tem-mais-117-milhoes-hectares-terra-sob-disputa-juridica. Access: 2023/05/08.

Corrective actions:

- Subsection "Socio-economic and cultural conditions / Legal status and tenure of the land" of section 3.3.3 was modified; the paragraphs indicated above were added to the text and the new references appended in the PD.

* The current uncertified ownership status of some of the project properties is not an impediment for the TdX project – according to the VCS Standard, section 3.11.4: *"Where the project proponent does not yet have control over the entire area at validation, the entire project area (that shall be specified in accordance with Section 3.11.2) is to be validated as if it were under control and the project is ready to be implemented."*

4. […] The project proponent did not describe or define in PD v1.04 the boundaries of the leakage management area, but the monitoring plan (section 5.2, page 174) states that planned activities in leakage management areas that result in a decrease in carbon stocks will be monitored annually, when significant.

The types of activities proposed for leakage management, given their nature, do not require the definition of leakage management areas (in contrast to the examples provided by the methodology, appearing in the excerpt quoted by the reviewer). As stated in footnote 69 (p. 84) of the PD: "The Leakage Management (LM) area was not defined since leakage control will be carried out by the proposed activities indicated in sections 1.11 and 4.3". For the same reason, we made no ex-ante estimates concerning emissions that would result from leakage prevention measures, as explained in section 4.3.1.

Corrective actions:

- The parameter $\Delta CPSLKt$ was removed from section "5.2 – Data and Parameters Monitored".

5. The Project Proponent did not describe the "Justification/Explanation" of the sources of emissions not included in Table 3.6 of PD v1.04 "Sources and GHG included or excluded within the boundary of the proposed AUD project activity" (fourth column of the table).

The reviewer refers to the sources "Biomass/CO2" and "Livestock/CO2". They were not included in Table 3.6 since, according to VM0015, they are excluded by default.

Corrective actions:

- The justifications given in VM0015 for excluding these two sources of emissions are now found in Table 3.6.

6. The Project Proponent did not describe for each identified key driver variables all the items required by section 3.2 VM0015, in section 3.4.2 do PD v1.04.

The identified omissions were corrected while preserving the overall writing structure, which, for the sake of clarity and objectiveness, seeks to evade redundancies by placing each argumentative point in its most appropriate context within the section.

Corrective actions:

- Amendments were made in section 3.4.2, in the subsections "Drivers explaining the quantity of deforestation" and "Drivers explaining the locations of deforestation".
- Two new references have been appended to the PD, namely:

  WWF-Brasil (2019). PADDD em unidades de conservação na Amazônia: Mapeamento e análise das tendências de redução, recategorização e extinção de unidades de conservação no bioma.

  Jaffé, R., et al. (2021). Forecasting deforestation in the Brazilian Amazon to prioritize conservation efforts. Environmental Research Letters, 16(8), 084034.

CAR ID	10	Date: 24/04/2023

7. The Project Proponent did not present in section 3.4.1 in the PD v1.04 "Definition of classes of land-use and land-cover" the Land-Use and Land-Cover Map representing the spatial distribution of forest classes at the project start date or a sequence of Land-Use and Land-Cover Maps representing the mosaic of forest-classes of each future year.

Corrective actions:

- The required maps were included in section 3.4.1, namely, a map showing LU/LC classes at the project start date (Figure 3.13 in the updated version) and a map displaying forest classes considering the forest coverage at the project start date (Figure 3.14 in the updated version); the latter is also included in the updated annex "230518_TDX-Annex-Historical_Maps.pptx".

8. It is not clear in section 3.4.3 of PD v1.04 "Projection of the location of future deforestation – Preparation of factor maps" which of the two approaches (Empirical or Heuristic approach) was used to create the Factor Maps.

The empirical approach was used.

Corrective actions:

- The text in section 3.4.3 was modified (more specifically, the last paragraphs of subsection "Preparation of factor maps") and now it explicitly states which of the approaches is adopted.

Documentation provided by project participant

References:

1. MapBiomas2023.png
2. INCRA2023.png
3. Duarte2023.pdf
4. BFS2023.png
5. PGT2023.png
6. VCS-Standard-v4.4-FINAL.pdf
7. WWF2019.pdf
8. Jaffe2021.pdf

Annexes:

1. FIG_TdX_VilaCanopus2007-2021.png
2. FIG_TdX_RR_BoundaryCriteria.png
3. FIG_TdX_RR_LULC_2022.png
4. FIG_TdX_RR_ForestClasses_2022.png
5. 230518_TDX-Annex-Historical_Maps.pptx

DOE assessment	Date: 03/07/2023

1. The Project Proponent provided a full explanation of why they included the mining area and the similarity of this agent and driver of deforestation within the Project Area.
According to "*FIG_TdX_VilaCanopus2007-2021*", a map prepared with data from Map Biomes, mining activity in Canopus Village shows a stagnation of expansion since 2007. Over the following years, the activity that increased around the mining area was pasture, following a deforestation pattern promoted by the same agents that operate in the Reference Region and threaten the TdX Project areas.

The PP presented justifications for keeping the RR in the proposed format, as the area and similarity of the RR take into account the other drivers that lead to deforestation in the Amazon region – rivers, roads, topography, and land tenure factors.

Finally, the PP updated section 3.3.3 of PD v2.0, making corrections to the text and including Figures to better illustrate the explanation of the mining area of Canopus Village within RR. **OK**

2. The Project Proponent did not provide the updated reference "*IBGE, 2022a*". **PENDING**

CAR ID	10	Date: 24/04/2023

3. The Project Proponent updated section 3.3.3 of PD v2.0, clarifying and justifying why the CAR and SIGEF databases were used to identify the legal status of the land as private properties, especially considering the situation of land regularization in Brazil and the state of Pará. **OK**

4. The PD v2.0 does not present footnote 69 (page 84) which clarifies, according to Project Proponent, why the Project has not defined the Leakage Management Area, as described in this finding's response.
Justification is not supported in reference 69 and it is not adequately described or justified why LMA is not included. The PP also did not justify why a plan for managing leakages was not presented, as requested by the methodology in the aforementioned section. **PENDING**

84

5. The Project Proponent updated Table 3.6 of PD v2.0 and included justification/explanation for all sources of GHG gases, whether or not included in the proposed AUD project activity. **OK**

6. The Project Proponent updated section 3.4.2 – "*Identification of deforestation drivers*" and included for each identified key drivers variables, information to meet the requirements of the methodology. **OK**

7. The Project Proponent updated section 3.4.1 – "*Definition of classes of land use and land cover*" and included Figure 3.14 "*Distribution of LU/LC classes in the RR at the project start date*." and Figure 3.15 "Forest classes at forested areas within the RR at the project start date". In this way, the PP is meeting the requirement of the methodology. **OK**

8. The Project Proponent updated section 3.4.3 – "*Preparation of factor maps*" and included a sentence describing that "The creation of factor maps follows an empirical approach". **OK**

Considering the lack of evidence mentioned above, the CAR remains open

Project participant response	Date: 25/07/2023

Replies to "PENDING" topics:

2. The Project Proponent did not provide the updated reference "*IBGE, 2022a*".

This omission should have been corrected during the last audit.

Corrective actions:

- The file corresponding to (IBGE, 2022a), "IBGE2022a.pdf", has been added to the "References" folder in the appropriate sections. The PDF is a print of the BDIA portal (Banco de Informações Ambientais), showing the vegetation cover in the state of Pará.

4. The PD v2.0 does not present footnote 69 (page 84) which clarifies, according to Project Proponent, why the Project has not defined the Leakage Management Area, as described in this finding's response.

CAR ID	10	Date: 24/04/2023

In the consolidated PD v2.0 the footnote ended up having a different number and being placed at a different page. In the most recent version, VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf, the footnote is

> [83] The Leakage Management (LM) area was not defined since leakage control will be carried out by the proposed activities indicated in section 1.11.
>
> [84] According to the methodology, only 3 activities need be considered: LG = Logging, FW = Fuel-wood collection, CP = Charcoal production. These have not been considered in the baseline since their occurrence has not been thoroughly evaluated. However, it is known that they are not common in the region, with deforestation usually followed by wood burning.
>
> 89

numbered 83 and can be found at page 89:

(cont.) Justification is not supported in reference 69 and it is not adequately described or justified why LMA is not included.

In the previous reply the following was stated:

> "The types of activities proposed for leakage management, given their nature, do not require the definition of leakage management areas (in contrast to the examples provided by the methodology, appearing in the excerpt quoted by the reviewer)."

In VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf, the footnote mentioned earlier (which serves to remind the reader why the LM area does not feature in Table 3.8) acknowledges that the leakage management area has not been defined and explains the reason why:

> "The Leakage Management (LM) area was not defined since leakage control will be carried out by the proposed activities indicated in section 1.11."

To elaborate: the leakage management activities listed at section 1.11 of VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf are:

- Patrolling and surveillance
- Satellite monitoring
- Leakage control (by raising awareness of local stakeholders about environmental education)
- Maintenance of firebreaks
- Potential roll-out to other areas (promoting carbon projects among other landowners)
- Contact with neighboring communities

On the other hand, regarding the definition of leakage management areas, VM0015 (Version 1.1, 3 December 2012, p. 8) states that (this is the same excerpt brought by the reviewer, but with different emphasis):

> "The "leakage management area" is the area (or areas) specifically designed to implement activities that reduce the risk of activity displacement leakage. <u>These are areas dedicated to enhanced crop-land and grazing land management, agro-forestry, silvo-pastoral activities and reforestation activities</u>. At the project start date, leakage management areas shall be non-forest land."

Clearly, the types of leakage management activities suggested by VM0015 (which are *not* mandatory) *do* require the definition of spatially delimited "leakage management areas". In contrast, the leakage management activities proposed by the TdX project, which also fulfill the goal of reducing the risk of activity displacement leakage, by their very nature, are not constrained to a spatially delimited non-forest domain – and that is the justification (repeated here in more explicitly terms) for not including in the PD a delimitation of the "leakage management area".

(cont.) The PP also did not justify why a plan for managing leakages was not presented, as requested by the methodology in the aforementioned section.

CAR ID	10	Date: 24/04/2023

The delineation of a "leakage management plan" is precisely what is found in section 1.11 (VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf), whose subsections describe how the various leakage management activities will be implemented. It simply occurs that, in the text, this set of activities is referred to as "measures to mitigate the risk of illegal actors" rather than "leakage management plan".

Corrective actions:

- In VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf the text was slightly adjusted to make clear that the activities listed in section 1.11 should be understood as leakage management activities.
- The subsections that describe how leakage management activities will be implemented have been referred to as a "leakage management plan".
- The reference to Section 4.3 in footnote 83 (VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf) was removed, for correctness.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf

References:

- IBGE2022a.pdf (corrected)

DOE 2nd assessment	Date: 31/07/2023

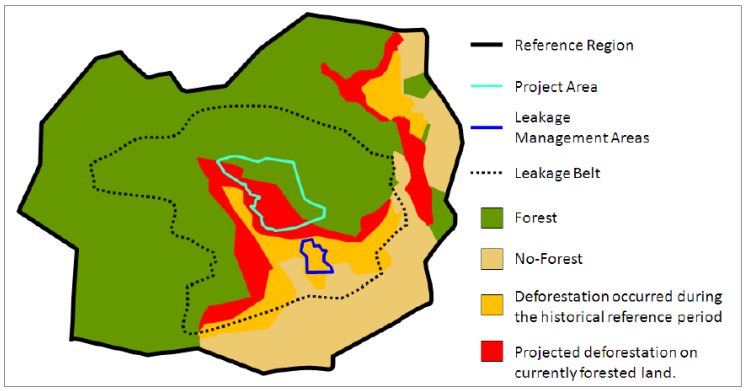
2. The Project Proponent attached the reference "*IBGE,2022a*" in the evidence Folder. **OK**

4. The Project Proponent updated PD v2.1 including the footnote 83 on page 89 and updated section 1.11, clarifying that the actions described in this section were considered leakage management activities and that constituting the leakage management plan of the project.
Furthermore, from the PP's response it is clear that the types of leakage management activities to be carried out in the project do not correspond to the activities suggested by VM0015, page 8.
However, methodology VM0015 also describes in "*Summary description of the methodology*":

> *(...)*
> *"The methodology defines four spatial domains: a broad "reference region", the "project area", a "leakage belt", and a "leakage management area". The project area, leakage belt and leakage management areas are subsets of the reference region and <u>are always spatially distinct</u> (not overlapping) areas (see figure 1)."*

Figure 1. Spatial domains considered in this methodology

a) Frontier configuration



VM0015, section 1.1 Spatial boundaries:

> *<u>Define the boundaries of the following spatial features</u>:*

CAR ID	10	Date: 24/04/2023

1.1.1 Reference region;
1.1.2 Project area;
1.1.3 Leakage belt;
1.1.4 Leakage management areas; and
1.1.5 Forest.

The reference region is the largest unit of land and the project area, leakage belt and leakage management areas are subsets of the reference region. For each spatial feature, the criteria used to define their boundaries must be described and justified in the PD. Vector or raster files in a common projection and GIS software formats shall be provided in order to allow the identification of the boundaries unambiguously."

VM0015, section 1.1.4 Leakage Management Areas

"*These are non-forest areas located outside the project boundary in which the project proponent intends to implement activities that will reduce the risk of activity displacement leakage, such as afforestation, reforestation or enhanced crop and grazing land management. The boundary of such areas must be defined according to existing management plans or other plans related to the proposed AUD project activity. Such plans shall be made available to the VCS Validation/Verification Body (VVB) at the time of validation. The boundary of leakage management areas must be clearly defined using the common projection and GIS software formats used in the project and shall be reassessed and validated at each fixed baseline period.*"

That is, the methodology describes some activities to be implemented in the LMA, such as afforestation, reforestation or enhanced crop and grazing land management. This paragraph also states that "*the boundary of leakage management areas must be clearly defined using common projection and GIS software formats used in the project*".

In this way, it is clear what are the leakage management activities and the leakage management plan. It is not clear how the Project Proponent is meeting all the requirements of the methodology, as described above, and which require the areas and boundaries of the leakage management area. **PENDING**

Considering the lack of evidence mentioned above, the CAR remains open

Project participant response	Date: 17/08/2023

4. For resolution to the CAR, the following actions were taken:

- Revision of the PDv2.1 text to make all project activities, in particular those related to leakage management, consistent throughout the entire document;
- Definition of the Leakage Management Area (LMA); and
- Consequent readjustment of sections 1.11, 1.18, 3.4.1, 3.3.5, 4.3.1, 5.2 and 5.3.2.

The **main corrective** actions to solve the finding are explained below:

1.11 Description of Project Activities: Minor changes have been made to some of the general project activities in order to portray accurately the project on-site actions and adjust them to the introduced LMA's definition. The main focus of the changes in this section is on the activity of Leakage Control, which has been reformulated in order to clarify that the activities to be carried out at the LMA would be focused on environmental education activities. The following is a full description of the Leakage Control activity:

*"**Leakage control***
The project proponent, together with the landowners, comprehends the conceptual complexity and difficulties of implementing a policy for reducing the risk of potential leakage. Therefore, the project proponent will adopt a proactive initiative for fighting leakage sources. This adoption will be based on a cooperative effort with local stakeholders to promote a new approach to forest use and land use in the region, raising awareness among them about environmental education.
In order to mitigate leakage, the project proponent plans a continuous remote monitoring of the region surrounding the project area (Leakage Belt) and interventions with the local stakeholders residing in the Leakage Management Area, which is defined as the non-forest region where the housing and infrastructure of Caboclo Village is located, as shown in section 3.3.5.
Although there is a risk of leakage, the project proponent believes that the project will have positive impacts on surrounding areas. This project might be a well-succeeded example of: (i) financial return due to REDD incentives,

CAR ID	10	Date: 24/04/2023

which can compensate for avoiding deforestation for other activities; (ii) maintenance of real estate (land acquisition and grabbing dynamics).”

1.18 Additional Information Relevant to the Project (Leakage Management): Insertion of a summary bringing the main focus of action of the proponent, together with the landowners, to reduce leakage risks. A summary of the section follows:

“*The main leakage management activities are described in section “1.11. Description of the Project Activity”, especially in the items of Leakage Control, where the project proponent, together with the landowners, will adopt a proactive initiative for reducing the risk of leakage, based on a cooperative effort with local stakeholders to promote a new approach to forest use and land use in the region, raising awareness among them about environmental education. The project proponent plans a continuous remote monitoring of the region surrounding the project area (Leakage Belt) and interventions with the local stakeholders residing in the Leakage Management Area, which is defined as the non-forest region where the housing and infrastructure of Caboclo Village is located, as shown in section 3.3.5.”*

3.3.5: Previously, it referred to “Leakage Belt Management” and provided a brief definition of the Leakage Management Area. The section title has been readjusted to “Leakage Management Area” and a detailed description of the LMA has been included. The LMA is defined and duly delimited in a non-forest area outside the boundaries of the Project Area. It is worth noting in this section that Caboclo Village is the focal community for the activities carried out in the LMA, as follows from the transcription contained in PDv2.2:

“Leakage management areas (LMA) addresses non-forest areas located outside the project boundary where the Project Proponent intends to implement activities that reduce the risk of activity displacement leakage in the project scenario and the boundary of such areas must be defined according to existing management plans or other plans related to the proposed AUD project activity (VERRA, 2012a). The LMA for this project is defined as the non-forest area encompassing Vila Caboclo's residences and infrastructure and has an area of 41.9 ha. In this location, educational activities will be implemented with the community in order to reduce the risk of leakage in the vicinity of the project area and leakage belt. The LMA boundaries are indicated in Figure 0.10, whose corresponding vector files are presented in annex (Annex: 230814_TdX_LMA.zip).

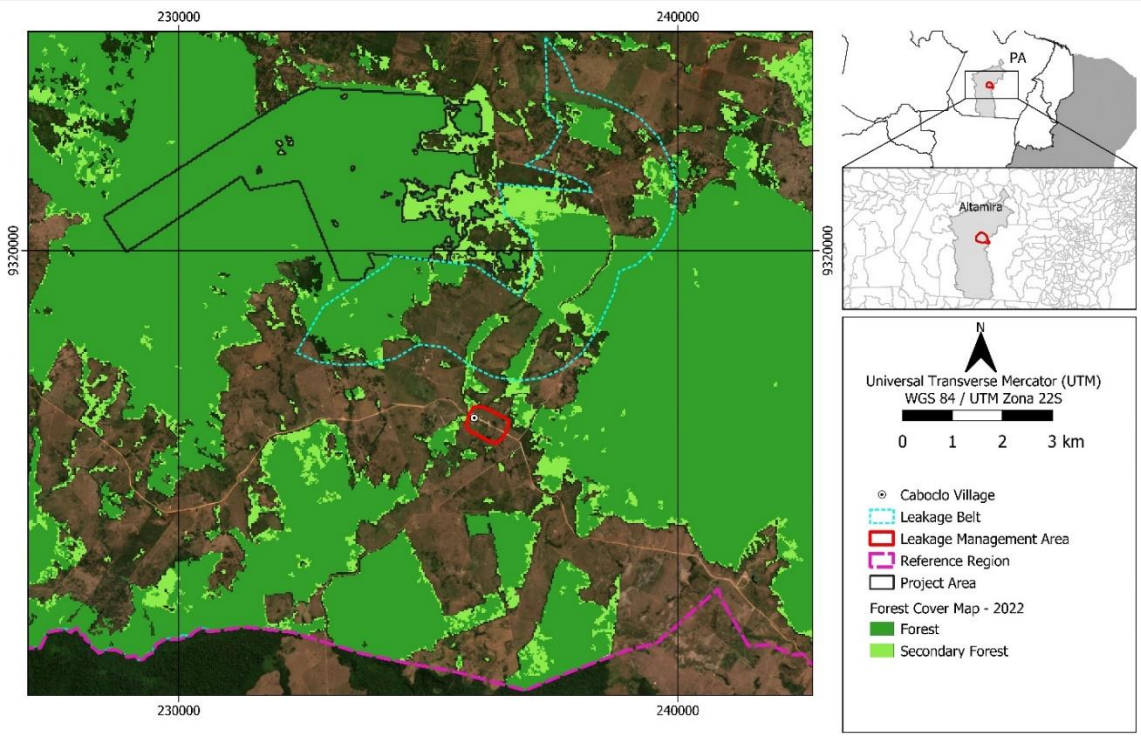


Figure 0.10 TdX Leakage Management Area

CAR ID	10	Date: 24/04/2023

Leakage management activities in the LMA are defined in section 1.11, where it will focus on environmental initiatives in collaboration with the Caboclo Village residents, TdX local stakeholders with direct actuation in the LMA."

3.4.1: Footnote and table adjusted as follows:

Table 3.8. LU/LC classes at the project start date within the reference region

Class identifier		Trend in carbon stock	Presence[84]	Baseline activity (LG, FW, CP)[85]	Description
ID	name				
1	Forest	Constant	RR, LK, PA	-	Forest with more than 10 years of age (eligible forests).
2	Anthropic	Constant	RR, LK, LM	-	Combines several categories from MapBiomas: Pasture (93.55%), Grassland (5.64%), Savanna (0.80%), and Other Temporary Crops (0.01%). The values correspond to averages taken in the RR over the period from 2012 to 2020, but they are practically uniform over the years. In our analysis, the Anthropic class is considered equivalent to "pastureland".
3	Water	Constant	RR, LK, LM	-	Rivers and small water bodies. The class is constructed from a mask, meaning water pixels are constant through time.

[84] ~~The Leakage Management (LM) area was not defined since leakage control will be carried out by the proposed activities indicated in section 1.11.~~ RR = Reference region, LK = Leakage belt, LM = Leakage management Areas, PA = Project area.

4.3.1 Ex-ante estimation of the decrease in carbon stocks and increase in GHG emissions due to leakage prevention measures: VM0015 methodology alerts to activities that could cause a loss in the carbon stock of the LMA and which "*if leakage prevention measures include tree planting, agricultural intensification, fertilization, fodder production and/or other measures to enhance cropland and grazing land areas, a reduction in carbon stocks and/or an increase in GHG emissions may occur compared to the baseline case".* The VM0015 follows *"if such decrease in carbon stock or increase in GHG emission is significant, it must be accounted and monitoring will be required. If it is not significant, it must not be accounted and ex post monitoring will not be necessary."*

In the TdX Project, environmental education activities were not identified as significant sources of GHG emissions as indicated below, and therefore the values of the variables for calculating emissions in this section were set to 0 for the entire crediting period of the project.

"As defined in section 1.11, the activities implemented in leakage management areas does not lead to a carbon stock change. In the TdX project, the proactive measures to combat leakage sources are:
(i) Implementation of environmental education activities with identified stakeholders in the leakage management area; and
(ii) Satellite remote monitoring of areas surrounding the project, i.e., the leakage belt."

For greater clarity to the section, the relevant equations provided in the VM0015 methodology and the final table with the measurement of the section's GHG emissions have been included in the sub-sections:

- Carbon stock changes due to activities implemented in leakage management areas;
- Methane (CH4) and nitrous oxide (N2O) emissions from livestock intensification (involving a change in the animal diet and/or animal numbers); and
- Total ex ante estimated carbon stock changes and increases in GHG emissions due to leakage prevention measures.

CAR ID	10	Date: 24/04/2023

5.2: Two data and parameters have been included to be conservatively monitored, as shown in the images below (the full specifications of the parameters can be found in PDv2.2):

Data / Parameter	$\Delta CPSLK_t$
Data unit	tCO_2e
Description	Total annual carbon stock change in leakage management areas in the project case
Source of data	Documents, remote sensing data and GIS
Description of measurement methods and procedures to be applied	The planned activities in leakage management areas that result in carbon stock decrease will be subject to monitoring, when significant.
Frequency of monitoring/recording	Annually
Value applied	N/A
Monitoring equipment	Remote sensing and GIS
QA/QC procedures to be applied	Best practices in remote sensing and GIS: 1) Land use and land cover mapping is assessed using Landsat satellites images with resolution 30 meters (MapBiomas, 2022) validating through a pixel-by-pixel

Data / Parameter	$EgLK_t$
Data unit	tCO_2e
Description	Emissions from grazing animals in leakage management areas at year t
Source of data	Documents, remote sensing data and GIS
Description of measurement methods and procedures to be applied	The planned activities in leakage management areas that result in carbon stock decrease will be subject to monitoring, when significant.
Frequency of monitoring/recording	Annually
Value applied	N/A
Monitoring equipment	Remote sensing and GIS

5.3.2 Monitoring of Leakage: Minor changes in the overview of data collection procedures, to reflect the correct procedures adopted for the monitoring of the LMA. Changes can be seen as follows:

CAR ID	10	Date: 24/04/2023

Overview of data collection procedures.

The carbon stock decrease due to leakage prevention measures, ~~which will~~that would probably take place inside the leakage management area, will be monitored through documents and field assessment, if significant.

~~In areas undergoing carbon stock enhancement~~Even though the project does not plan to undertake activities that will increase the carbon stock in the LMA, in areas where there is an increase in carbon stock, the project conservatively assumes stable stocks and no biomass monitoring is conducted.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230817

Annexes:
230814_TdX_LMA.zip

DOE 3rd assessment	Date: 23/08/2023

Although the project activities are focused on environmental education in the Caboclo Village community, the Project Proponent defined the Leakage Management Area, updated the PD in the correspondent section and provided support for the boundaries of the LMA. In this way, the PP is complying with the requirements of the VM0015 methodology. **OK**

Finding closed successfully

CAR ID	11	Date: 24/04/2023

Description of CAR

Leakage Belt:

1. PD v1.04 section 3.3.4 states "*The main land conversion identified in this region is pasture, so a transport cost map from pasture areas to cities was generated.*"

During the audit, in an interview with the Project Proponent team, it was verified that the transport cost map from pasture areas to cities was generated taking into account the distance in a straight line from the project area and the cities Taboca, Boa Esperança do Sul and São Felix do Xingu.

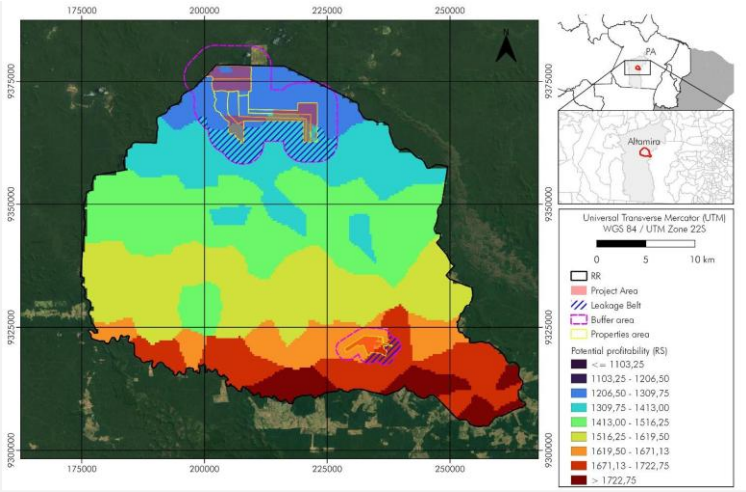
It was verified in the field during displacements between São Félix do Xingu and Nossa Senhora Aparecida Farm (Didácio property) that the roads are not straight and do not have good traffic conditions. In this way, the accuracy of the transport cost map is not consistent with the reality of the region.

2. PD v1.04 section 3.3.4 states "*The potential profitability map was categorized so that at least two categories were adjacent to each set of properties participating in the project, then a buffer was generated around the properties.*".

PD v1.04 section 3.3.4 states "*The Triunfo do Xingu Grouped REDD+ Project, in its first instance, is composed of seven properties. The property called Nossa Senhora Aparecida Farm to the south of the RR has a total area of 1,880.19 hectares, and the Leakage belt 1 delimited around this property was 1,931.14 hectares in a buffer of 1.7 kilometers. The other arrangement of six properties, located north of the RR, total 13,933 hectares, and the Leakage Belt 2 delimited around this property was 14,093.27 hectares in a buffer of 4.1 kilometers (Figure 3 12).*".

Figure 3.11 do PD v1.04:

CAR ID	11	Date: 24/04/2023



a) It is not justified in PD v1.04 what the criteria for defining the buffer around the properties defined by the Project Proponent.

b) According to Figure 3.11 "*Potential profitability in Reference Region, and delimited leakage belt where there are highest values to potential profitability, and their respective buffers*.", the highest values to potential profitability are allocated in the southeast region of the Reference Region, that is, in the region closest to the cities and also in the region where Caboclo Village is located.
Therefore, it is not clear why the Leakage Belt of Nossa Senhora Aparecida farm (Leakage Belt 1) is smaller, given that its surroundings have a higher risk of deforestation due to the highest values to potential profitability.

Project participant response	Date: 22/05/2023

1)
Within the methodological possibilities to define the area of the leakage belt within the RR, we opted for the Opportunity Cost analysis (Option 1), and corroborating with what the methodology presents as a form of simplification in VM0015 v1:
"c) Using a GIS, generate for each major product a surface that represents the lowest cost of transporting a ton of product to the most important selling points within the reference region. This is done considering the most typical transportation technology available to deforestation agents."

The least cost analysis was performed using a distance analysis tool of Qgis that uses the path between two locations with the lowest cost to those traveling through it to determine the most economical route between an origin and a destination (in this case, the origin point was the pastures and the end point was the cities and slaughterhouses, as shown in Figure 1).

CAR ID	11	Date: 24/04/2023

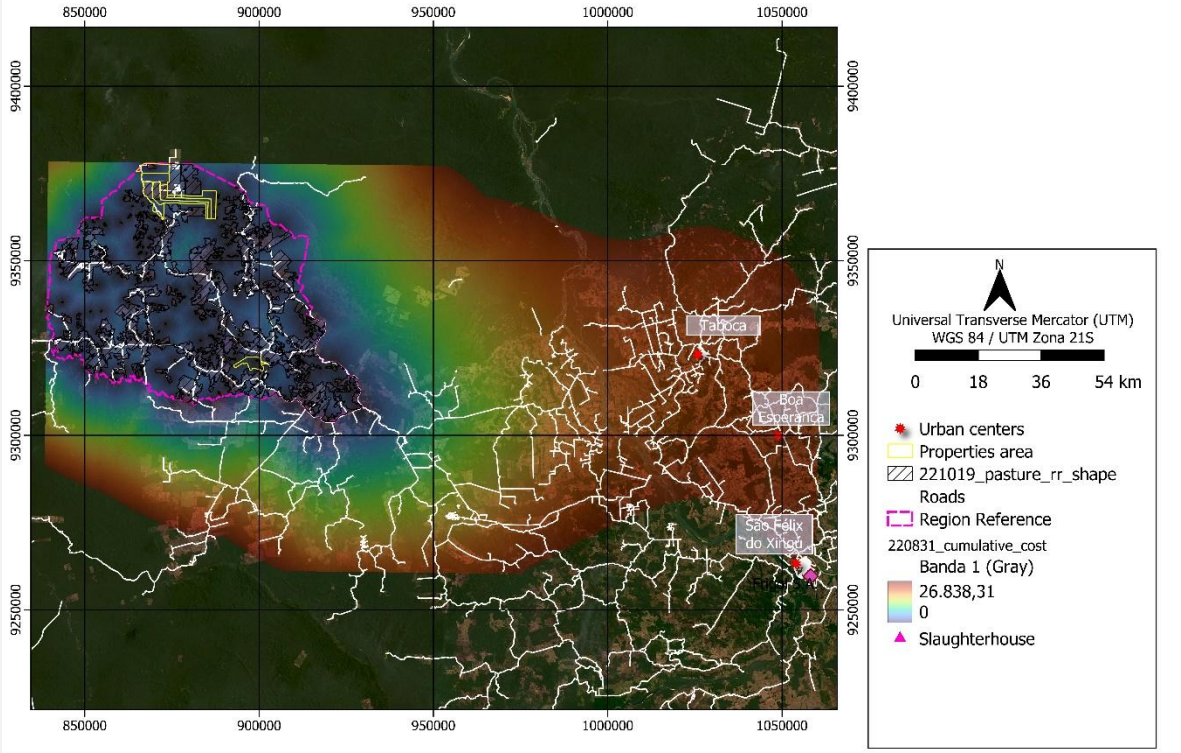


Figure 1: Cumulative transportation cost map of the Reference Region showing the transportation cost calculation step that considers the sum of the entire trip from leaving the grazing area, to arriving at one of the final destinations (cities and slaughterhouse).

The cost considered was a function of distance, this was the criterion established. When using least cost path analysis (in this case, the shortest distance, understanding that the shortest distance is assigned the lowest cost), the eight neighbors of a raster cell are evaluated and the generated path moves to the cells with the lowest cumulative or cost value. This process is repeated several times until the origin and destination are connected (Briney, 2014).

The transportation cost map does not have to be exact. The transportation cost values obtained from this map are not expected to exactly match the actual transportation costs. This is also not necessary given the goal of opportunity cost analysis, which seeks to determine a relative difference in costs so that the most profitable regions can be selected.

Considering straight-line distance as a proxy for estimating transportation cost is consistent with the basic level of opportunity cost analysis, which corresponds to a simple balance between expected revenues and the main costs associated with productive activity.

However, as can be seen in the figure, a gradient where the lowest costs (and distance) are in blue, and the highest costs (and distance) are in red, matches the premise that transportation from farms to production outlets is represented, This reflects well the costs related to transportation, because the costs are calculated based on the distance in kilometers that must be traveled to reach the point of sale. Regardless of the quality of the roads, the typical transportation in the region occurs through the roads, which are the facilitator of the production flow in this region, regardless of their quality.

We believe that the study as it was conducted to estimate the differences in relative costs within RR still considers a cumulative cost, an appropriate assumption since transportation values are attributed to the sum of the total kilometers it takes to go from a grazing area to a city, which is why areas closer to the city have higher potential profitability (due to lower transportation costs) and areas further away, lower potential (due to higher transportation costs) as can be seen in Figure 2, since the production cost and sales value are fixed in this study using this approach.

Furthermore, the methodology does not specify which approach should be used to estimate transportation costs.

CAR ID	11	Date: 24/04/2023

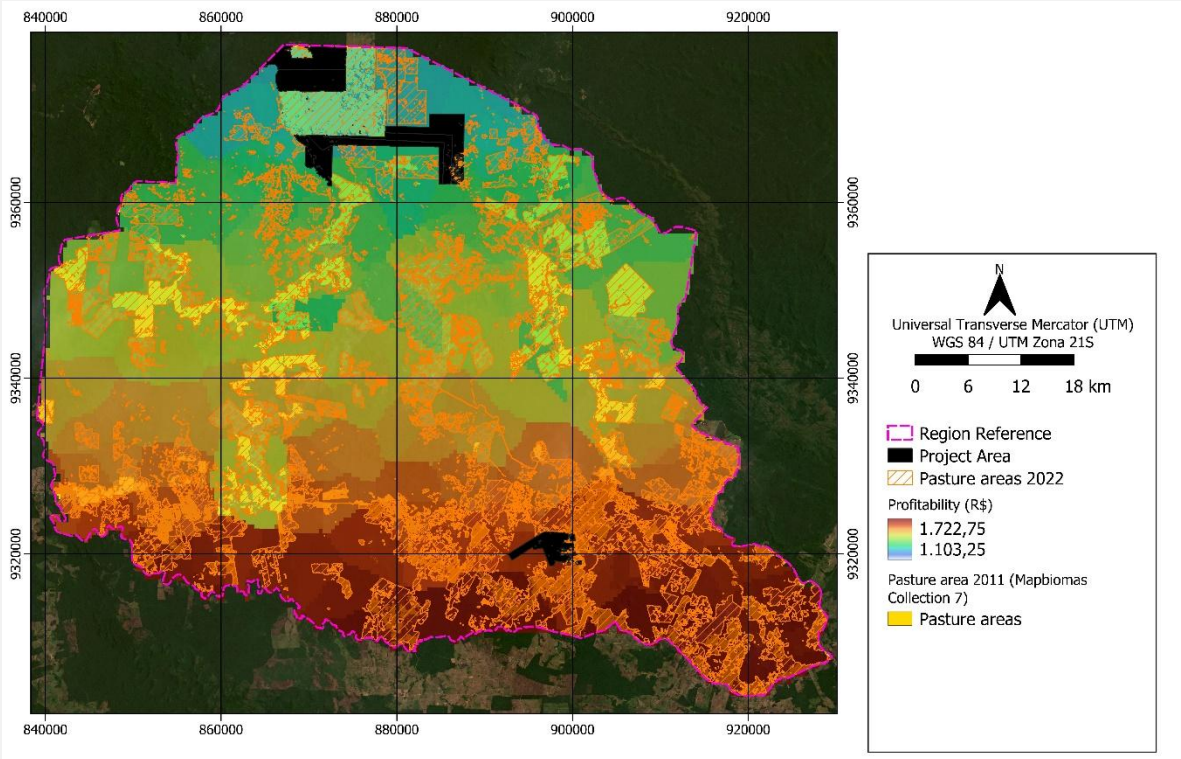


Figure 2: Map of the reference region showing the concentration and increase of pasture areas over the 20-year period, in locations identified by our Opportunity Cost model as more profitable.

2.a)

The Triunfo do Xingu Grouped REDD+ Project, in its first instance, is composed of seven properties. For the delimitation of the Leakage Belt area, the criterion used was the allocation in the immediate vicinity of the project area, and it was prioritized that the Leakage Belt area meet the minimum area requirement of the project area. Thus, two Leakage belt areas were delimited for these instances.

The property called Nossa Senhora Aparecida Farm to the south of the RR has a total area of 1,880.19 hectares, and the Leakage belt 1 delimited around this property was 1,931.14 hectares in a buffer of 1.7 kilometers. The other arrangement of six properties, located north of the RR, total 13,933 hectares, and the Leakage Belt 2 delimited around this property was 14,093.27 hectares in a buffer of 4.1 kilometers. Different buffers values were adopted to meet the objective of delimiting a leakage belt of area approximating the project area and allocated to the most profitable area located around each area.

2.b)

The leakage belt represents well the project area, since, according to the methodology requirements, these areas were defined in regions with higher opportunity cost, and also represents the same baseline, since there are the same current and projected land use classes in the project area, and the leakage belt was allocated on the limits and in the proximities of the properties that shelter the project area (Figure 3). The forest area that makes up both leakage belts, allocated to lower cost areas in the RR as per the methodology are sufficient and meet our purposes.

CAR ID	11	Date: 24/04/2023

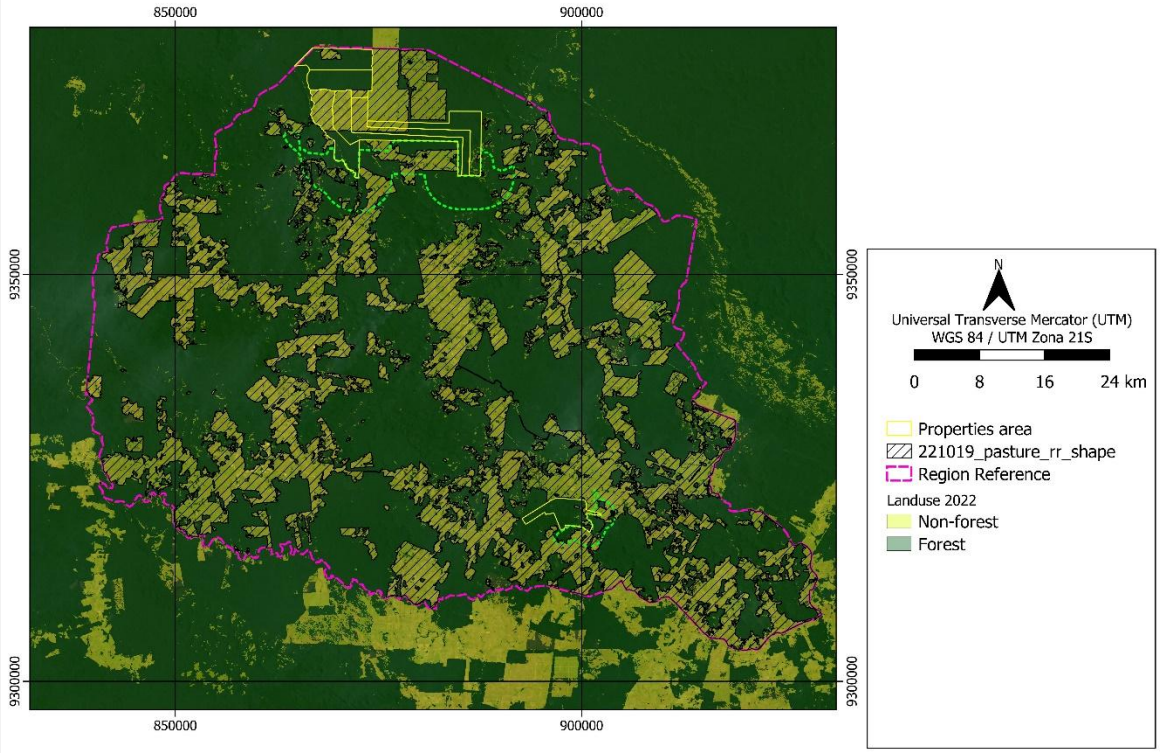


Figure 3: Land use within the Leakage belt, forest and pasture areas are found and allocated areas of higher profitability as shown on previous maps.

Reference:
Briney, A. Overview of Least Cost Path Analysis. Spatial Analysis. 2014. Available <. https://www.gislounge.com/overview-least-cost-path-analysis/>. Accessed 2023/05/18.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

Annexes:
230518_pasture_profitability.jpeg
230518_leakagebelt_landuse.jpeg
230518_cumulative_cost_transport.jpeg

DOE assessment	Date: 03/07/2023

1. The Project Proponent justified the reason for using the straight-line distance between the project area and the cities Taboca, Boa Esperança do Sul and São Félix do Xingu, cities where the cattle will be sold. However, to calculate the potential profitability map, one of the variables is the TDv - transport distance on land, river, or road type.

The PP states that "*The delimitation of the leakage area considered the areas with the highest PPxi within the buffer, and the size of the delimited leakage areas, in hectares, are similar or close to the size of each of the properties participating in the project (Figure 3.12).*"

It is not justified in PD v2.0 that using straight-line distances to cities is more conservative than using actual road distances. The PP has not demonstrated whether the potential profitability map will undergo too many

CAR ID	11	Date: 24/04/2023

changes to make it necessary to change the Leakage areas, following the logic that the PP used to define Leakage. **PENDING**

2.a) The Project Proponent updated section 3.3.4 of PD v2.0 and clarified what are the criteria for delimitation of Leakage – proximity to the vicinity of the project area and the Leakage Belt minimum area requirement of the project area. **OK**

2.b) Despite the Project Proponent demonstrating in Figure 3.12 of section 3.3.4 of PD v2.0 that the potential profitability in RR is located south of the RR, the PP also stipulated that "*the delimitation of the leakage area considered the areas with the highest PPxi within the buffer, and the size of the delimited leakage areas, in hectares, are similar or close to the size of each of the properties participating in the project (Figure 3.12)*".
In this way, it is clear why the projects have 2 Leakage areas and why they have sizes proportional to the farm areas. **OK**

Considering the lack of evidence mentioned above, the CAR remains open

Project participant response	Date: 25/07/2023

Replies to "PENDING" topics:

1. The Project Proponent justified the reason for using the straight line distance between the project area and the cities Taboca, Boa Esperança do Sul and São Félix do Xingu, cities where the cattle will be sold. However, to calculate the potential profitability map, one of the variables is the TDv - transport distance on land, river, or road type.

The PP states that "*The delimitation of the leakage area considered the areas with the highest PPxi within the buffer, and the size of the delimited leakage areas, in hectares, are similar or close to the size of each of the properties participating in the project (Figure 3.12).*"

It is not justified in PD v2.0 that using straight-line distances to cities is more conservative than using actual road distances.

To provide an adequate response, it is useful to reiterate some keys points of the previous reply:

1) The methodology does not specify which approach should be used to estimate the value of the variable TDv across the reference region.
2) The transportation costs of the profitability model are not expected to exactly match actual transportation costs.
3) All that matters for the purpose of defining the leakage belt area are the relative transportation costs among different points in the map.
4) Consequently, using the straight-line distance as a proxy for estimating transportation costs is compatible with the basic level and purposes of the opportunity cost analysis.

Therefore, while computing TDv using the simplifying straight-line distance approach may not faithfully reproduce actual road transportation costs, the final result (i.e., identification of most profitable areas) – which depends only on relative costs –, is nevertheless expected to be a fair approximation to what would have been obtained using a more detailed transportation cost assessment.

(At any rate, it is unfeasible, in practice, to make a precise assessment of road transportation costs, since the region contains many uncharted secondary roads; indeed, were one to rely only on the road data from official sources one would most likely end up with a very poor estimation of transport costs.)

On these grounds, it is argued that using the selected approach for defining the leakage areas cannot be judged neither more nor less conservative than using a more laborious description of the variable TDv, since both methods are expected to approximate the same thing.

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Finally, it is worth pointing out that, since the methodology does not specify how TDv should be estimated, adoption of the straight-line approach by no means constitutes a methodological deviation, and the requirement of a "proof of conservativeness" to justify that choice is found to be unwarranted in this case.

(cont.) The PP has not demonstrated whether the potential profitability map will undergo too many changes to make it necessary to change the Leakage areas, following the logic that the PP used to define Leakage.

In view of the arguments presented above, both the potential profitability map and leakage belt areas will remain unchanged.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf

DOE 2nd assessment	Date: 01/08/2023

1. The Project Proponent clarified that it is not possible to do an accurate transportation cost analysis because the region contains many secondary roads and side roads that are not necessarily mapped in official databases. The road data from official sources turns out to be an imprecise estimate of transportation costs and, therefore, it is also impossible to carry out a conservative comparison between the straight-line transport data and the imprecise transport data by official roads.
The PP justified that the use of straight-line is not incorrect, as the methodology does not specify how the parameter TDy should be estimated and the use of straight-line is an input that makes sense to estimate the transportation cost on land. **OK**

Finding closed successfully

CAR ID	12	Date: 24/04/2023

Description of CAR

PD v1.04 section 3.4.2 states "*Drivers explaining the locations of deforestation - Elevation and slope - It is straightforward to identify terrain slope and elevation as important predisposition factors for deforestation. Steep terrain is known to be inadequate for cattle raising and the relative risk for areas at different slope classes, as determined by statistical methods during the construction of our models, agrees with that fact. Furthermore, comparing elevation and land use data we find that, historically, high altitude areas have been much less deforested than low elevation areas. This led us to adopt elevation as one of the criteria used to define risk zones in our reference region (section 3.4.3).*"

During the interviews with the stakeholders, it was verified that the slope of the land does not interfere with the expansion of deforestation for cattle raising, on the contrary, it was said that the cattle like to graze in the hill areas and that the slope of the land is an obstacle to areas where there is agricultural cultivation due to the impediment to working with agricultural tractors in very sloping areas. That is, according to the stakeholders, slope, and elevation are inadequate for crops and not for pastures.

In this way, the description of section 3.4.2 of PD v1.04 is not consistent, where it is said that steep terrain is known to be inadequate for cattle raising.

Project participant response	Date : 22/05/2023

What we really meant to say in the text indicated by the reviewer was:

> (...) Steep terrain is <u>generally less suitable for conversion than flatlands.</u> (Guizar-Coutiño et al, 2022) and the relative risk for areas at different slope classes, as determined by statistical methods during the construction of our models, <u>corroborates that proposition</u>. (...)

CAR ID	12	Date: 24/04/2023

Guizar-Coutiño, A., Jones, J. P., Balmford, A., Carmenta, R., & Coomes, D. A. (2022). A global evaluation of the effectiveness of voluntary REDD+ projects at reducing deforestation and degradation in the moist tropics. Conservation Biology, 36(6), e13970; see also the "Supplementary Information".

Stated in this way, the key point is more properly conveyed, namely, that the terrain's suitability for having its forest converted is what matters for predicting the location of future deforestation, not its adequacy for supporting cattle raising activities when already deforested.

This suitability for conversion, which translates mathematically to a conditional probability of forest loss, is exactly what the employed statistical model measures. And the historical data reveals, unequivocally, that deforestation in the TdX RR is less probable at higher slope ranges, as evidenced by the negative values of their weight of evidence coefficient, shown in the table below. * (Note that by no means the model prohibits conversion of steep terrains – in fact, in the predicted baseline scenario deforestation occurs at all slope classes.)

slope class identifier	slope angle range	weight of evidence coefficient	null hypothesis loss probability (%)	loss probability based solely on slope variable (%)
1	$0^o \leq \theta < 10^o$	0.0986	50%	52.5%
2	$10^o \leq \theta < 20^o$	-0.3432	50%	41.5%
3	$20^o \leq \theta < 30^o$	-0.7673	50%	31.7%
4	$30^o \leq \theta$	-0.7601	50%	31.9%

It is important to remind that, besides slope, the selected baseline model also accounts for the relative contributions of distance to roadways, distance to waterways and distance to 3-year-old deforestation, while elevation and distance to anthropic areas (i.e., pastures) are used for defining the "risk zones" that dictate how projected deforestation rates evolve during the baseline years. In particular, the geospatial evidence that high elevation terrain act as a barrier to forest conversion in the TdX RR is overwhelming, as discussed in section 3.4.4, subsection "Quantitative projection of future deforestation".

Corrective actions:

- The indicated paragraph was reformulated using the more precise version given in this reply, with the new reference appended to the PD.**

* Details on the ranges considered for each spatial variable and their associated weights of evidence coefficients are found in the annex file "221020_TDX-Annex-BSL_candidate_models".
** Other amendments relevant to this CAR were made in the same paragraph, because of considerations relative to CAR nº 10.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

References:

1. Guizar-Coutino2022.pdf
2. Guizar-Coutino2022-supp.docx

Annexes

1. 221020_TDX-Annex-BSL_candidate_models.xlsx

DOE assessment	Date: 04/07/2023

CAR ID	12	Date: 24/04/2023

The Project Proponent updated section 3.4.2 "*Drivers explaining the locations of deforestation - Elevation and slope*", describing that "*It is straightforward to identify terrain slope and elevation as important predisposition factors for deforestation. Steep terrain is generally less suitable for conversion than flatlands, (Guizar Coutiño et al, 2022), and the relative risk for areas at different slope classes, as determined by statistical methods during the construction of our models, corroborates that proposition. Furthermore, comparing elevation and land use data we find that, historically, high altitude areas have been much less deforested than low elevation areas.*"

Furthermore, despite information about cattle preferring to graze in the higher areas of the terrain, the PP provided support that historically, high-altitude areas have been much less deforested than low-elevations.

In this way, the new text of PD v2.0 clarified that the slope of land interferes with the expansion of deforestation and that, after being deforested, these areas may be suitable for cattle raising. **OK**

Finding closed successfully

CAR ID	13	Date: 24/04/2023

Description of CAR

Additionality (VCS Standard, Section 3.14), Legal Compliance:

1. PD v1.04 section 3.5.1, step 1b. "*Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations – i. Continuation of the pre project land use (BAU activities occurring)*" states "*Maintaining the activities already done before the TdX project, the landowner would continue to be in accordance with the pertinent legislation, already detailed in Section 1.14. Both Sefer and Didacio have the rights to explore 20% of their land s in the most appropriate way they decide to, according to the Brazilian Forest Code, that's what they already do and would continue to execute in this scenario.*"

PD v1.04, Table 1.10:

Table 1.10. TdX-I1: Properties centroid's locations coordinates and areas.

Ownership	Properties	Area (ha)	Project Area/Eligible Forest (ha)	Centroid location coordinates	
				Longitude	Latitude
Rafael Bernerguy Sefer	Belcon Farm	2,197.53	1,835.91	-53° 39′ 38.852″	-5° 37′ 55.445″
	Campo Lindo Farm	2,443.14	1,792.98	-53° 31′ 58.888″	-5° 41′ 56.909″
	Patacho Farm	2,135.16	1,901.16	-53° 39′ 21.781″	-5° 39′ 22.873″
	Retiro Encantado Farm	2,342.88	1,242.27	-53° 34′ 45.974″	-5° 42′ 42.604″
	Santa Marta Farm	2,450.34	1,355.40	-53° 37′ 48.865″	-5° 43′ 2.404″
	Vó Lina Farm	2,364.57	1,101.51	-53° 40′ 38.524″	-5° 41′ 15.775″
Didácio Milhomens Barros	Nossa Senhora Aparecida Farm	1,888.01	1,406.79	-53° 24′ 18.419″	-6° 8′ 1.763″
Total		15,813.63	10,636.02	-	-

According to Table 1.10 of PD v1.04, the area of the project's farms totals 15,813.63 ha and the areas eligible for the project, that is, areas with forest cover, correspond to 10,636.02 ha. The area with forest coverage of the project farms corresponds to 67.25% and they are not complying with the Brazilian legislation (Law 12,651/2012) which requires that the Legal Reserve has forest coverage of 80% in the Amazon biome.

In this way, it is not justified how the scenario is consistent with enforced mandatory applicable laws and regulations, since the properties that make up the Triunfo do Xingu project are not complying with Brazilian legislation about the Legal Reserve area.

CAR ID	13	Date: 24/04/2023

2. PD v1.04 section 3.5.1 sub-step 1b. "*Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations – iii. Logging being conducted through Sustainable Forest management"* states "*Considering all this legal framework, the conclusion is that despite the project area configuring a LR area inside an APA conservation unit, forest management activities could occur. The main requirement to it is the approval of a Sustainable Forest Management Plan (Plano de Manejo Florestal Sustentável PMFS). Then, this scenario needs to be considered as a baseline credible option.*"

It is not justified in PD v1.04 if it is possible to carry out sustainable forest management activities in Environmental Protection Areas (APA). The Project Proponent cites the federal law Nº 9,985/2000 art 27, however, this article of the law referred to the management plan of the conservation unit (APA) and does not describe the legal possibility of carrying out the activity of sustainable forest management in a particular area within from an APA.

3. PD v1.04 section 1.7 states "*The six other properties that compose the first instance of the Triunfo do Xi ngu REDD Project have Rafael Sefer as owner under two different companies. The properties "Belcon Farm", "Santa Marta Farm", "Retiro Encantado Farm" and "Vó Lina Farm" are owned by Santa Maria Pecuaria e Agronegócio Ltda. "Patacho Farm" and "Campo Lindo Farm" are possession of Byblos Agronegócio Holding Ltda. All these six areas are in process of land title and ownership regularization in the Land Institute of Pará (Instituto de Terras do Pará ITERPA), the responsible public office in the State of Pará.*"

For the approval of a sustainable forest management plan, one of the mandatory requirements is the ownership of the property where the management will take place (or in some cases, grant by the government in public areas). In this way, it is not justified as scenario iii is consistent with enforced mandatory applicable laws and regulations on properties that are in the process of land title and ownership regularization in ITERPA.

Project participant response	Date: 22/05/2023

1. The legal requirements and legal logic applicable to the reality of the region that justifies why the scenario is consistent with enforced mandatory applicable laws and regulations were included throughout **"Sub-step 1b. Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations" of the PD v2.0,** in a manner that addresses the logic described below:

   The Legal Reserve is an administrative limitation that is provided for in Law 12.651/2012, in its article 12, as below *in verbis:*
   "Art. 12. Every rural property must maintain an area with native vegetation coverage, as a Legal Reserve, without prejudice to the application of the rules on Permanent Preservation Areas, observing the following minimum percentages in relation to the area of the property, except in the cases provided for in Art. 68 of this Law: (Redrafted by Law No. 12727 of 2012).
   I - located in the Legal Amazon
   80% (eighty percent), on the property located in a forest area"

   In the same norm, with the purpose of encouraging the environmental regularization of properties, chapter XIII of the Brazilian Forest Code provides for the Environmental Regularization Program (PRA). Through this program, it is possible for landowners with environmental liabilities related to the irregular suppression of Permanent Preservation Areas, Restricted Use and Legal Reserves, which occurred before July 22, 2008, to adapt their properties.
   Adhesion to the program is by registering in the Rural Environmental Registry (CAR), as determined by § 2nd of article 59 and § 29 of the Brazilian Forest Code, below in verbs:

   "Art. 59 The Union, the States and the Federal District shall implement Environmental Regularization Programs (PRAs) for rural properties and possessions, with the aim of bringing them into line with the terms of this Chapter. (...) § 2 The registration of rural properties in the CAR is a mandatory condition for joining the PRA, which will be requested by the owner or possessor of the rural property within 180 (one hundred and eighty) days, as of the summons by the competent body, subject to the provisions of § 4 of art. 29."
   (...)
   "Art. 29 - The Rural Environmental Registry (CAR) is created, within the scope of the National Environmental Information System (SINIMA), as a national electronic public registry, mandatory for all rural properties, with the purpose of integrating environmental information from rural properties and possessions, making up a database for control, monitoring, environmental and economic planning and combating deforestation. (...) § 4 Owners and possessors of rural properties that register them in the CAR by December 31, 2020 will be entitled to join the Environmental Regularization Program (PRA), referred to in art. 59 of this Law."(Brasil, 2012)

CAR ID	13	Date: 24/04/2023

Obligation that the rural properties included in the project are compliant. This is proven through a statement extracted from the National Rural Property Registration System (SICAR) (Annex: 230518_TdX Proof of Title.zip). Therefore, according to article 60 of the Forest Code, the Legal Reserve deficit has its punishability suspended due to adhesion to the PRA, in verbs:

"Art. 60 - The signing of a term of commitment to regularize the property or rural possession before the competent environmental agency, mentioned in art. 59, will suspend the punishability of the crimes foreseen in arts. 38, 39 and 48 of Law nº 9.605, of February 12, 1998, while the term is being complied with. (See ADIN Nº 4.937) (See ADC Nº 42) (See ADIN Nº 4.902)"

In this same regard, it is possible to attest to the environmental regularity of Mr. Rafael Sefer and Mr. Didácio Milhomens vis-a-vis the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA), an autarchy in charge of environmental preservation, since there are no fines or debts related to the referred owners in its database. Therefore, their compliance with the rules in force is proven by the negative certificate .
Furthermore, the fact constitutes a matter extrinsic to the scope of the project, since it is located beyond the eligible forest area.

2. The justification that it is possible to carry out sustainable forest management activities in Environmental Protection Areas (APA) has also been included **through "Sub-step 1b. Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations" of the PD v2.0**, in a manner that addresses the logic described below:

Article 225, § 1st, III, of the Federal Constitution states that the government is responsible for *"defining, in all units of the federation, territorial spaces and their components to be specially protected, with alteration and suppression only allowed by law, and any use that compromises the integrity of the attributes that justify their protection being forbidden" (Brasil, 1988)*. This precept is regulated by Law 9.985/2000, which established the National System of Nature Conservation Units - SNUC.
By themselves, the Conservation Units (UC) may range from fully protected, where human use is restricted, to those of sustainable use, where economic exploitation compatible with environmental conservation is permitted. The Conservation Unit in question is an Environmental Protection Area (APA), which is guaranteed the use of its natural resources in a sustainable way, according to the legal terms in articles 14 and 15 of the aforementioned law, below in verbs:
"Art. 14 - The following conservation unit categories constitute the Sustainable Use Units Group:
I - Environmental Protection Area;"
(...)
"Art. 15 - The Environmental Protection Area is an area that is generally extensive, with a certain degree of human occupation, endowed with abiotic, biotic, aesthetic or cultural attributes that are especially important for the quality of life and the well-being of human populations, and has as its basic objectives to protect biological diversity, discipline the occupation process and assure the sustainability of the use of natural resources." (Brasil, 2000)
Article 15 of the SNUC is regulated by Decree 4.340/2002. Therefore, it is understandable that there is the possibility of exploitation of forest products, including timber, in accordance with the redaction given to article 25 of the aforementioned decree, below in verbs:
"Art. 25 - The exploration of products, sub-products or services inherent to the conservation units is subject to authorization, in accordance with the objectives of each unit category.
Sole paragraph. For the ends of this Decree, products, sub-products or services inherent to conservation units are understood as follows
(...)
II - the exploitation of forest resources and other natural resources in Sustainable Use Conservation Units, within the limits established by law."(Brasil, 2002)

Accordingly, in the light of the above, it is understood that even without a management plan to establish the norms that guide the use of the natural resources within the APA, there is legal basis for the approval of a management plan for the area. However, if the competent body denies this, it is possible to appeal to the Judiciary to guarantee compliance with these norms.

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3. In **section 3.5 Additionality, "Sub-step 1b. Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations", "scenario iii. Logging being conducted through Sustainable Forest Management"** description, for the specific case of Rafael Sefer properties to have the Sustainable Forest Management Plan approved by the competent environmental agency, there is the need for the regularization process to be concluded with ITERP. The following paragraph was included to address this matter:
"It is also worth mentioning that in the specific case of landowner Rafael Sefer's farms, for this scenario to be considered credible and for the approval of a sustainable forest management plan, there is the need for the conclusion of the due land regularization process within ITERPA.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

Annexes:
93401779249-IBAMA_Negativa de débitos-NC.pdf
12154806104_IBAMA_Negativa de débitos-NC.pdf
934.017.792-49-IBAMA_Negativa de embargo-NC.pdf
121.548.061-04-IBAMA_Negativa de embargo-NC.pdf
230518_TdX Proof of Title.zip

References:
Brasil. (1988). *Constitution of the Federative Republic of Brazil: Constitutional Text of October 5, 1988, with the Alterations Introduced by Constitutional Amendments No. 1/92 through 72/2013 and by Revision Constitutional Amendments no. 1/94 through 6/94* Federal Senate, Special Secretariat for Printing and Publishing ….
Brasil. (2000). *Federal Law Nº 9,985 . Regulates art. 225, § 1, items I, II, III and VII of the Constitution Federal, institutes the National System of Conservation Units of Nature and other measures.*: Federal Law Nº 9,985 of 18-July-2000.
Brasil. (2002). DECRETO Nº 4.340, DE 22 DE AGOSTO DE 2002. Retrieved from http://www.planalto.gov.br/ccivil_03/decreto/2002/d4340.htm
Brasil. (2012). *Federal Law Nº 12,651. Provides for the protection of native vegetation; amends Laws No. 6,938, of August 31, 1981, 9,393, of December 19, 1996, and 11,428, of December 22, 2006; repeals Laws no. 4,771, of September 15, 1965, and 7,754, of 14 of April 1989, and Provisional Measure No. 2,166-67, of August 24, 2001; and give others measures.*: Federal Law Nº 12,651 of 25-May-2012. .

DOE assessment	Date: 03/07/2023

1. The Project Proponent clarified and justified how the project owners are complying with applicable Brazilian legislation about the Legal Reserve and provided support (negative certificates) that there are no pending issues with IBAMA. **OK**

2. The Project Proponent updated section 3.5.1 sub-step 1b. "*Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations – iii. Logging being conducted through Sustainable Forest management*" and included justifications, based on Brazilian legislation, that there is the possibility of carrying out a forest management plan within an APA.
To corroborate the explanations included in the text of the PD v2.0, the PP included Figure 3.42, which it shows that there are approved Forest Management Plans within APA Triunfo do Xingu. **OK**

3. The Project Proponent updated section 3.5.1 sub-step 1b "*Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations – iii. Logging being conducted through Sustainable Forest management*" and included a paragraph that says that scenario iii will only be applicable for Rafael Sefer's farms when the land regularization process within ITERPA is concluded.
Thus, scenario iii is applicable to the project area, considering Didácio's farm. **OK**

Finding closed successfully

CL ID	14	Date: 24/04/2023

Description of CL

Quantification of GHG emission reductions and removals:

1. PD v1.04 section 4.1 states "*A conservative approach through uncertainty assessment and the percentage of error was used. In this case, if the uncertainty of the total average carbon stock is less than 10% of the average value, the average carbon stock value is used. Otherwise, the lower boundary of the 90% confidence interval is considered in the calculations. In this case, the conversion factor for a 90% confidence interval of 1.645 is used.*"

The Project Proponent did not provide support for a conversion factor for a 90% confidence interval is 1.645.

2. "*230214_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, "*Default factors*" tab:

Biomass				References
Parameter	Description	Unit	Value	
Root-shoot ratio	Above-ground biomass <125 t/ha		0,20	VM0015 Methodology for Avoided Unplanned Deforestation, v1.1; IPCC_2006_Chapter4.pdf, pg. 4.49, Table 4.4.
	Above-ground biomass >125 t/ha		0,24	
CF	Carbon fraction of dry matter	$tC\ t\ d.m^{-1}$	0,50	IPCC_2006_Chapter4.pdf, pg. 4.48, Table 4.3.
tC to tCO_2	Tons of carbon to tons of CO_2	$tC\ tCO_2^{-1}$	3,67	
tCO_2 to tC	Tons of CO_2 to tons of carbon	$tCO_2\ tC^{-1}$	0,27	

"*IPCC, 2006 Chapter4*", Table 4.3:

TABLE 4.3
CARBON FRACTION OF ABOVEGROUND FOREST BIOMASS

Domain	Part of tree	Carbon fraction, (CF) [tonne C (tonne d.m.)$^{-1}$]	References
Default value	All	0.47	McGroddy *et al.*, 2004
Tropical and Subtropical	All	0.47 (0.44 - 0.49)	Andreae and Merlet, 2001; Chambers *et al.*, 2001; McGroddy *et al.*, 2004; Lasco and Pulhin, 2003
	wood	0.49	Feldpausch *et al.*, 2004
	wood, tree d < 10 cm	0.46	Hughes *et al.*, 2000
	wood, tree d ≥ 10 cm	0.49	Hughes *et al.*, 2000
	foliage	0.47	Feldpausch *et al.*, 2004
	foliage, tree d < 10 cm	0.43	Hughes *et al.*, 2000
	foliage, tree d ≥ 10 cm	0.46	Hughes *et al.*, 2000
Temperate and Boreal	All	0.47 (0.47 - 0.49)	Andreae and Merlet, 2001; Gayoso *et al.*, 2002; Matthews, 1993; McGroddy *et al.*, 2004
	broad-leaved	0.48 (0.46 - 0.50)	Lamlom and Savidge, 2003
	conifers	0.51 (0.47 - 0.55)	Lamlom and Savidge, 2003

PD v1.04 section 4.1.1 states "*The carbon component of dry matter of 0.5 tC t d.m 1 is used when converting biomass measured in Mg ha-1 to tC ha-1 (IPCC, 2006d)*"

The value 0.50 tC t.d.m^{-1} used for the parameter "*CF - Carbon Fraction of dry matter*" is inconsistent with the source IPCC 2006 Chapter 4, Table 4.3.

3. "*230214_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, "*Default factors*" tab:

Calculation - baseline GHG emission				References
Parameter	Description	Unit	PD-Value	
$CE_{p,icl}$	Average combustion efficiency of the carbon pool p in the forest class icl		0,59	2006_Chapter2_IPCC Guidelines for National Greenhouse Gas Inventories (Table 2.6, page 2.55)

"*IPCC, 2006 Chapter2*", Table 2.6:

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TABLE 2.6 (UPDATED)
COMBUSTION FACTOR VALUES (PROPORTION OF PREFIRE FUEL BIOMASS CONSUMED) FOR FIRES IN A RANGE OF VEGETATION TYPES
(Values in column 'mean' are to be used for quantity Cf in Equation 2.27)

Vegetation type	Subcategory	Mean	SD	References
Primary tropical forest (slash and burn)	Primary tropical forest	0.32	0.12	7, 8, 15, 56, 66, 3, 16, 53, 17, 45,
	Primary open tropical forest	0.45	0.09	21
	Primary tropical moist forest	0.50	0.03	37, 73
	Primary tropical dry forest	-	-	66
All primary tropical forests		**0.36**	**0.13**	
Secondary tropical forest (slash and burn)	Young secondary tropical forest (3-5 yrs)	0.46	-	61
	Intermediate secondary tropical forest (6-10 yrs)	0.67	0.21	61, 35
	Advanced secondary tropical forest (14-17 yrs)	0.50	0.10	61, 73
All secondary tropical forests		**0.55**	**0.06**	56, 66, 34, 30
All tertiary tropical forest		**0.59**	-	66, 30

The value 0.59 used for the parameter "*$Ce_{p,icl}$ – Average combustion efficiency of the carbon pool p in the forest class icl*" corresponds to the vegetation type "*All tertiary tropical forests*" of table 4.3 of the IPCC 2006 Chapter 4. It is not clear why the value corresponding to this type of vegetation was used.

4. "*230214_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, "*Biomass*" tab:

Parameter	Definition	Unit	Vegetation type: Open-canopy rainforest, submontane	Vegetation type: Dense-canopy rainforest, submontane
ab	Average biomass stock per hectare in the above-ground biomass pool of initial forest class icl	$t\ ha^{-1}$	174,33	193,39
bb	Average biomass stock per hectare in the below-ground biomass pool of initial forest class icl	$t\ ha^{-1}$	41,84	46,41
Percentage of belowground in relation total		%	19,35	19,35
C_{abicl}	Average carbon stock per hectare in the above-ground biomass carbon pool of class icl	$tCO_{2-e}\ ha^{-1}$	319,61	354,54
C_{bbicl}	Average carbon stock per hectare in the below-ground biomass carbon pool of class icl	$tCO_{2-e}\ ha^{-1}$	76,71	85,09
$C_{totalicl}$	Average carbon stock per hectare in the total biomass carbon pool of class icl	**$tCO_{2-e}\ ha^{-1}$**	**396,32**	**439,63**

The values for parameters "*ab*" and "*bb*" are the values of unit "*Mg ha^{-1}*" from tab "*Biomass_Bibliography*" and not of unit "*t ha^{-1}*". Table 4.5 of PD v1.04 also has the same unit values "*Mg ha^{-1}*".

5. Some cells of the "*230214_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet are ineligible, for example:

Total Leakage Area	
As	Ds
423,00	4,14
521,28	142,74
722,43	56,97
########	4,68
########	33,57
557,28	-
964,98	-
########	2,34
383,85	62,01
########	36,45
-	-

Total	
$\Delta C_{BSLtotal}$ tCO_2-e	$\Delta C_{BSLtotal}$ accumulative tCO_2-e
8.916.297,44	8.916.297,44
9.814.939,63	18.731.237,07
10.205.376,95	28.936.614,02
11.425.360,11	40.361.974,14
11.994.052,28	52.356.026,42
12.257.696,48	64.613.722,90
11.904.063,67	76.517.786,56
11.866.698,13	88.384.484,69
11.660.806,60	############
8.845.053,84	############
-	############
-	############

Total PE
tCO_2-e
4.152,13
63.416,03
45.334,52
28.781,16
54.418,67
75.191,69
34.402,88
###########
26.464,13
33.588,02

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6. The values of "*Project Area Total*" of Table 4.7 "*Total baseline carbon stock change for the above/belowground biomass pool in the project area for initial forest class at year t*" of section 4.1 of PD v1.04, are not consistent with values of "*230214_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, "*BL-ED*" tab:

Table 4.7 of the PD v1.04:

Project Area total							
As			Ds			Total	
$\Delta C_{AB,BSL,Ini}$	$\Delta C_{BB,BSL,Ini}$	$\Delta C_{BSL,Ini}$	$\Delta C_{AB,BSL,Ini}$	$\Delta C_{BB,BSL,Ini}$	$\Delta C_{BSL,Ini}$	$\Delta C_{BSL,Total}$	$\Delta C_{BSL,Total\ accumulative}$
tCO_2e	tCO_2e	tCO_2e	tCO_2e	tCO_2e	tCO_2e	tCO_2e	tCO_2e
-	-	-	30,404.88	7,297.17	37,702.05	-	-
-	-	-	452,362.46	108,566.99	560,929.44	12,125.28	2,910.07
-	-	-	259,721.52	62,333.16	322,054.68	72,911.21	17,498.69
-	-	-	185,018.14	44,404.35	229,422.50	25,973.62	6,233.67
-	-	-	388,848.76	93,323.70	482,172.47	9,732.13	2,335.71
-	-	-	498,214.28	119,571.43	617,785.70	52,872.59	12,689.42
-	-	-	214,358.71	51,446.09	265,804.80	37,907.45	9,097.79
-	-	-	742,920.33	178,300.88	921,221.21	7,977.16	1,914.52
-	-	-	121,475.69	29,154.16	150,629.85	72,975.02	17,514.01
-	-	-	206,937.27	49,664.94	256,602.21	39,375.24	9,450.06
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

"230214_4_Calculation of Net GHG Emission Reductions and Removals_30 years" spreadsheet, "*BL-ED*" tab:

Project Area total											
As					Ds					Total	
$A_{BSL,PA}$	$A_{BSL,PAcumulative}$	$\Delta C_{AB,BSL,Ini}$	$\Delta C_{BB,BSL,Ini}$	$\Delta C_{BSL,Ini}$	$A_{BSL,PA}$	$A_{BSL,PAcumulative}$	$\Delta C_{AB,BSL,Ini}$	$\Delta C_{BB,BSL,Ini}$	$\Delta C_{BSL,Ini}$	$\Delta C_{BSL,total}$	$\Delta C_{BSL,total\ accumulative}$
ha	ha	tCO_2-e	tCO_2-e	tCO_2-e	ha	ha	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e
95,13	95,13	30.404,88	7.297,17	**37.702,05**	-	-	-	-	-	**37.702,05**	**37.702,05**
1.415,34	1.510,47	452.362,46	108.566,99	**560.929,44**	34,20	34,20	12.125,28	2.910,07	**15.035,34**	**575.964,79**	**613.666,84**
812,61	2.323,08	259.721,52	62.333,16	**322.054,68**	205,65	239,85	72.911,21	17.498,69	**90.409,90**	**412.464,58**	**1.026.131,42**
578,88	2.901,96	185.018,14	44.404,35	**229.422,50**	73,26	313,11	25.973,62	6.233,67	**32.207,29**	**261.629,79**	**1.287.761,20**
1.216,62	4.118,58	388.848,76	93.323,70	**482.172,47**	27,45	340,56	9.732,13	2.335,71	**12.067,84**	**494.240,31**	**1.782.001,51**
1.558,80	5.677,38	498.214,28	119.571,43	**617.785,70**	149,13	489,69	52.872,59	12.689,42	**65.562,01**	**683.347,72**	**2.465.349,23**
670,68	6.348,06	214.358,71	51.446,09	**265.804,80**	106,92	596,61	37.907,45	9.097,79	**47.005,23**	**312.810,03**	**2.778.159,25**
2.324,43	8.672,49	742.920,33	178.300,88	**921.221,21**	22,50	619,11	7.977,16	1.914,52	**9.891,67**	**931.112,88**	**3.709.272,14**
380,07	9.052,56	121.475,69	29.154,16	**150.629,85**	205,83	824,94	72.975,02	17.514,01	**90.489,03**	**241.118,88**	**3.950.391,02**
647,46	9.700,02	206.937,27	49.664,94	**256.602,21**	111,06	936,00	39.375,24	9.450,06	**48.825,30**	**305.427,51**	**4.255.818,53**
-	9.700,02	-	-	-	-	936,00	-	-	-	-	**4.255.818,53**
-	9.700,02	-	-	-	-	936,00	-	-	-	-	**4.255.818,53**

7. Section 6.1.3 "*The choice of the method to calculate carbon stock changes depends on whether activity data are available for classes or for categories*."

It is not described in section 4.1.1 of PD v1.04 which method (1 or 2) and equations were used to fulfill the requirement of the methodology. Furthermore, it is not clear the correspondence of the PD v1.04 tables with the tables required by the VM0015 v1.1 methodology.

8. PD v1.04 section 4.1.2 states "*The pasture carbon pool is also estimated because the unplanned deforestation in the project area occurs on land used for the pasture. For this calculation, the value of the 16 tCO2 ha-1 pasture is used (page 6.27, Table 6.4, IPCC (2006e)), considering that 100% of these deforested areas would be pasture (post deforestation class). The baseline estimation is calculated considering the sum of the baseline.*"

IPCC 2006e, table 6.4:

TABLE 6.4
DEFAULT BIOMASS STOCKS PRESENT ON GRASSLAND , AFTER CONVERSION FROM OTHER LAND USE

IPCC climate zone	Peak above-ground biomass[1] (tonnes d.m. ha^{-1})	Total (above-ground and below-ground) non-woody biomass[2] (tonnes d.m. ha^{-1})	Error[3]
Boreal – Dry & Wet[4]	1.7	8.5	± 75%
Cold Temperate – Dry	1.7	6.5	± 75%
Cold Temperate –Wet	2.4	13.6	± 75%
Warm Temperate – Dry	1.6	6.1	± 75%
Warm Temperate –Wet	2.7	13.5	± 75%
Tropical – Dry	2.3	8.7	± 75%
Tropical - Moist & Wet	6.2	16.1	± 75%

[1] Data for standing biomass are compiled from multi-year averages reported at grassland sites registered in the ORNL DAAC NPP database [http://www.daacsti.ornl.gov/NPP/].
[2] Total above-ground and below-ground biomass values are based on the peak above-ground biomass values, and the below-ground biomass to aboveground biomass ratios (Table 6.1).
[3] Represents a nominal estimate of error, equivalent to two times standard deviation, as a percentage of the mean.
[4] Due to limited data, dry and moist zones for the boreal temperature regime and moist and wet zones for the tropical temperature regime were combined.

"230214_4_Calculation of Net GHG Emission Reductions and Removals_30 years" spreadsheet, "*Default factors*" tab:

Land use			
Type	t CO_2/ha	%	
Pasture	15,95	100%	2006_Chapter 6_IPCC Guidelines for National Greenhouse Gas Inventories
Buffer	0,1		4. Overall Non-Permanence Risk Rating

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The value used in the formula of the "*230214_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet is 8.7.

The values of biomass stocks present on grassland, after conversion from other land use used by the Project Proponent in the calculation spreadsheet and described in PD v1.04, are not consistent with the source of table 6.4 of the IPCC 2006e.

Project participant response	Date : 22/05/2023

1.The value 1.645 is a defined factor for the confidence interval of 90%. According to the table of the reference "Stats: Introduction to Estimation", available at: https://people.richland.edu/james/lecture/m170/ch08-int.html, this is one common value used.

Here are some common values

Confidence Level	Area between 0 and z-score	Area in one tail (alpha/2)	z-score
50%	0.2500	0.2500	0.674
80%	0.4000	0.1000	1.282
90%	0.4500	0.0500	1.645
95%	0.4750	0.0250	1.960
98%	0.4900	0.0100	2.326
99%	0.4950	0.0050	2.576

2. The default factor used was initially extracted from the IPCC2006c.pdf reference, "Good Practice Guidance for Land Use, Land-Use Change and Forestry", the default value of the carbon fraction of dry matter equal to 0.5. It was referenced as being extracted, however, from table 4.3 of the IPCC2006d, "Chapter 4: Forest Land", which is in fact 0.47 the correct value, and the most conservative one. The correction was implemented in the spreadsheet "230504_4_Calculation of Net GHG Emission Reductions and Removals_30 years.xlsx" and also updated all the relevant tables and new values in the PD v2.0.
Data and parameter has changed as well, according to the image bellow:

Data / Parameter	CF
Data unit	tC t d.m^{-1}
Description	Default value of carbon fraction in biomass
Source of data	VM0015 (VERRA, 2012a) and IPCC (2006d) page 4.49, Table 4.4
Value applied	0.475
Justification of choice of data or description of measurement methods and procedures applied	The default value was used for conservativeness purposes
Purpose of Data	• Calculation of baseline emissions • Calculation of project emissions • Calculation of leakage
Comments	If new and more accurate carbon fraction data become available, these can be used to estimate the net anthropogenic GHG emission reduction of the subsequent fixed baseline period.

3. The correct value, already adjusted in the PD and the spreadsheet is 0.45 for the parcels defined as tropical primary open tropical forest (same as the open canopy - As) and 0.50 for the primary tropical moist forest (same as dense canopy - Ds). All the tables and values related to those factors have been updated in the PD. Data and parameter has changed as well, according to the image bellow:

CL ID	14	Date: 24/04/2023

Data / Parameter	$CE_{p,icl}$
Data unit	Dimensionless
Description	Average combustion efficiency of the carbon pool p in the forest class icl
Source of data	IPCC (2006b), Table 2.6, page 2.55
Value applied	Primary tropical moist forest: 0.~~59~~50 Primary open tropical forest: 0.45
Justification of choice of data or description of measurement methods and procedures applied	The default value was used for conservativeness purposes.
Purpose of Data	• Calculation of baseline emissions • Calculation of project emissions • Calculation of leakage
Comments	N/A

4. The unit $t.ha^{-1}$ is the same as $Mg.ha^{-1}$. In any of the cases, the reference to it was adjusted in both spreadsheet and PD.

5. The cells in the spreadsheet were adjusted to avoid the problem.

6. Table 4.7 "*Total baseline carbon stock change for the above/belowground biomass pool in the project area for initial forest class at year t*" of section 4.1 of PD v1.04, were adjusted and is consistent with values the quantification spreadsheet.

7. Clarifying text has been added in Section 4.1.1: "*According to the methodology VM0015, the Historical LU/LC-change (Method 1) was used to calculate the LU/LC class that will replace the forest cover in the baseline scenario*".
The total baseline carbon stock changes in the project area at year are calculated based on Equation 10 on page 72 of VM0015 v.1.1. Equation 4 of PD v.1.04 has been corrected in PD v2.0. The same equation was also used to calculate above-ground and below-ground biomass in the project area, leakage belt area and reference region.
It is crucial to emphasize that the results depicted in the previous tables of PD v1.04 are accurate; they were simply presented differently than in VM0015 v.1.1. Consequently, the tables have been modified to align with the methodology (Section 4.1.1). The spreadsheet has also been updated to match the PD tables. While the methodology allows for Table 21a regarding the reference region to be optional, we have incorporated it into the project to enhance its robustness.

8. New reference used: https://www.scielo.br/j/aa/a/cFzYg7GZ8SRTVqSzkTGnMgL/?format=pdf&lang=pt

Tabela 1 - Proporções dos componentes morfológicos da gramínea e produção de plantas daninhas em três parcelas experimentais de pastagens de *Brachiaria brizantha* cv. Marandu com diferentes graus de degradação.

Variável	Grau de degradação			CV[1]
	Baixo	Médio	Alto	
	----------Mg ha-1----------			-------%-------
MST[2]	8,18 (0,57) a	7,87 (0,53) a	3,00 (0,41) b	44,23
MSFV[3]	3,09 (0,24) a	2,17 (0,24) b	0,92 (0,13) c	48,76
MSC[4]	2,92 (0,27) a	2,67 (0,21) a	1,02 (0,16) b	54,55
MSMM[5]	2,17 (0,18) a	3,03 (0,27) a	1,06 (0,16) b	56.17
MSPD[6]	0,06 (0,03) b	0,04 (0,02) b	2,16 (0,55) a	209,79

Médias seguidas de mesma letra nas linhas não diferem entre si (Kruskal-Wallis, 5%). Valores entre parênteses referem-se ao erro padrão da média.
[1]CV: coeficiente de variação;; [2]MST: massa seca total; [3]MSFV: massa seca de folhas verdes; [4]MSC: massa seca de colmo; [5]MSMM: massa seca de material morto; [6]MSPD: massa seca de plantas daninhas.

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The table of the reference used has the new value of the most specific post deforestation for the dry mass production of grass and plant morphological components in Brachiaria brizantha cv. Marandu pasture areas.

With that, the value used is now:

Data / Parameter	Pasture
Data unit	$tCO_2.ha^{-1}$
Description	Land used for the pasture
Source of data	(SILVA NETO et al., 2012)
Value applied	$(7.87 + 7.87 \times \text{Root shoot ratio}) \times CF \times 44/12 = 16.28$
Justification of choice of data or description of measurement methods and procedures applied	The pasture carbon pool is also estimated because the unplanned deforestation in the project area occurs on land used for the pasture.
Purpose of Data	• Calculation of baseline emissions
Comments	The default value was used for conservativeness purposes.

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

Annexes:
230504_4_Calculation of Net GHG Emission Reductions and Removals_30 years.xlsx

References:
SILVANETO2012.pdf
Stats2023.pdf

DOE assessment	Date: 04/07/2023

1. The Project Proponent provided support for the value of 1,645 for a 90% confidence interval. **OK**

2. The Project Proponent updated the value of CF in the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet and also updated a Table do "*Data/Parameter*" CF of section 5.1 of PD v2.0. **OK**

3. The Project Proponent updated a Table do "*Data/Parameter*" $CE_{p,icl}$ of section 5.1 of PD v2.0, but in the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, the value used for $CE_{p,icl}$. is not consistent with what is described in PD v2.0. **PENDING**

Calculation - baseline GHG emission				References
Parameter	Description	Unit	PD-Value	
$CE_{p,icl}$	Average combustion efficiency of the carbon pool p in the forest class icl		0,454	2006_Chapter2_IPCC Guidelines for National Greenhouse Gas Inventories (Table 2.6, page 2.55)

4. The Project Proponent updated the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, "*Biomass*" tab and adjusted the unit of parameters "*ab*" and "*bb*" to "*Mg.ha*$^{-1}$". Table 4.5 has also been updated. **OK**

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5. The Project Proponent adjusted the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet and all cells have values visible. **OK**

6. The Project Proponent updated Table 4.7 of PD v2.0 and the values in the Table are consistent with the values in the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, "*BL-ED*" tab. **OK**

7. The Project Proponent updated section 4.1.1 of PD v2.0 clarifying that method 1 was used by the project and including the equations used. The PP also updated the tables and described the correspondence of the PD tables with the methodology tables.
However, Table 4.13 of PD v2.0 does not have the values of columns 2 and 3 corresponding with the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, "*Final-ED*" tab. **PENDING**

PD v2.0, Table 4.13:

Table 4.13. Final values of the total baseline carbon stoc
belt, and reference region for initial forest class at year t

Project year t	$\Delta CBSLPA_t$ annual tCO_2-e	$\Delta CBSLPA$ cummulative tCO_2-e
2022	33,891.67	33,891.67
2023	517,815.41	551,707.08
2024	371,144.36	922,851.44
2025	235,318.32	1,158,169.75

"*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, "*Final-ED*" tab:

Year				Baseline Emissions from Deforestation for the Project Area	
				Total tCO_2-e ha^{-1} $year^{-1}$	Total Accumulative tCO_2-e
2022	From	31/08/2022	to 30/08/2023	35.439,93	35.439,93
2023	From	31/08/2023	to 30/08/2024	541.406,90	576.846,83
2024	From	31/08/2024	to 30/08/2025	387.716,70	964.563,53
2025	From	31/08/2025	to 30/08/2026	245.932,00	1.210.495,53
2026	From	31/08/2026	to 30/08/2027	464.585,89	1.675.081,42
2027	From	31/08/2027	to 30/08/2028	642.346,85	2.317.428,27
2028	From	31/08/2028	to 30/08/2029	294.041,43	2.611.469,70

8. The Project Proponent replaced a reference used for biomass present on grassland and the new value is 7.87 $Mg.ha^{-1}$. Support was also provided.
The PP updated the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, "*Default factors*" tab, section 4.1.2 of PD v2.0 and "*Data/parameter*" Pasture in section 5.1. **OK**

Considering the lack of evidence mentioned above, the CL remains open

Project participant response	Date: 25/07/2023

Replies and corrective actions to "PENDING" topics:

3. The "*Data/Parameter*" $CE_{p,icl}$ of section 5.1 of PD v2.0 is consistent to the value used for $CE_{p,icl}$.in the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet. The value 0.454 is the result of the weighted average between the average combustion efficiency of the carbon pool p in the forest class icl (for the classes As and Ds) and values of the primary tropical moist forest and the primary open tropical forest found in the project area.

7.Both tables are correct. They are different, because they were intended to be. As it is described above in the PDv2.0, the table 4.13, refers to the "*Total net carbon stock change in the biomass of the project area*" equivalent to the excel table in the *"BL_ED"* tab, as shown in the image bellow (post-deforestation considered in the calculation):

CL ID	14	Date: 24/04/2023

ock change in the l biomass of the classes in the ct area	Carbon stock changes in below-ground biomass per post-deforestation zone z		Total carbon stock change in the below-ground biomass of post-deforestation zones in the project area		Total net carbon stock change in the below-ground biomass of the project area			Total net carbon stock change in the biomass of the project area	
ΔCbb BSLPA	1	2	ΔCbb BSLPA	ΔCbb BSLPA	ΔCbb BSLPA	ΔCbb BSLPA		ΔCBSLPA	ΔCBSLPA
cummulative	As	Ds	annual	cummulative	annual	cummulative		annual	cummulative
tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	tCO_2-e	Project year t	tCO_2-e	tCO_2-e
6,859.34	258.04	-	258.04	258.04	6,601.30	6,601.30	2022	33,891.67	33,891.67
111,647.77	3,839.15	92.77	3,931.92	4,189.96	100,856.52	107,457.81	2023	517,815.41	551,707.08
186,689.72	2,204.23	557.83	2,762.06	6,952.02	72,279.89	179,737.70	2024	371,144.36	922,851.44
234,289.46	1,570.23	198.72	1,768.95	8,720.96	45,830.79	225,568.49	2025	235,318.32	1,158,169.75
324,209.31	3,300.11	74.46	3,374.57	12,095.54	86,545.28	312,113.77	2026	444,338.45	1,602,508.20
448,534.50	4,228.29	404.52	4,632.81	16,728.34	119,692.39	431,806.16	2027	614,550.02	2,217,058.22
505,445.75	1,819.24	290.02	2,109.26	18,837.60	54,801.98	486,608.15	2028	281,385.86	2,498,444.08
674,848.22	6,305.08	61.03	6,366.11	25,203.71	163,036.36	649,644.51	2029	837,049.45	3,335,493.53
718,716.30	1,030.95	558.32	1,589.27	26,792.98	42,278.81	691,923.32	2030	217,116.13	3,552,609.66
774,284.40	1,756.25	301.25	2,057.51	28,850.49	53,510.60	745,433.92	2031	274,756.83	3,827,366.49
774,284.40	-	-	-	28,850.49	-	745,433.92	2032	-	3,827,366.49
774,284.40	-	-	-	28,850.49	-	745,433.92	2033	-	3,827,366.49
774,284.40	-	-	-	28,850.49	-	745,433.92	2034	-	3,827,366.49
774,284.40	-	-	-	28,850.49	-	745,433.92	2035	-	3,827,366.49
774,284.40	-	-	-	28,850.49	-	745,433.92	2036	-	3,827,366.49
774,284.40	-	-	-	28,850.49	-	745,433.92	2037	-	3,827,366.49
774,284.40	-	-	-	28,850.49	-	745,433.92	2038	-	3,827,366.49

Biomass_Bibliography | Biomass_Project Area | Biomass | BL-ED | RR-ED | LK-ED | Final-ED | BL-GHG | PE | LK_GHG | Resume_Ex-ante | Net GHG Emission Reductions | GHG Emissio

The values referenced by the auditors in the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet, "*Final-ED*" tab were used for the calculation of Project emissions (Table 4.15 of the VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf, and tab *"PE"*) and leakage (Table 4.16 of the VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf, and tab *"LK_GHG"*). In both calculations, post-deforestation discounting was not considered, as regeneration by pastures was conservatively not accounted for.

Table 4.15. Total project emissions ex-ante estimation

Parameter			Baseline Emissions		Project emission - unpplanned deforestation		Biomass Burning Total	Project emission - forest fires	Total PE
			ΔC_{BSLicl}	$\Delta C_{BSLicl\ accumulative}$	EI	ΔCCUDdPAt	EBBtot	EBBPSPAt	
Unit			tCO_2e	tCO_2e	%	tCO_2e	tCO_2e	tCO_2e	tCO_2e
Period time (year)	1st baseline period	2022	35,439.93	35,439.93	90%	3,543.99	2,764.97	276.50	**3,820.49**
		2023	541,406.90	576,846.83	90%	54,140.69	42,131.16	4,213.12	**58,353.81**
		2024	387,716.70	964,563.53	90%	38,771.67	29,595.93	2,959.59	**41,731.26**
		2025	245,932.00	1,210,495.53	90%	24,593.20	18,954.58	1,895.46	**26,488.66**
		2026	464,585.89	1,675,081.42	90%	46,458.59	36,159.14	3,615.91	**50,074.50**
		2027	642,346.85	2,317,428.27	90%	64,234.69	49,641.32	4,964.13	**69,198.82**
	2nd baseline period	2028	294,041.43	2,611,469.70	90%	29,404.14	22,601.10	2,260.11	**31,664.25**
		2029	875,246.11	3,486,715.81	90%	87,524.61	68,213.98	6,821.40	**94,346.01**
		2030	226,651.75	3,713,367.56	90%	22,665.17	17,029.30	1,702.93	**24,368.10**
		2031	287,101.86	4,000,469.42	90%	28,710.19	22,046.53	2,204.65	**30,914.84**
		2032	-	4,000,469.42	90%	-	-	-	-
		2033	-	4,000,469.42	90%	-	-	-	-
	3rd baseline period	2034	-	4,000,469.42	90%	-	-	-	-
		2035	-	4,000,469.42	90%	-	-	-	-
		2036	-	4,000,469.42	90%	-	-	-	-
		2037	-	4,000,469.42	90%	-	-	-	-
		2038	-	4,000,469.42	90%	-	-	-	-
		2039	-	4,000,469.42	90%	-	-	-	-
	baseline period	2040	-	4,000,469.42	90%	-	-	-	-
		2041	-	4,000,469.42	90%	-	-	-	-
		2042	-	4,000,469.42	90%	-	-	-	-
		2043	-	4,000,469.42	90%	-	-	-	-

CL ID	14	Date: 24/04/2023

Table 4.16. Ex ante estimation of the decrease in carbon stocks and increase in GHG emissions due to activity displacement leakage

Parameter		Baseline Emissions		Baseline Biomass Burning		Leakage					Total LK-GHG
		$\Delta CBSLPAt$	$\Delta CBSLPAt$ cumulative	EBBtot	EBBtot cumulative	DLF	ΔCADLKt	ΔCADLKt cumulative	EADLKt	EADLKt cumulative	
Unit		tCO_2e		tCO_2e		%	tCO_2e		tCO_2e		tCO_2e
Period time (year) – 1st baseline period	2022	35,439.93	35,439.93	2,764.97	2,764.97	10%	3,543.99	3,543.99	276.50	276.50	**3,820.49**
	2023	541,406.90	576,846.83	42,131.16	44,896.14	10%	54,140.69	57,684.68	4,213.12	4,489.61	**58,353.81**
	2024	387,716.70	964,563.53	29,595.93	74,492.06	10%	38,771.67	96,456.35	2,959.59	7,449.21	**41,731.26**
	2025	245,932.00	1,210,495.53	18,954.58	93,446.64	10%	24,593.20	121,049.55	1,895.46	9,344.66	**26,488.66**
	2026	464,585.89	1,675,081.42	36,159.14	129,605.77	10%	46,458.59	167,508.14	3,615.91	12,960.58	**50,074.50**
	2027	642,346.85	2,317,428.27	49,641.32	179,247.09	10%	64,234.69	231,742.83	4,964.13	17,924.71	**69,198.82**
2nd baseline period	2028	294,041.43	2,611,469.70	22,601.10	201,848.19	10%	29,404.14	261,146.97	2,260.11	20,184.82	**31,664.25**
	2029	875,246.11	3,486,715.81	68,213.98	270,062.17	10%	87,524.61	348,671.58	6,821.40	27,006.22	**94,346.01**
	2030	226,651.75	3,713,367.56	17,029.30	287,091.47	10%	22,665.17	371,336.76	1,702.93	28,709.15	**24,368.10**
	2031	287,101.86	4,000,469.42	22,046.53	309,138.00	10%	28,710.19	400,046.94	2,204.65	30,913.80	**30,914.84**
	2032	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
	2033	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
3rd baseline period	2034	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
	2035	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
	2036	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
	2037	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
	2038	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
	2039	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
baseline period	2040	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
	2041	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
	2042	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-
	2043	-	4,000,469.42	-	309,138.00	10%	-	400,046.94	-	30,913.80	-

Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230725.pdf

Annexes:
230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years.xlsx

DOE 2nd assessment	Date: 01/08/2023

3. The Project Proponent clarified that the "*Data/Parameter*" $CE_{p,icl}$ of section 5.1 of PD v2.1 is consistent with the value used for $CE_{p,icl}$ in the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet. The $CE_{p.icl}$ values (0.50 and 0.45) differ from the spreadsheet value (0.454) because the spreadsheet value is a formula that uses the quoted $CE_{p,icl}$ values that represent the primary tropical moist forest and the primary open tropical forest found in the project area. **OK**

7. The Project Proponent clarified that the data used in Table 4.13 of PD v2.1 comes from other tabs of the "*230518_4_Calculation of Net GHG Emission Reductions and Removals_30 years*" spreadsheet. The VVB has compared the values in Table 4.13 with the "*BL-ED*", "*LK-ED*" and "*RR-ED*" tabs of the spreadsheet and the values are consistent. **OK**

Finding closed successfully

CAR ID	15	Date: 24/04/2023

Description of CAR

5.2 Data and Parameter Monitored:

Some inconsistencies were found in section 5.2 of the PD v1.04:

1. Data / Parameter: A_{sp}

The "*Frequency of monitoring/recording: At least every ten years for baseline renewal.*" does not match the 6-year baseline renewal as described in section 1.4 – "*Eligibility criteria*" of PD v1.04.

2. Data / Parameter: n

CAR ID	15	Date: 24/04/2023

a) The "*Frequency of monitoring/recording: At least every ten years for baseline renewal.*" does not match the 6-year baseline renewal as described in section 1.4 – "*Eligibility criteria*" of PD v1.04.

b) The "*Value applied: 30*" is not consistent with the number of plots described in "*221014_SOP - Standard Operating Procedure*" file "*No estrato floresta ombrófila densa foram alocadas 8 parcelas distantes 500 metros entre si, esse valor de 500 metros foi atribuído em decorrência de ser um estrato menor e conseguir contemplar o mínimo de 5 parcelas por estrato. Nos estratos ecótono e floresta ombrófila aberta foram alocadas 12 parcelas no estrato ombrófila aberta e 12 no estrato ecótono distantes 1500 metros umas das outras, totalizando assim 32 parcelas.*"

3. Data / Parameter: DBH

The "*Frequency of monitoring/recording: At least every ten years for baseline renewal.*" does not match the 6-year baseline renewal as described in section 1.4 – "*Eligibility criteria*" of PD v1.04.

Project participant response	Date: 22/05/2023

Questions 1, 2 and 3(a): All the frequencies have been updated accordingly to the same period of the correct forest biomass inventory renewal of every 10 years, according to images bellow:

Data / Parameter	A_{sp}
Data unit	ha
Description	Area of sample plots in biomass inventory
Source of data	Recording and archiving of number and size of sample plots.
Description of measurement methods and procedures to be applied	Cluster plot in Maltese cross setup with four rectangular sub-plots with 0,1 ha (10 m x 100 m) each.
Frequency of monitoring/recording	At least every ten years for forest biomass inventory ~~baseline~~ renewal.
Value applied	0.4
Monitoring equipment	GPS and measuring tape.
QA/QC procedures to be applied	GPS coordinates are double checked in the field.
Purpose of data	• Calculation of baseline emissions
Calculation method	N/A
Comments	The biomass inventory will be estimated according to the Standard Operating Procedure (SOP)[110].

Data / Parameter	n
Data unit	Dimensionless
Description	Number of sample plots
Source of data	Recording and archiving of number of sample points.
Description of measurement methods and procedures to be applied	Calculated with statistic equation.
Frequency of monitoring/recording	At least every ten years for ~~baseline~~ *forest biomass inventory* renewal.
Value applied	~~30~~55

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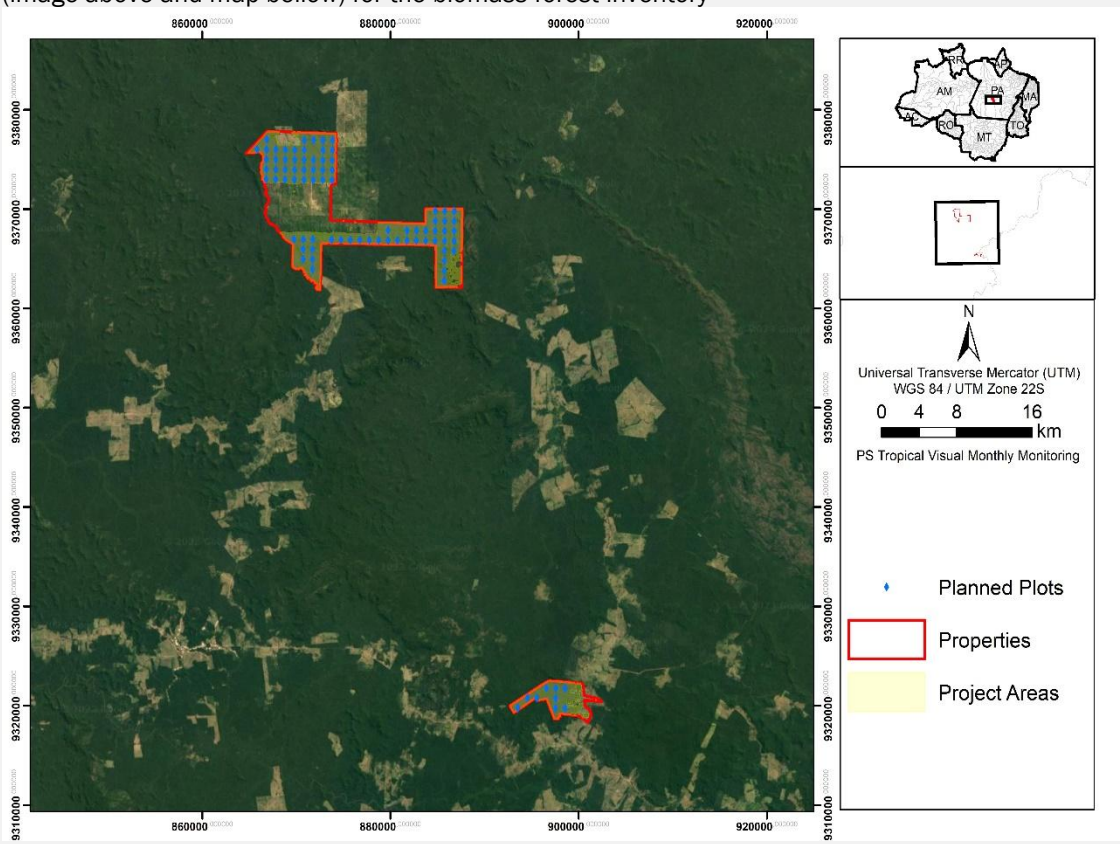
Data / Parameter	DBH
Data unit	cm
Description	Diameter at breast height of a tree in cm.
Source of data	Field measurements in sample plots.
Description of measurement methods and procedures to be applied	Measured 1.3m above ground. Measure all trees above some minimum DBH (≥ 10 cm) in the sample plots.
Frequency of monitoring/recording	Monitoring must occur at least every ten years for ~~baseline~~ forest biomass inventory renewal. Where carbon stock enhancement is included, monitoring shall occur at least every five years.

Question 2(b): SOP has been updated as well and 55 permanent cluster plots are the new correct number (image above and map bellow) for the biomass forest inventory



Documentation provided by project participant

VCS_PD_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

Annexes
230518_SOP_IF_TDX.pdf
230516_Parcelas.jpg

DOE assessment	Date: 04/07/2023

CAR ID	15	Date: 24/04/2023

1. The Project Proponent updated the "*Frequency of monitoring/recording*" of the "*Data / Parameter*" A_{sp} and described that the monitoring will occur at least every ten years for the biomass inventory renewal, as required by methodology VM0015. **OK**

2.a) The Project Proponent updated the "*Frequency of monitoring/recording*" of the "*Data / Parameter*" n and described that the monitoring will occur at least every ten years for the biomass inventory renewal, as required by methodology VM0015. **OK**

2.b) The Project Proponent updated the "*Value applied*" of the "*Data / Parameter*" n to 55 sample plots and this value is consistent with the "*230518_SOP_IF_TDX*" procedure, which was also updated and attached in the evidence folder. **OK**

3. The Project Proponent updated the "*Frequency of monitoring/recording*" of the "*Data / Parameter*" DBH and described that the monitoring will occur at least every ten years for the biomass inventory renewal, as required by methodology VM0015. **OK**

Finding closed successfully

CAR ID	16	Date: 24/04/2023

Description of CAR

Non-Permanence Risk Report:

1. On the Non-Permanence Risk Report first page, the information for "*Project ID, Monitoring Period, Prepared By and Contact*" is incorrect.

2. AFOLU_Non_Permanence_Risk_Tool_v4.0 section 2.2.1.1) states "*Each project management risk factor set out in Table 1 shall be assessed. Where a risk factor does not apply to the project, the score shall be zero for such factor*."

Some scores described in the Non-Permanence Risk Report are not meeting the Tool's requirement.

3. AFOLU_Non_Permanence_Risk_Tool_v4.0 Instructions "*Where a section is not applicable, explain why the section is not applicable (i.e., do not delete the section from the final document and do not only write "not applicable"). Submit the project description as a non-editable PDF*."

Some "not applicable" risks described in the Non-Permanence Risk Report are not meeting the Tool's Instructions.

4. It was verified during the on-site audit that, to access the project area, it is necessary to travel long distances by car from the airport in the city of Parauapebas. To travel by land, it took a day to travel from the city of Parauapebas to São Félix do Xingu and another day to travel from São Félix do Xingu to the Nossa Senhora farm area. The trip to Rafael Sefer's properties was not carried out because, on April 12, 2023, an overflight was carried out in the project area. The displacement by car to Rafael Sefer's properties would take a few more days as well.

In this way, the "*Risk Factor and/or Mitigation Description*" of "*Project Management*" item d) does not contain the description of field conditions and travel distances from to project site.

5. "*Community engagement*" a) states "*There are some employees of the landowners that live inside the properties borders. All of them have been consulted by the field team contracted in Systemica's name.*"

The Project Proponent does not provide evidence of the consultation with the employees of the project's farms.

6. "*230309a_TdX_CashFlow*" spreadsheet:

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Control Panel

Project Parameters	
General Information	
Proponent Name	Systemica
Project Name	Triunfo do Xingu Grouped REDD+ Project
Project Area [ha]	11.585,39
Financial Aspects	
WACC	10,0%

The value of the Triunfo do Xingu project area is incorrect.

7. "*230309a_TdX_CashFlow*" spreadsheet, "*REDD Project CashFlow 30y"* tab*:* the cost of "*Carbon Forest Inventory*" was only allocated in the year 2022. Therefore, it is not clear whether the carbon forest inventory will be carried out in other years of the project.

8. "*230309a_TdX_CashFlow*" spreadsheet, "*REDD Project CashFlow 30y"* tab*:* the cost of "*Social Investments (activities)"* was allocated only in the year 2023.

It is not clear what activities make up the "*Social Investments*" and whether they will be carried out during the other years of the project.

9. It was verified during the on-site audit and described throughout PD v1.04 that the farm owners have pasture and cattle on their properties. The Project Proponent included the number of cattle from the Santa Marta farm only in the "*230309a_TdX_CashFlow*" spreadsheet, "*Control panel*" tab. It is not clear why the number of cattle owned by owner Didácio was not included in the project's cash flow.

10. "Natural *risk (Fire)"*: the annex "*221014_Firebreaks*", figures 4, 5 and 6 show the location of firebreaks on project farms.

It is not clear from Figures 5 and 6 how the fire breaks will protect the forest/project area, as they are in the middle of the property and bordering non-forested areas (in red in the figure below).

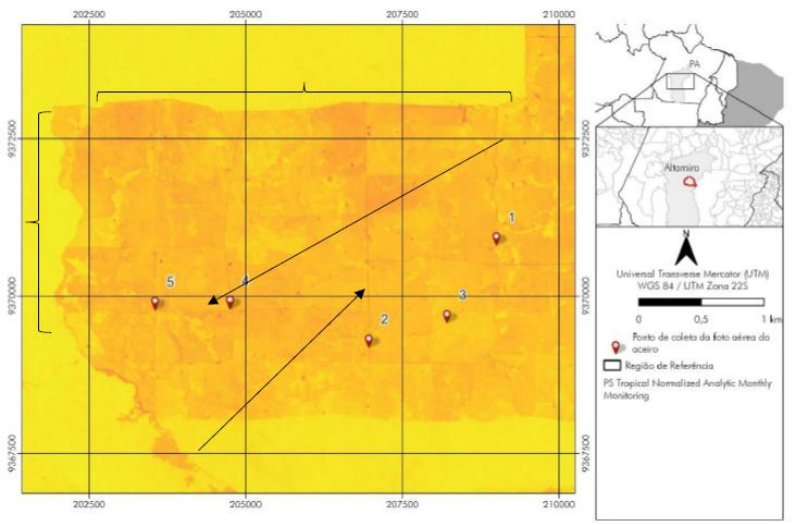

Figura 5: Comportamento do índice espectral SAVI nas áreas das Fazendas Belcon, Patacho, Vó Lina, Campo Lindo e Retiro Encantado. As setas em preto, apontam os locais em que é nítida a visualização do solo exposto (em vermelho/laranja) se diferenciando muito bem das áreas de vegetação (amarelo vivo e claro).

11. AFOLU_Non_Permanence_Risk_Tool_v4.0 section 2.4.1.1) states "*Natural risk is based on likelihood (i.e., the historical average number of times the event has occurred in the project area over the last 100 years) and significance (i.e., the average significance of each event). Any significant natural risk (i.e., a risk*

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affecting more than 5% of the project area) that has occurred over the past 100 years in the project area shall be considered applicable to the project. The frequency and significance of events shall be estimated based on historical records, probabilities, remote sensing data, peer-reviewed scientific literature and/or documented local knowledge, such as survey data in project areas, and may include projected climate change impacts. Where data are available for at least 20 years, but less than 100 years, projects shall conservatively extrapolate using available data. Where such data are not available for the project area, likelihood and significance shall be determined based on conservative estimates (i.e., not underestimating the possible frequency or severity) of historical events in the region in which the project is located."

"*Natural Risk (Pest and Disease outbreaks)*": the reference used as support to justify that "*Since the forest ecosystem is in equilibrium, natural pests occurring are controlled by natural predators*" is "*Silva2020*". The artcle by "*Silva2020*" is entitled as "*Métodos de controle e prevenção de insetos-praga em povoamentos florestais*" and describes in the Abstract that "*estudo consistiu em relatar os métodos de controle das principais espécies pragas que atacam as essências florestais mais importantes do Brasil. Realizou-se um levantamento bibliográfico com auxílio de periódicos, livros, sites, teses, dissertações, boletins técnicos, entre outros descrevendo os métodos de controle e os principais insetos-praga de Eucalyptus sp., Pinus sp., Araucária angustifólia, Acácia mearnsii, Ilex paraguariensis e Mimosa scabrella.*"

Thus, the article describes the control of exotic forest species and does not justify the non-existence of pest and disease outbreaks in the project area or the Reference Region, as requested by Template.

12. AFOLU_Non_Permanence_Risk_Tool_v4.0 section 2.4.1.2) states "*The significance of natural risks shall be determined by the damage that the project would sustain if the event occurred, expressed as an estimated percentage of average carbon stocks in the project area that would be lost in a single event.*"

VCS_NPRR_TriunfoDoXinguGroupedREDD+Project_v230214, section "*Natural Risk (Extreme Weather)*" states "*Some occasional and rare tree falls have been recorded by landowners*".

During the on-site, the landowners reported that some occasional and rare tree falls have been recorded and is requested by Tool that the significance shall be determined by the damage that the project would sustain if the event occurred, expressed as an estimated percentage of average carbon stocks in the project area that would be lost in a single event.

It is not clear how the Project Proponent set the significance to "*No Loss*" to classify the occurrence in the project area.

Project participant response	Date: 22/05/2023

1. Information in the "VCS_NPRR_TriunfoDoXinguGroupedREDD+Project_v230522.pdf" has been corrected.

2. In the Non-Permanence Risk Report PDF, in fact, the non-applicable fields appear with the text "Not Applicable", however, the value "0" referring to these fields is in accordance with the reference spreadsheet that performs the final calculation of the tool. Nevertheless, the fields in Table 1 that were filled in as "Not Applicable" in the PDF document have been replaced by "0".

3. The respective justifications for the non-applicable fields were included in the "VCS_NPRR_TriunfoDoXinguGroupedREDD+Project_v230522.pdf". Therefore, the fields where no justification was given were changed to clarify their non-applicability.

4. Although it is described in the non-permanence risk report, "Project Management" table, item "d", that *"Both landowners, Rafael Sefer and Didácio Milhomens, have managers located inside their properties",* representing that the farms administrators live in the proximities of the project area, it was included to clarify that "*Both farm managers represent the members of the management team closest to the project areas.*" and that even without the farm managers, *"to get to the project area,*

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air transportation to the commercial airport of Paraupebas or Marabá is required, this route would take a maximum of 5 hours to be accomplished. From one of these airports, in order to get to the project areas within a day's distance, a private plane or air taxi company must be used to get to the landing strips of Vila Caboclo or the Rafael Sefer properties, taking around two hours to land on the farther project property."

5. The requirement to the field **"Community engagement", item "a)"** is that if *"Less than 50 percent of households **living within the project area** who are reliant on the project area, have been consulted."* the field would have to be fielded. But, since there are no households living within the project area, there is no evidence of the consultation with the employees of the project's farms needed to be provided.
   The statement was removed and reformulated in order to justify the non-applicability of the field.

6. The project area value has been corrected in "230510_TdX_CashFlow.xlsx".

7. According to VM0015, item a of section 6.1.1, the biomass inventory can be renewed every 10 years. This is because the methodology means that the data that has been collected and evaluated should be less than 10 years old. Therefore, it was included in the "230510_TdX_CashFlow.xlsx" values for the renewal of the inventory to be done every 10 years in the project.

8. The initial amount indicated for social investment is destined to supply the needs of the VCS safeguards at the time of the validation and specifically for the resolution of conflicts. The real social investment occurs from the future development of the VCS+CCB project, in which the credits are appreciated and a percentage of the credits are destined to a specific social fund for the application of resources in social activities, mapped in the future together with the community. At the time of validation, it is not possible to describe which CCB investments would be made in the VCS-project, since these will be investments that involve planning together with a Systemica technical team and the community members of the Caboclo Village, in a continuous work to improve the living conditions of the community.

9. The non-permanence risk report in the financial viability table, item "h", states that *"Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven."*. The analysis presented in the *"230309a_TdX_CashFlow"* spreadsheet, "*Control panel*" tab covers the purpose of the item, in the demonstration, at a project level, that there is more than 80% of the funding needed to cover the total cash out before the project reaches breakeven.
   So, the number of cattle of only one of the landowners has been included for the purpose of exemplifying that the project would have at its disposal more than 80% of the resources needed before breakeven. Therefore, there is no need to demonstrate that the project has more resources than already demonstrated in order to access the minimum risk score of the tool in this topic.

10. To highlight the presence of firebreaks on the properties, images from the CBERS-4 satellite (INPE, 2014) were used, with a spatial resolution of 2 meters. Two maps were prepared, one for each property (Figures 1 and 2), showing the locations of the project implementation. Some areas demonstrating the firebreaks were selected.

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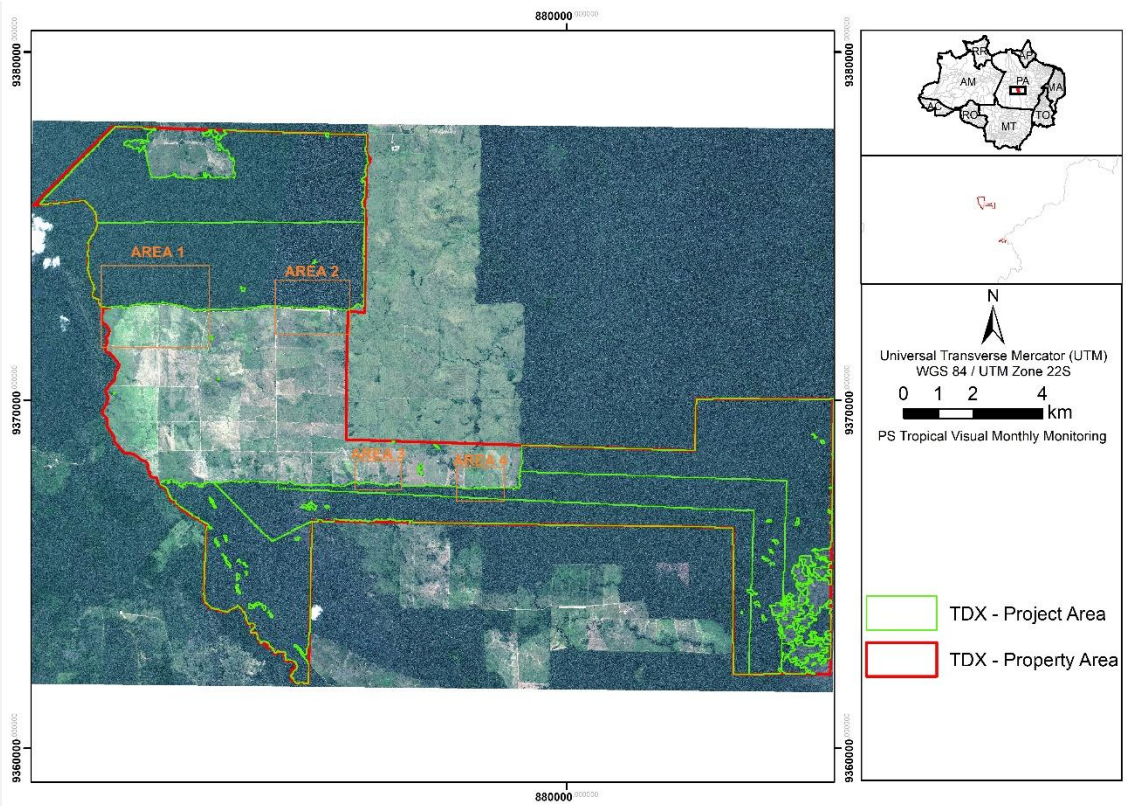

Figure 1. Map of the "Rafael Cefer" property highlighting some firebreaks, marked and named in area 1 (Figure 1.a.), 2 (Figure 1.b.), 3 (Figure 1.c.), and 4 (Figure 1.d.).

Figure 1.a. Area 1

Figure 1.b. Area 2

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Figure 1.c. Area 3

Figure 1.d. Area 4

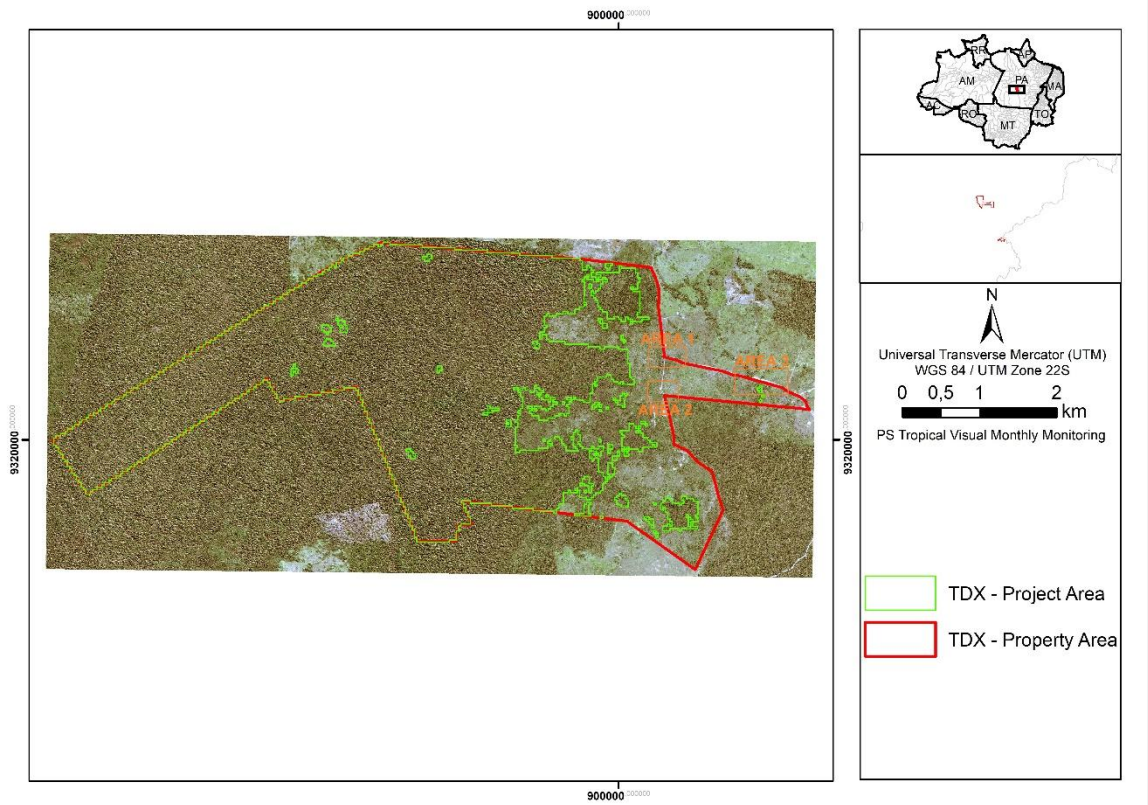

Figure 2. Map of the "Didácio" property highlighting some firebreaks, marked and named in area 1 (Figure 2.a.), 2 (Figure 2.b.) and 3 (Figure 2.c.).

Figure 2.a. Area 1

Figure 2.b. Area 2

CAR ID	16	Date: 24/04/2023

Figure 2.c. Area 3

The width of these firebreaks between the productive areas and the project areas is 15 meters. In the images, it is possible to observe that the firebreaks are well-preserved and well-defined.

11. The reference was change and the new paragraph is: "*Since the forest ecosystem is in equilibrium, natural pests occurring are controlled by natural predators and less than 1% of forest areas in South America are affected by pests and diseases (van Lierop, Lindquist, Sathyapala, & Franceschini, 2015). The high species diversity is one mechanism of tropical forests' defenses against pests and diseases. Most parts of pests and diseases are specific to a particular specie. If an insect or disease locates and attacks an individual of a certain species, the high diversity of the forest makes it difficult for the pest to locate other individuals of the same species (MONTAGNINI; JORDAN, 2005)*".

12. Some references have been added to solve this question, showing that even with the occasional tree falls occurring, this phenomenon represents the natural cycle of a healthy forest and does not represent any loss of carbon that is not being regenerated, in other words, in the final balance of mass, the forest does not present any loss of biomass due to the occasional tree fall.

    The new paragraph is: *"The occurrence of winds is one of the causes of tree falls in tropical forests (Montagnini; Jordan, 2005), such as the Amazon. Records of blowdown winds indicate their power to generate disturbances in the forest (Nelson et al. 2010), and these winds have even been reported as promoters of diversity (Marra et al. 2014). Nevertheless, this phenomenon is more frequently observed in the State of Amazonas, where it is associated with storms (Nelson et al., 2010). In addition to this, winds of lower intensity, rainfall, and river meanders are other natural conditions that can generate disturbances in the forest.*
    The occurrence of disturbances in forests due to natural events contributes less than 1% throughout the Brazilian Amazon, surpassing this value only in the state of Amazonas, where river meanders are the main cause of natural disturbances, and in Roraima, where winds account for only 2% of these disturbances (Tyukavina et al. 2017). The occurrence of these minor disturbances does not result in biomass loss since the forest's recruitment and growth process allows for rapid regeneration (Chambers et al. 2004); Montagnini; Jordan, 2005; Sist; Ferreira, 2007; Aragão et al. 2009; Amaral et al. 2019, Mazzei et al. 2020). The mortality of some trees is even a condition for increasing the amount of carbon sequestered (Chambers et al. 2001) and may help explain the carbon cycle, maintenance of biodiversity, and the hyperdominance of certain species in the Amazon (Ter Steege et al. 2013)."

Documentation provided by project participant

VCS_NPRR_TriunfoDoXinguGroupedREDD+Project_v230522.pdf

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CAR ID	16	Date: 24/04/2023

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Annexes:

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DOE assessment	Date: 04/07/2023

1. The Project Proponent corrected the information on the first page of Non-Permanence Risk Report v2.0.
OK

CAR ID	16	Date: 24/04/2023

2. The Project Proponent updated the Non-Permanence Risk Report v2.0 and replaced the "*Not Applicable*" in the "*Risk Rating*" column with a score of "0". However, the "*Financial Viability*" risk still has "*Not Applicable*" in the column "*Risk Rating*". **PENDING**

3. The Project Proponent updated the Non-Permanence Risk Report v2.0 and included justifications for the not applicable fields. In this way, the PP is complying with the Tool's Instructions. **OK**

4. The Project Proponent included in "*Project Management*" item d) other ways to reach the project area (travel by private plane or taxi company) and this form of transport takes a few hours from the airport of Parauapebas or Marabá.
In addition, project farm managers are part of the management team and are located less than a day of travel from the Project site. **OK**

5. The Project Proponent updated "*Community engagement*" a), describing that "*there are no households living within the project area*". This statement was verified during the audit of Didácio's property. The farm manager is also a resident of Caboclo Village and he was consulted during the stakeholder consultation. **OK**

6. The Project Proponent updated the "*230510_TdX_CashFlow*" spreadsheet, and the "*Control panel*" tab and corrected the TdX project area. **OK**

7. The Project Proponent updated the "*230510_TdX_CashFlow*" spreadsheet, "*REDD Project CashFlow 30y*" tab and included the cost of "*Carbon Forest Inventory*" in the years 2022, 2032, 2042, and 2052, being consistent with the requirement of VM0015 for renewal of the inventory of at least 10 years. **OK**

8. The Project Proponent clarified that the costs of "*Social Investments (activities)*" were stipulated for the validation and verifications, the activities, and costs will be planned and defined together with the Systemica technical team and the Community members of the Caboclo Village. **OK**

9. The Project Proponent clarified that the purpose of the cash flow for the NPRR is to verify the risk of "*Financial Viability*" – the breakeven point and % of secured funding needed to cover the total cash before the project reaches the breakeven point. In this way, the number of cattle included in the cash flow, from only one of the owners, already serves the purpose of responding to the topic of the Risk Tool. **OK**

10. The Project Proponent provided aerial images of the properties and the TdX project area and it is possible to visualize the existence of firebreaks between the forest areas and the pasture areas. Thus, the evidence presented corroborates the text described in the "*Mitigation*" section of "*Natural Risk (Fire)*". **OK**

11. The Project Proponent updated the description of the "*Natural Risk (Pest and Disease outbreaks)*" and also replaced the references to justify the significance of this risk. The sources used to justify the significance of "*No Loss*" for natural risk – Pest and Disease outbreaks. **OK**

12. The Project Proponent updated the description of the "*Natural Risk (Extreme Weather)*" and included a description of the significance of occasional and rare tree falls. The PP used several scientific studies as a reference source to justify the significance determined for this natural risk. **OK**

Considering the lack of evidence mentioned above, the CL remains open

Project participant response	Date: 25/07/2023

Corrective actions to "PENDING" topic:

2. The column item has been corrected to replace the quadrant with the information *"Not Applicable"* with the value 0.

Documentation provided by project participant

CAR ID	16	Date: 24/04/2023
VCS_NPRR_TriunfoDoXinguGroupedREDD+Project_v230725.pdf		

DOE 2nd assessment	Date: 31/07/2023
2. The Project Proponent updated Non-Permanence Risk Report v2.1 and replaced the "*Not Applicable*" in the "*Risk Rating*" column with a score of "*0*" for the "*Financial Viability*" risk. **OK**	
Finding closed successfully	

FAR ID	02	Date: 14/06/2024
Description of FAR		
VCS Standard, v4.5, Sections 3.18.1, 3.18.2, and Sections 3.19.1 to 3.19.8 Considering that the project's activities is surveillance and deforestation might come from illegal actors (illegal cattle ranching and land grabbers), it is likely that the workers doing surveillance activities face professional risks conditions, the PP should monitor the risks associated with the workers activities and the engagement of the local workers as a stakeholder of the project.		
Project participant response		Date: XX/XX/202X
Documentation provided by project participant		
DOE assessment		Date: XX/XX/202X

FAR ID	03	Date: 28/07/2025
Description of FAR		
Project Ownership: Considering the result of Verra Assessment in PRR, as a condition of the initial verification process the PP should: 1. Monitor the progress of the land regularization process (registration by the Real Estate Registry Office). 1. The project proponent must provide evidence to the VVB of full ownership (in this case, registration with the Real Estate Registry Office) for the farms Retiro Encantado and Campolindo to corroborate the existing title, to and demonstrate their ability to maintain ownership over the entire project area throughout its duration.		

FAR ID	03	Date: 28/07/2025
Project participant response		Date: XX/XX/XXXX
Documentation provided by project participant		
DOE assessment		Date: XX/XX/XXXX

FAR ID	04	Date: 28/07/2025
Description of FAR		
Transition to VM0048: 1. Considering the action required in the PRR by Verra, starting from the first verification period, the project proponent will transition to the implementation of the VM0048 methodology, which must be duly evaluated by the corresponding VVB.		
Project participant response		Date: XX/XX/XXXX
Documentation provided by project participant		
DOE assessment		Date: XX/XX/XXXX