

VALIDATION N°
REDD.0186.05.MT.7

VERSION No. 03, 2015-01-30



VALIDATION & VERIFICATION REPORT

Project of Cerrado and Amazonia REDD Brasil
Carbon stock in Native Forest, Environmental Development Plan,

I. PROJECT DESCRIPTION:

Project Title: Project of Cerrado and Amazonia REDD Brasil

Host Country: Brasil

Methodology: Padrão

Average of Co2eq/ha: 1.161,17

tCO₂eq/ha

II. Verification & Validation:

Parties Contracted: Instituto Brasileiro de Estoque de Carbono e Ações Sustentáveis Sigla -
INBECAS, CNPJ: 12.793.012/0001-08.

Time of Verification:

Função	Nome completo
Auditor 01	Andréia N. Oliveira
Auditor 02	Barbara Waldvogel

Verification Phases:

*Methodology Application - OK

*Document Review - OK

*Follow-up Interviews - OK

*Resolution of Identified Points - OK

Verification Status:

*Correction actions - OK

*Full Approval - OK

III. Verification & Validation Report:

Report No.: REDD.0186.05.MT.7	Revision No.: 03	Revision Date: 2015-01-30	Date of Primary Emission: 2012-05-23
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Executive Summary

The verification team chosen by INBECAS - Brazilian Institute of Carbon and Sustainable Actions stock concludes that the methodology selected from carbon stock quantification in savanna transition to dense Amazon forest, the project design of Cerrado and Amazonia REDD Brazil, is indicated in the document PDS'ES (Environmental Development Plan, standard Economic and Sustainable) version 1.8, it is suitable for the project and is properly applied.

So INBECAS approves Quantification of forest carbon stock. The review of project documentation, spreadsheets, and subsequent follow-up interviews have provided the INBECAS evidence sufficient to determine compliance with the criteria set for the quantification of forest carbon stock. The project correctly applies the forest inventory and calculation methodologies of biomass / carbon used nationally and internationally.

The total forest carbon stock of the project is estimated at an average of 1161.17 tCO₂eq per hectare on the types of vegetation and selected strata.

Thus, the INBECAS believes that the project of Cerrado and Amazonia REDD Brazil, as described in PDS'ES version 1.0, follows all the relevant requirements of the methodologies of the Intergovernmental Panel on Climate Change and all the host country criteria and correctly applies the carbon stock quantification methodology at Cerrado transition forest.

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Appendix A – Validation Protocol

1. INTRODUCTION

Green Knight contacted the INBECAS to do design verification of Cerrado and Amazonia REDD Brazil (hereafter called " the project") . This report summarizes the findings of the verification for the inventory estimation of forest carbon in the farms and areas associated with the project , according to the forest inventory criteria of scientific methodologies , as well as consistent reporting criteria of quantification of forest carbon stock

1.1 Objective

The purpose of the check is that an independent party may assess the project. In particular, compliance with the quantification of forest carbon stock and project monitoring plan with scientific methodology and host country criteria . Verification is requirement for all forest carbon projects and is seen as necessary to provide precision to the actors of the quality of the project and its intended generation of forest carbon stocks.

1.2 Scope

The verification scope is defined as an independent and objective review of PDS`ES , appendices and spreadsheets. The PDS'ES is reviewed using relevant criteria and scientific methods , including the approved forest inventory and the method of quantification of forest carbon . The validation team, based on the recommendations of forest inventory methodologies and the Intergovernmental Panel on Climate Change, has employed an approach based on risk , focusing on the identification of significant risks to the methodology of quantification of forest carbon . Verification is not intended to provide any advice to the project participants. However, clarification requests and / or corrective actions may indicate improvements for the project...

2 METODOLOGY

Validation consists of the following three phases:

- I. Review of project documentation, spreadsheets and technical documents
- II. Interviews (meetings and telephone communication) with project stakeholders and visit the project areas .
- III. Resolution of identified points and the issuance of verification report and opinion.
- IV. Survey validation inventory in loco and conclusion.

In this validation, a visit to the project site of implantation was essential.

The following sections show each step in more detail.

2.1 PROJECT DOCUMENTATION REVIEW

The following table shows the documentation reviewed during the verification:

5. PDS'ES, version 1.3 of November 2011 (pdf file).
6. Appendix 2 - Quantification Report Carbon Stocks in Coverage Natural vegetable (pdf file).
7. Appendix 3 - Forest Inventory Report (pdf file).
8. IPCC Good Practice Guidelines for National Greenhouse Gas Inventories, LULUCF (IPCC, 2003).
9. SOARES, C. P. B .; NETO, P. F. N .; SOUZA, A. L. Dendrometry and Forest Inventory. 2. ed. Viçosa, MG: UFV Publishing, 2006. 276 p.
10. WALNUT, E. M. Wood density and forests in tree allometry the "Arc of Deforestation": Implications for biomass and carbon emissions from land use change in the Brazilian Amazon. Manaus, Doctoral Thesis, 2008. 151P.
11. PEARSON, T.R.H; BROWN, S.L .; BIRDSEV, R.A. Measurement Guidelines for the Sequestration of Forest Carbon. United States Department of Agriculture and Forest Service, 2007. General Technical Report NRS-18.

12. Scientific Methodology of Forest Inventory and Generation ESC 3.1.0/2011

13. EMBRAPA . Methodology for Estimating Carbon Stock in Different Systems of Land Use . Documents 73. ISSN 1517-536X . 2002. 38p .

2.2 Interviews With the Projects Research Team;

	Date	Name	Organisation	Topic
Interview 01	9/5/2012	Valnice A. Pauda	GK	Apresentação do Padrão
Interview 02	9/5/2012	Joao Albino	ACESL	Visita de nucleo polo São Lourenço municio de Dom Aquino - MT
Interview03	11/5/2012	Edson José Menezes	ACESL	Visita de nucleo polo Juruena municio de Juruena MT
Interview 04	13/5/2012	Adriele O. Alexandre	GK	Apresentação da estratificação via Geoprocessamento / sensoriamento remoto
Interview 05	26/1/2015	Valnice A. Pauda	GK	revisão de metodologia e inicio do procedimento de validação.
Interview 06	27/1/2015	Adriele O. Alexandre	GK	Apresentação de metodologia de monitoramento mensal via imagens satélite
Interview 07	27/1/2015	Joao Albino	ACESL	Visita ao presidente da Associação com representantes dos produtores envolvidos

2.3 Identified Points Review;

The purpose of this verification phase is to resolve the identified points that need clarification before the final completion of the tester on the project. In order to ensure transparency, a verification protocol is developed for the project. The protocol shows a transparent way the criteria (requirements), means of verification and validation of the identified criteria.

The objective verification protocol:

- Organize details and clarifies the requirements a forest carbon quantification project should follow.
- Ensure a transparent verification process where the validator will document how a particular requirement has been verified and the result.

The verification protocol consists of three tables. The different columns in these tables are described in the figure below. The full verification protocol for this project is in Appendix A to this report.

The findings made during the check can be as a non-compliance with the criterion of carbon quantification where a risk to the project objectives is identified. Corrective Action Requests (PAC) are issued when:

- i) Mistakes have been made with a direct influence on project results;
- ii) Specific requirements of forest carbon measurement methodology have not been met; or
- iii) There is a risk that the project could not be accepted as a forest carbon project or forest carbon stocks will not be certified.

A request for clarification (PE) can be used when additional information is needed to clarify a point completely.

Table 1: Verification Requirments

Requirement	Reference	Conclusion
The requirements the project must meet	Reference document where the application and the response has been identified	It can be: an accepted based on evidence provided (OK) , a Request for Corrective Action (PAC) of risk or non-compliance with stated requirements or a request for clarification (PE) where further clarification is needed

Table 2: Resolution of Corrective Action Requests and Clarifications

Request Tyoe	Ref. Table 1	Reply Summary	Conclusion and Verification
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<p>If the completion of the verification is a CAP or PE , these should be listed in this section.</p>	<p>Reference to Table 1 where the PACs and PEs were formulated .</p>	<p>The responses of the project participants during the communications with the verification team should be summarized here .</p>	<p>This section should summarize the answers of the participants of the project and final conclusion. The findings should be included in Table 1 as a final conclusion. This section should summarize the answers of the participants of the project and final conclusion. The findings should be included in Table 1 as a final conclusion.</p>
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2.4 Conclusions of Verification

The verification findings are presented in the following sections . The verification criteria (requirements) , the means of verification and the results to validate the identified criteria are documented in more detail in the verification protocol in Appendix A. The final verification findings are related documentation will be revised and resubmitted the project.

2.5 Project Description

The PDS`ES and its appendices are an overview of the activity

DESIGN, where the following are mentioned:

- Characterization of the properties and location of the areas. The project is in 49 properties in the valleys of Sao Lourenco, Juruena, in the State of Mato Grosso (MT), with the producers association's headquarters in the city of Dom Aquino, distanced the state capital of 206km (Cuiaba), Brazil .

Project ranches have a total area exceeding 600,000 hectares, 297429.7024 hectares of native vegetation representing the stock of forest carbon project.

- vegetation type present in the areas of design object:

The present vegetation in the area of forest carbon stock calculation project corresponds mainly to Amazon and Cerrado with formations of dry forest and riparian forest.

- Definition of the project coverage area:

The areas calculation object of forest carbon stock of the project was divided into various strata or sub-areas within the farms. This subdivision was carried out by heterogeneous characteristics of the site, such as type of vegetation, type and use of soil and microclimate.

- Methodology of quantification of forest biomass and carbon stocks:

They were described methodologies of forest inventory sampling, with the object of obtaining dendrometric measures the forest to later get the results of biomass and carbon stored in forest cover and soil.

These methods are in accordance with national and international guidelines for this type of measurement.

2.6 Carbon Quantification Methodology

2.6.1 Applicability of methodology selected for the project

Scientific methodologies applied to this project follow the methodologies used internationally for this type of project activity. The main ones are: forest inventory stratified described by Soares et al (2006) and IPCC Good Practice Guideline LULUCF (IPCC, 2003) and CFIM 2.0 / 2011.

the values of the stock 4 carbon reservoirs were obtained: living biomass above ground living biomass below ground, litter and soil organic matter. After obtaining the volume of trees, the biomass values were obtained above and below ground such vegetation using wood density values described by Nogueira (2008). Biomass was later converted into carbon and CO₂ equivalent, using the default values of conversion.

The dry matter and carbon from leaf litter and organic matter of the soil were obtained by laboratory analysis, as described in CFIM 2.1 / 2011 and confirmed by technicians MIDIAGEO.

2.6.2 Estimation of Forest Carbon Stock

In this project all considerations to estimate the forest carbon stock and data used for the project participants are listed in PDS'ES and Appendices, including their references and sources.

The formulas , parameters and values used in the context of the project activity are complete, accurate , transparent and conservative .

The methodology has been applied correctly to calculate the stock of forest carbon project.

The results of quantification of the estimated carbon in the forest areas studied are described below:

Propriedades	41
Área (ha)	297.429,7024
CO2 acima do solo (t)	54.389,8026
CO2 sobre o solo (t)	14.641,8572
CO2 do solo (t)	3.523,3080
Outros componentes	726,2840
Média total (tCO2/ha)	1.395,2781
Total (tCO2)	414.997.156,7835
Fator de correção de 10 a 20% (tCO2) + Probabilidade de Fugas	69.630.195,5235
Total Corrigido (tCO2)	345.366.961,2600
Média total corrigida (tCO2/ha)	1.161,17

Apêndice A

PROTOCOLO DE VERIFICAÇÃO

PROJETO D`CERRADO A`AMAZONIA REDD BRASIL

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