



# Florestal Santa Maria Project


## Distinctive features

The Florestal Santa Maria S/A (FSM) forest estate is a rural property covering 71,714 ha in the Municipality of Colniza, which lies in the North western region of the State of Mato Grosso, Brazil. The FSM is solely dedicated to sustainable management of natural forests. The proposed REDD project aims to combat illegal conversion of parts of the FSM forest by settler groups.


The FSM is a section of a larger colonisation initiative, initiated in 1975, by means of the legally established state effort to develop the northern region of the State of Mato Grosso. There were no inhabitants in this area at this time, and during the 1980s and 1990s this led the National Institute for Colonisation and Agrarian Reform (INCRA) and the Institute of Territories of the State of Mato Grosso (INTERMAT) to choose part of this area to resettle new immigrants from other parts of the country. However the fact that these people are not used to and lack knowledge of how to live with and manage the Amazon forest led to the current rampant deforestation. The current FSM farm is presently subject to risks of invasions by squatters. The farm has undergone increasing invasions mainly facilitated by the distribution of lands promoted by INCRA, which settled hundreds of families in their land spots. Once installed nearby the farm boundaries, neighbouring families led by professional land-grabbers started to occupy and deforest new lands, to exploit timber as an immediate source of earnings.



The project proponent believes that peace and social development will only be possible by creating formal employment and the legal benefits related to them. This is one of the purposes of FSM's forest management plan. The proponent intends to use carbon finance to help combat risks such as illegal encroachment, fund a new technical school to assist high school graduates to become qualified spotters, choppers, and forestry equipment operators, and provide forest management courses to the communities, with the aim that this may lead to qualifications that enable them to work in the project.

	Heading	Explanation
<b>Locational factors</b>		
	<b>Location</b>	Municipality of Colniza, North western region of the State of Mato Grosso, Brazilian Legal Amazon
	<b>Spatial boundaries</b>	Project area: 62,824.33 ha Reference area: 322,405.07 ha Leakage monitoring area: Size not given Leakage management area: Size not given
	<b>Land cover</b>	Submontane lianas and palm trees, and aluvial, slope, dense and submontane forest
	<b>Agents and drivers of forest cover change</b>	Agents: Immigrant and local families Underlying drivers: [Not explained] Proximate causes: As the first deforestation step, forest clear-cutting and logging are carried out. The non-merchantable timber that remains in the field is usually accumulated and burnt prior to installation of pasture or coffee crops.

<b>Basic project features</b>		
	<b>Objectives</b>	Avoid deforestation through forest conservation
	<b>Proponent/s</b>	Florestal Santa Maria S.A.
	<b>Actors involved in project design</b>	<ul style="list-style-type: none"> <li>▪ PLANT Inteligência Ambiental Ltda – a technical advisory</li> <li>▪ Bunge Emissions Group – collaborator and member of the project steering committee.</li> <li>▪ AVIX Geo Ambiental - similarity analysis and deforestation risk analysis</li> <li>▪ Pinheiro Neto Advogados – legal advice</li> <li>▪ VO2 Desenvolvimento Empresarial - project coordination and advice to FSM</li> </ul>
	<b>Tenure and Carbon rights holder/s</b>	Tenure: Florestal Santa Maria (FSM) S.A. is the land owner Carbon rights: Florestal Santa Maria
	<b>Upfront financing</b>	Project cash flow breakeven point is less than 4 years from the current risk assessment. The project has secured 80% or more of funding needed to cover the total cash out before the project reaches break even.
	<b>Start date</b>	April 13, 2009
	<b>Crediting period</b>	30 years, 13 April 2009 – 13 April 2039

<b>Baseline emissions</b>		
	<b>Methodology</b>	VCS Methodology VM0007 Version 1.1 7 September 2011
	<b>Reference data (unplanned)</b>	Reference period: 1999 – 2010 Types of data used: Landsat 5 and 7 TM, 1999, 2001,

deforestation/degradation)	2004, 2007, 2010
Reference data (planned deforestation/degradation)	Not applicable
Stratification of project area	4 strata: alluvial; slope (encosta); dense sub-montane (densa submontana) and sub-montane lianas and palm trees (submontana cipos e palmeiras)
Deforestation rate and location	<p><b>Historical</b> 2.94% in reference area</p> <p><b>Projected</b> 2.94%</p> <p><b>Likely baseline scenario</b></p> <ul style="list-style-type: none"> <li>▪ In absence of REDD project, it is assumed that the project zone would undergo the same deforestation as other neighbouring lands, which exhibit deforested areas far above the limits stipulated by Brazilian Forest Code.</li> <li>▪ Deforestation occurs through clear-cutting of forests for logging followed by pasture installation (~90%) or coffee cultivation (~10%).</li> </ul> <p><b>Modelling procedure</b></p> <ul style="list-style-type: none"> <li>▪ Location analysis involved the preparation of deforestation risk maps. Algorithms of internationally peer-reviewed modelling tools were selected to prepare deforestation risk maps.</li> <li>▪ The criteria used for adjustment of these algorithms were based on proximity with deforested areas, proximity with roads, proximity and dimension of water bodies, landscape characteristics, and limits of parks and indigenous reserves.</li> <li>▪ For conservative calculation purposes, only the areas under “Very High” and “High” deforestation risk classes were considered to be deforested in the baseline, which corresponds to a total deforestation of 87.6% of the Project Area (62,824 hectares) over 30 years.</li> </ul>
Carbon pools	<p><b>Carbon pools included</b></p> <ul style="list-style-type: none"> <li>▪ Aboveground tree biomass ✓</li> <li>▪ Belowground tree biomass ✓</li> <li>▪ Non-tree woody biomass ✓</li> <li>▪ Litter ✗</li> <li>▪ Dead wood ✗</li> <li>▪ Soil ✗</li> <li>▪ Wood products ✓</li> </ul> <p><b>Estimation method</b></p> <ul style="list-style-type: none"> <li>▪ Permanent sampling plots were installed in the field</li> </ul>

	<p>considering the minimal sampling for each stratum, in order to obtain a representative sample with maximum of 15% error. The field carbon inventory involved the installation of 18 permanent transects, composed by a total of 128 permanent plots.</p> <ul style="list-style-type: none"> <li>▪For application of allometric equations, trees were divided in two DBH classes: DBH ranging from 4.46 cm to 81.99 cm, application of allometric equation from NOGUEIRA et al. (2008); DBH higher than 82.00 cm, application of allometric equation from COLPINI et al. (2009) (p. 99).</li> <li>▪The equation used for estimation of total aboveground biomass in palm species was that presented by SALDARRIAGA et al. (1988). For total aboveground tree biomass calculation, merchantable biomass of trees was multiplied by a BCEF (biomass conversion and expansion factor) for conversion of merchantable volume to total aboveground tree biomass equal to 1.66. A root-shoot ratio of 0.37 was used to calculate below ground tree biomass.</li> </ul>
<b>Carbon stock changes</b>	Forest land replaced with pasture (~90%) and coffee crops (~10%)
<b>GHG emissions</b>	CH <sub>4</sub> and N <sub>2</sub> O included for biomass burning No use of nitrogen fertiliser (N <sub>2</sub> O emissions) is assumed for post deforestation cropping
<b>Net emissions without project</b>	35,240,485.07 tCO <sub>2</sub>

### Project GHG emissions reduction strategy



<b>Scope</b>	Avoided deforestation and degradation
<b>Activities</b>	<ul style="list-style-type: none"> <li>▪Fire brigades: fire brigades will be organised from local labour</li> <li>▪New Technical School: will be established to assist high school graduates to become qualified spotters, choppers, and forestry equipment operators.</li> <li>▪Forest management: courses will be offered to the local community, potentially leading to the qualification of people who can work in the project.</li> <li>▪Support to SEMA-MT (state government): will benefit from having an innovative model that can be replicated in other properties and across the region.</li> <li>▪Potential roll-out to other areas: other areas with the potential to be included in REDD projects have already been identified.</li> <li>▪Fight against illegal land occupation: the local community will monitor illegal land occupation and potential illegal logging.</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Feasibility study for a small non-wood product processing plant: will measure the property's potential to produce non-wood products (such as fruit, oils and essences).</li> </ul>
<b>Leakage mitigation strategy</b>	<ul style="list-style-type: none"> <li>▪ Hold programmes within the region of its influence for education of local communities, seeking to create culture and policies for sustainable development</li> <li>▪ Continuous monitoring and interventions on areas surrounding the Project</li> </ul>
<b>Non-permanence risk mitigation strategy</b>	<ul style="list-style-type: none"> <li>▪ Experienced project management team</li> <li>▪ Strategically located bases for monitoring purposes</li> <li>▪ Funding is broadly secured; little risk of financial problems</li> <li>▪ Legally binding commitments to protect carbon stocks and continue current management practices</li> <li>▪ Project has net positive benefits; should gain support from local community</li> <li>▪ Risk of fire contained through the establishment of fire brigades</li> </ul>
<b>Additionality</b>	<ul style="list-style-type: none"> <li>▪ Alternative land use scenarios: 1 alternative land use to the project identified, i.e. unplanned deforestation caused by uncontrolled invasions for wood logging and implementation of BAU activities.</li> <li>▪ Investment: Investment comparison analysis was applied. Coffee and pasture were assessed. Concluded that that REDD revenues could elevate the current FSM activity ("Sustainable Forest Management" + REDD) to an attractive economic level.</li> <li>▪ Barrier analysis: 6 barriers to the project's proposed activities identified – - Lack of enforcement of forest or land-use-related legislation; Barriers related to local traditional practices; The project activity is the "first of its kind": No project activity of this type is currently operational in the host country or region; Demographic pressure on the land (e.g. increased demand on land due to population growth); Social conflict among interest groups in the region where the project takes place; Widespread illegal practices (e.g. illegal grazing, non-timber product extraction and tree felling).</li> <li>▪ Common practice analysis: The maintenance of native forest is far of being the most attractive economic scenario</li> </ul>

### With-project emissions



<b>Effectiveness of measures</b>	[Appears to assume 100% effectiveness of measures in stopping illegal deforestation in project area]
<b>Carbon stock changes</b>	Emissions related to forest management activities inside project area accounted for. Includes emissions from

	<p>falling timber, including from incidental damage cause by falling timber, and from construction of infrastructure, e.g. logging tracks and skid trails.</p>
<b>GHG emissions</b>	<ul style="list-style-type: none"> <li>▪ Fossil fuel emissions excluded</li> <li>▪ N<sub>2</sub>o and CH<sub>4</sub> excluded from forest management activity accounting</li> </ul>
<b>Leakage</b>	<p><b>Types</b></p> <p>Activity shifting: Immigrants prevented from migrating into and deforesting the project area are conservatively assumed to migrate to an alternative forest area and to cause deforestation in the alternative area.</p> <p>Market leakage: Occurs as communities denied entry to FSM forests are expected to deforest elsewhere. First step in deforestation is to extract and sell the commercial timber, before clearance for pasture or coffee.</p> <p><b>Deduction</b></p> <p>881,335.6 tCO<sub>2</sub>e (over project life)</p>
<b>Non-permanence risk</b>	<p><b>Buffer</b></p> <p>13.5%</p>
<b>Ex-ante estimated net greenhouse gas emissions reductions</b>	<p><b>Total over crediting period:</b> 29,923,331.0 tCO<sub>2</sub>e</p> <p><b>Annual average:</b> 997,444.37 tCO<sub>2</sub>e (over 30 years)</p> <p><b>Annual average per ha:</b> 15.9 tCO<sub>2</sub>e/ha</p>
<b>Monitoring of carbon stock changes and emissions</b>	<p><b>Parameters</b></p> <ul style="list-style-type: none"> <li>▪ i. Set of parameters associated with monitoring baseline scenario</li> </ul> <p><b>Methods</b></p> <ul style="list-style-type: none"> <li>▪ i. LANDSAT</li> </ul> <p><b>Frequency</b></p> <ul style="list-style-type: none"> <li>▪ i. Each 10 years</li> </ul> <p>In addition to a regular revision by satellite images of the area covered by the project, there will be a team stationed within the property, which will conduct on-site surveillance of deforestation within and on the borders of the property to ensure the maintenance and preservation of the forest.</p>

### Stakeholder identification and engagement



<b>Stakeholders identified</b>	<i>List of stakeholders not provided. Affected communities are to be engaged within the project activities.</i>
<b>Identification process</b>	<i>Unclear</i>

### Full and effective participation



<b>Access to</b>	▪ Public hearing in August 27, 2002 where Forest
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<b>information and consultation</b>	Stewardship Plan was shared. ▪Website established with request for feedback given.
<b>Participation in design and implementation</b>	Less than 20% of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted.
<b>Feedback and grievance redress procedures</b>	<i>No details given</i>
<b>Worker relations</b>	<i>No details given</i>

## Communities



<b>Without-project scenario</b>	<i>Publish literature referred to when providing basic description of situation</i> ▪Without the project, communities would continue their land invasions and deforestation
<b>With-project scenario</b>	<b>Expected net benefits</b> The project has the potential to provide its participants with new sources of income, besides stimulating the generation of jobs linked to the forest management, generating a new demand for products originated within the boundaries of the project, and expanding the conditions for improved education and health services to the neighbouring community, with greater access to other development centres thanks to a more adequate transportation structure. <b>Possible negative impacts on other stakeholders and mitigation strategy</b> <i>None given</i>
<b>Impact monitoring</b>	<b>Indicators</b> <i>None given</i> <b>Methodologies</b> <i>None given</i> (Community impact monitoring will be carried out primarily through the analysis of the outcomes of the project activities) <b>Frequency</b> <i>None given</i>

## Biodiversity and ecosystem services



<b>Without-project scenario</b>	Literature, including forest management plans, used to assess situation. The following are discussed: families and species of birds and their patterns of endemism; species of amphibians and reptiles including those at risk; species of mammals including those at risk; at-risk species of plants ▪It is assumed that in the absence of the project, deforestation would continue with negative effects on biodiversity
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<b>With-project scenario</b>	<p><b>Expected net benefits</b> The project will benefit and enhance biodiversity by avoiding deforestation and by prohibiting hunting</p> <p><b>Possible negative offsite impacts and mitigation strategy</b> None given</p>
<b>Impact monitoring</b>	<p><b>Indicators</b> None given</p> <p><b>Methodologies</b> <i>Interested parties invited to examine biodiversity of area</i></p> <p><b>Frequency</b> None given</p>

### Progress



<b>Validation</b>	VCS validation report issue date: 4 May 2012
<b>Verification</b>	VCS verification period and report issue date: 13 April 2009 – 03 May 2012; 6 December 2012.
<b>Credits issued</b>	Number: 662,360 As of: 21 February 2016

### Further information



- Florestal Santa Maria website:  
<http://www.florestalsantamaria.com.br/site/en/#2>
- VCS Database  
<https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=875&lat=-8.999312&lon=-59.426658&bp=1>

VCS PD, validation and verification reports