

Paraguay Forest Conservation Project, La Amistad Community, San Rafael

Distinctive features

The project is a grouped project located in Eastern Paraguay within the Departments of Itapua, Caazapa, Guaira, Caaguazu, San Pedro and Canindeye. The proponent is Swire Pacific Offshore Operations (Pte) Ltd. (SPO), a service provider to the offshore oil and gas industry. SPO has a CSR policy and has made the policy decision to become 'carbon neutral', introducing a programme of

energy efficiency in its operations.

Extensive portions of forest have historically been redistributed to communities in this area under the Agrarian Reform Programme and have subsequently been cleared for small scale agricultural production. The project goal is to conserve the natural qualities, including the stored carbon, of the Atlantic Forest in Eastern Paraguay. The strategy is to make payments for ecosystem services (PES) for forest conservation to small holders living within small holder communities that have been resettled on land redistributed under the Paraguayan Agrarian Reform Programme within the remnants of the Atlantic Forest. These communities have the legal right to clear the forest. The project is thus expected to generate GHG emission reductions through reducing emissions from deforestation.



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The initial project instances are located within the La Amistad small-holder community, established in 1997 within the San Rafael forest bloc, but excised from the area reserved for conservation management. When it was settled, the small holdings within La Amistad were 92% forested, but have been progressively cleared for agriculture.

PES are being made to members of the community for forest conservation and further project instances will replicate this basic approach. PES services will also be made to qualifying small holders for reforestation as a leakage mitigation activity. Further, extension services and technical support for sustainable forest management and enhanced agricultural output will be provided to the relevant small holder communities.

	Heading	Explanation
		Locational factors
	Location	 Initial project site is La Amistad settlement in Alto Vera Municipality, Department of Itapua, Eastern Paraguay. Grouped Project Area is located in Eastern Paraguay in the Departments of Itapua, Caazapa, Guaira, Caaguazu, San Pedro and Canindeye, with its boundaries defined by the zone of moist semi deciduous forest remnants within the Selva Central ecoregion in central Eastern Paraguay
	Spatial boundaries	Project area: 36.64 ha Initial project Instances (Project Area): 36.64 ha La Amistad settlement: 1,166 ha La Amistad settlement area was excised from the forest bloc of San Rafael forest (c. 69,304 ha) in 1997 and redistributed to the smallholders under the Paraguayan Agrarian Reform Programme. In the CCBA PDD of this project, San Rafael forest and La Amistad settlement comprise the Project Area. Reference area: None Leakage monitoring area: [Calculated, but size not provided in VCS PD] Leakage management area: [Leakage management activities to be conducted, by size of area not provided in VCS PD]
	Land cover	The land defined as 'forest' consists of a mosaic of 'moist semi-deciduous' high and low forest. Land cover of La Amistad settlement in 2010 High Forest: 333 ha Low Forest: 13 ha Grassland: 438 ha Agriculture: 382 ha Total: 1,166 ha
	Agents and drivers of forest cover change	Agents: Settlers Underlying drivers: Smallholder settlement in tropical forest as a consequence of forest redistribution to local communities under Agrarian Reform Programme Proximate causes: Conversion for mechanized soya cultivation and ranching; Tree removal for fuel and timber
Basic project features		Basic project features
	Objectives	The overall aim of the Project is to protect sufficient forest demonstrably threatened with clearance to prevent the emission of 800,000 tCO2e over a 20 year

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ľ		period. Forest conservation in the La Amistad community is an initial contribution to that aim (at the time of 2010).
	Proponent/s	Swire Pacific Offshore Operations (Pte) Ltd. (SPO), a service provider to the offshore oil and gas industry. SPO has a CSR policy and has made the policy decision to become 'carbon neutral', introducing a programme of energy efficiency in its operations.
	Tenure and Carbon	Tenure
	rights holder/s	 In the case of the initial project instances, The National Institute for Rural Development and Land (INDERT) holds the title for the occupants and the occupants obtain user rights through the Agrarian Reform law.
		• Once the occupants have paid the nominal value due for the land and the title is transferred to them, as the new owners, they will hold the forest rights.
		 The indigenous people (the Mbya Guarani in this area) have the constitutional right to conduct traditional practices in the area, though these (primarily hunting and gathering) are not exercised in this area.
		Carbon rights
		Under Paraguayan law, carbon rights are held by the property owner.
		Once the occupants have paid the nominal value due for the land and the title is transferred to the occupant, the carbon rights are contractually transferred by the plot occupants directly to SPO. The plot occupants have been authorised to do so by INDERT.
	Actors involved in project design and	 Guyra Paraguay: A Paraguayan conservation NGO - Responsible for project implementation.
	implementation and their roles	 World Land Trust (WLT): An international NGO concentrating on biodiversity conservation, based in the UK but working with a network of partners around the world – Roles of WLT are technical support in project design, implementation and liaison with SPO.
	Upfront financing	The cost of the initial project instances are covered by a US\$ 1,786,000 operating budget.
	Start date	31 st October 2010
	Crediting period	20 years
		Baseline emissions
	Methodology	VCS Methodology VM0007
		Activity type – Avoiding planned deforestation (APD). The project is a grouped project with 22 initial project instances
	Reference data for unplanned	Not applicable

Reference data (planned deforestation/degra dation))	Proxy areas: Fourteen proxy areas are used to estimate the rate of deforestation and to demonstrate no abandonment is occurring. Total size of proxy areas = 49,872 ha
	Reference period: 2000 -2009
	Imagery: Historical Landsat images for 1997 (establishment of the settlement), 2003 and 2009 and 2010 were used to asses land use change.
	LANDSAT 5TM and LANDSAT 7 ETM+ images were used for creating a vegetation map. Google Earth database Quickbird was used for verification.
Stratification of	None
project area	Vegetation: 'moist semi deciduous' Atlantic Forest
Deforestation rate	Historical: 9.081% (planned)
and location	Projected: 9.081%
	Likely baseline scenario
	■The high forest within the project participants' plots, within other La Amistad plots and other small holder communities is deforested to a minimal forest remnant through clearance for agriculture. 95% of project area expected to be deforested.
	Modelling procedure
	■ The projected annual proportion of land that will be deforested, has been estimated according to the methodology set out in VCS MODULE VMD0006 (Estimation of baseline carbon stock changes and greenhouse gas emissions from planned deforestation and planned degradation: BL-PL)
	 Vegetation map generated using AVHRR-TreeCover to identify areas with higher canopy density, followed by classification using LANDSAT 5TM and LANDSAT 7 ETM+ images with spectral bands 5, 4 and 3, with satellite images from the Google Earth database Quickbird used to verify the coverages, followed by collection of GPS data for ground-truthing. Annual deforestation rate is estimated based on the average of historical deforestation pattern of the
	fourteen proxy areas.
	The fourteen proxy areas have been examined through original data collection by the Guyra Paraguay GIS team, using remote sensing analysis. [Description of the GIS analysis could not be found in the publicly available VCS PD]
Carbon pools	Carbon pools included √ ×

- ■Belowground tree biomass ✓
- ■Non-tree woody biomass ✓
- ■Litter ✓
- ■Dead wood ✓
- ■Soil ✓
- ■Wood products ×

Estimation method

Aboveground and belowground tree and non-tree biomass have been sampled in line with VCS module VMD0001. Plot distribution and location were randomly selected. The number of plots required was determined using the Winrock Terrestrial Sampling Calculator and this gave a plot requirement of 22 so that 22 plots were sampled. 17 of the plots were located in the initial areas submitted to the project. 25m X 25m permanent plots were used.

Aboveground tree biomass

DBH of each tree with DBH ≥ 5cm was measured. An allometric equation was developed using a data set from the destructive sampling of 240 specimens broadly representing the species at La Amistad.

- Aboveground non-tree woody biomass
- 2m X 2m sampling frame was located outside the aboveground tree biomass plots for sampling DBH ≥ 1cm and < 5cm. Destructive sampling and analysis of wet-dry ratio were conducted.
- ■Belowground tree & non-tree biomass IPCC default root to shoot ratio (0.20) to the above ground tree and non-tree carbon stocks used.

Litter

Litter was sampled in line with VCS module VMD0003 Version 1.0, Estimation of carbon stocks in the litter pool (CP-L). Four 0.5m X 0.5m sampling frames were placed outside the aboveground tree biomass plots. Destructive sampling and analysis of wet-dry ratio were conducted.

■Dead wood

Standing (dbh ≥5cm) and lying deadwood were sampled in line with VCS Module VMDooo2 Estimation of carbon stocks in the dead wood wool (CP-D). Standing deadwood was measured in the 25m X 25m permanent plots. Lying dead wood was sampled using the line intersect method. Two 50-meter lines were established bisecting each sample plot and the diameters of lying dead wood ≥ 10 cm diameter intersecting the lines were measured.

■Soil

Soil was sampled in line with VCS Module VMD0004 Estimation of stocks in the soil organic carbon pool (CP-

	S). Four systematically-distributed cores and two samples of known volume per plot were collected in the field. The sample were analyzed for percentage organic carbon at the Faculty of Agricultural Sciences at the National University of Asunción.
Carbon stock changes	■Post-deforestation carbon stocks is 100% reduction in all carbon pools apart from the soil pool. The soil post-deforestation stocks were calculated through the application of the land use, management and input factors after conversion to the soil pre-deforestation stocks.
	•Stock changes in aboveground biomass and litter are emitted at the time of deforestation. Stock changes in belowground biomass and dead wood are emitted at an annual rate of 1/10 of the stock change for 10 years, and at an annual rate of 1/20 of the stock change for 20 years for soil organic carbon.
GHG emissions	Other GHG sources are excluded from baseline as a conservative measure or because they are considered negligible under REDD methodology module.
Net emissions without project	13,821 t Co2

Project GHG emissions reduction strategy



Scope	Avoiding Planned Deforestation
Activities	 Establishing Payment for Ecosystem Services (PES) system.
	■ Extension Services
	-Enhancing income and productivity from small-holder agriculture.
	-Sustainable community forest management planning, management and operations.
	■ Establishment of the San Rafael Long-term Management Fund [described only in CCBA 2010 PDD].
Leakage mitigation strategy	 Forest rangers employed by Guyra Paraguay patrol the surrounding forest which is predominantly owned by Guyra Paraguay
	Establishing Payment for Ecosystem Services (PES) system to qualifying small holders for reforestation
	Enhancing income and productivity from small-holder agriculture.
	Sustainable community forest management planning, management and operations.
	 The pre-project land use continues, the project area forest continues to be degraded through extraction for woodfuel and timber.

	 2. An entity with an interest in conservation pays settlement occupants to conserve forest without registering the activity as a VCS AFOLU project. 3. The forest is cleared for agriculture; a minimal remnant remains and is degraded to the extent of use on each plot. 4. The forest is cleared and a plantation is established (for example, with eucalyptus) with government assistance. All options remain open because these scenarios are in compliance with all mandatory applicable laws and regulations; however, Scenario 3 is the most plausible no-project scenario because the prevailing pattern in the proxy areas is the clearance of the settlement areas predominantly for agriculture. Investment analysis: Simple costs analysis finds that the project produces no financial benefits other than VCS-related income to pay for the project activities, i.e. PES and extension services. Common practice analysis: No similar activities are known of in the geographical area of the proposed activities.
Non-permanence risk mitigation strategy	Not mentioned.
Additionality	Assessed using VCS Tool VTooo1 Identification of alternative land use scenarios to the proposed project activity Four alternative 'no-project' scenarios are identified.
V	Vith-project emissions
Effectiveness of measures	Project assumed to prevent 100% of the deforestation in the project area
Carbon stock changes	The project is designed to retain the carbon currently sequestered by the initial project instances, so avoiding the emissions estimated for the baseline scenario. No deforestation or degradation is forecast in the project case and therefore no Co2e or non-Co2e GHG emissions from deforestation or degradation is forecast. Additionally, emissions as a result of natural disturbance in the project area will be monitored as detailed in the monitoring plan. Removals through enhancement are conservatively not accounted for.

GHG emissions

CH4 and N2O from biomass burning are included if accidental fire occurs despite protection under the project. Emissions will be accounted for using the Estimation of Emissions Due to Biomass Burning (E BB) in

	VCS Module VMD0013 Estimation of greenhouse gas emissions from biomass and peat burning (E-BPB).
Leakage	Pre-project, unsustainable fuelwood collection, as defined by BL-PL, was occurring within the project boundaries in that sustainable management practices were not being undertaken in the project areas. Therefore modules BL-DFW and LK-DFW have been used to determine potential leakage. Types:
	Activity shifting:
	Unsustainable fuel wood collection in San Rafael forest
	Market Leakage Estimation of emissions from market effects is not estimated as the process of deforestation does not involve timber harvesting for commercial markets. Deduction 6.7%
Non-permanence	Buffer
risk	25%
Ex-ante estimated	Total over crediting period
net greenhouse gas	8,931 tCO2e
emissions reductions	31 st October 2010- 30 th October 2030 (20 years)
	Annual average
	447 tCO2e
	Annual average per ha 12.19 tCO2e
Manitaring of	Parameters
Monitoring of carbon stock changes and emissions	Area of sample plots, DBH, basal area, height and top diameter of standing dead trees, litter and other parameters related to carbon stock estimates; Forest cover, area of deforestation, etc.; Biomass carbon of trees cut and removed through fuelwood and charcoal extraction, etc.
	Methods
	 Sample plots GIS – Landsat 8 OLI (30m x 15m resolution), 7 and 5, (28m x 28m resolution) and GPS for ground truthing PRA (for potential for extraction) Limited degradation survey (only applied if the PRA indicates that ≥ 10% of those interviewed/surveyed believe that degradation may be occurring within the
	project boundary) Frequency
	project boundary)

Stakeholder identification and engagement



Stakeholders identified

Individual land-holders

The great majority of the land parcels in San Rafael are held by private land-owners. Three broad categories can be identified in this grouping, all with a limited presence on the ground (and in some cases with none):

- Conservation managers. Guyra Paraguay is pre-eminent here, holding title to over 6,000 ha of land run as a private reserve with habitat protection, monitoring and research as management aims.
- Private land-owners. These are generally characterised by low-intensity use (e.g. extensive cattle ranching) or a 'benign neglect' approach.
- Agro-businesses. A number of land-owners are agrobusinesses. Patchy, localised clearance has occurred over recent years in holdings within this group.

Small-holders

The La Amistad community, corresponding to the project site, is the only formal campesino (smallholder) community in the forest bloc. The original settlement of 1998 created 82 land parcels ranging from 6-9 ha in size. There were 67 households in 2003, rising to 80 in 2009 plus a further 27 occupying land in the western commons area. At the same time there has been some turnover of occupancy (c. 18%) where new settlers have taken over from the first holder.

■ Mbyá Guarani

The Mbyá Guarani are indigenous to the San Rafael area. The Atlas of Indigenous Communities in Paraguay lists thirteen communities within San Rafael with a total population approaching 1,000 though some actually constitute groups of smaller settlements.

Identification process

- The survey implemented in the Canadian International Development Agency (CIDA) project, a key founder resource for the present project, in 2003
- Community consultations and surveys implemented in the present project in 2009

Full and effective participation



Access to information and consultation

The La Amistad community is to be informed (by writing and verbally) of the activities proposed under the project through direct communication with the Village Council, for their comment and endorsement at a public meeting, as an outcome of those held previously. The PDD and a summary (in Spanish) of the proposals will also be distributed in advance of that meeting. Community members will also be informed of the opportunities to

express comment both directly to the validators/verifiers during their site visits and under the CCBA public comment period. All project documentation (PDD, procedures, consultations, progress reports, associated research reports) are regarded as in the public domain and will be available through the WLT and Guyra Paraguay web-sites. Participation in Overall, project structure will remain sufficiently design, flexible to allow modification based on input through implementation community participation so long as VCU delivery targets and monitoring are met. Issues affecting the La Amistad community were voiced at community meetings held under the CIDA project and again in June 2009 were used so that project design would meet social needs as well as contributing to meeting VCU delivery targets. They were then presented to the community in September 2009 during which a majority were broadly supportive but with a proportion reticent on a number of grounds. Formal meetings with community representatives will be held at no less than six-monthly intervals. The outcome of such meetings, to be held in Spanish, with translation of the proceedings (both verbal and in any documentation) to other languages as appropriate, will be formally recorded. Preferential opportunity for employment on projectrelated activities for local community members wherever skills and aptitudes are appropriate. Feedback and Grievances and unresolved issues associated with the grievance redress project may be notified at any time, via the Village procedures Council and the Project Extension Officer representing community members and the project implementers respectively. In the first instance, resolution will be sought by negotiation at a formal consultation meeting, which may be called within 10 days by either the community representatives or the project implementer and, if requested, mediated by a mutually acceptable and independent third party. The grievance and result of the negotiation, including measures of redress for issues found to have substance, will be included in the records of the meeting. The written record must be disseminated to all interested parties within 20 days (i.e. 30 days of the original notification). Any remedial action must be initiated within 14 days, with results that must be reported (and recorded) in the subsequent consultation meeting. **Worker relations** •All Guyra Paraguay employees are fully covered by the legal requirements for employment and workers' rights. and safety As all project employees are recruited by Guyra Paraguay, these conditions automatically extend to

project personnel. At the outset of project implementation, a hand-book will be produced setting out employee's rights and employment conditions, for distribution to staff engaged on the project (and indeed more widely, as appropriate).

Project actions do not involve outstanding risks but forestry operations in particular do require training in safe practice and use of equipment – this forms a standard part of improved forest management training, which will be based on FSC guidelines.

Communities



Without-project scenario

Project Zone – San Rafael

The foreseeable impact of maintaining the status quo in San Rafael is a continuation of the steady erosion of forest resources and environmental services noted in the analysis of threats to High Conservation Values. Disturbance to the forests protecting the slopes on the upper watersheds is of particular concern, affecting water quality through increased sedimentation.

Project Area - La Amistad

In the long-term, La Amistad will experience impacts in reduction of supplementary forest resources and reduced water quality as the condition of the surrounding forest deteriorates and these effects would be accentuated if the rate of deterioration accelerates. It is, however, highly unlikely that incursion in San Rafael would directly affect the already-settled area of La Amistad, and small-holder communities are successful in deforested landscapes. The most likely result of the 'no-project' scenario would therefore be to leave La Amistad in its present condition – i.e. no deterioration but also no improvement in socio-economic conditions or prospects.

With-project scenario

Expected net benefits

The project has been designed to address the issues considered important by La Amistad community such as poor road access; lack of health facilities; inadequate education facilities; inadequate water supply; concern for food security, but indirectly. In effect it:

- Gives an additional long-term revenue stream through PES to individual community members, so acting directly on the ability of individual households to meet basic needs.
- Is structured to ensure a reasonable part of the benefits go to the whole community. Expenditure of these funds is under community control.
- Supplements the support services available to the community to improve land management practices (agricultural and forestry) on its lands, so addressing security of food (and other) resources.

■ Ensures maintenance of clean water supply (the main San Rafael HCV directly affecting the community) by enhancing protection of the forested headwaters. The establishment of a sustainably managed forest reserve also ensures access to a reliable supply of fuel and materials for which there are as yet no readily available alternatives.

Possible negative impacts on other stakeholders and mitigation strategy

- The main negative impact is that land is set aside from other use this is, however, mitigated by the PES payments and the voluntary nature of the scheme, allowing participants to withdraw if the promised benefits are not realised. Again, these measures do not work to the advantage of the project in terms of immediate VCU delivery they are social safeguards to inspire confidence in the early stages of the project, the project gain being achieved in facilitating potential expansion to actions in the main forest bloc.
- No project impacts have been identified involving decreased social and economic well-being outside the project zone.

Impact monitoring

Indicators

Key elements to be monitored are:

■ Degree of participation of community members in project-related activity; The level of project-related revenue streams into the community, their distribution and their proportion relative to other income sources; Use of project-generated revenues for general community benefit, 'quality of life' indicator scores and the role of project-generated revenues in reaching those scores; For HCVs, the key issue is to track the degree to which community needs in forest products are met by the community forest reserve.

Methodologies and Frequency

The monitoring system will:

- Establish a baseline in the first six months of the project, using quantifiable measurements of set socioeconomic indicators under an appropriate methodology;
- Re-measure annually, to demonstrate and quantify benefits;
- Be fully reviewed at 5 year intervals.
 Community members will participate fully in the monitoring process, including assessment of the net benefits claimed by the project. Updated results will be posted on the WLT and Guyra Paraguay internet sites.

Biodiversity and ecosystem services



Without-project scenario

Project Zone - San Rafael

The threats to biodiversity from habitat degradation, fragmentation and loss are ranked very high. These are all linked to the continuation of illicit logging, clearance for agriculture and other forms of disturbance that are assumed to intensify under the baseline scenario. The erosion of High Biodiversity Conservation Values of the area remains the greatest foreseeable loss from the 'business-as-usual' scenario.

Project Area - La Amistad

Biodiversity values are already believed to be compromised on the residual forest on the community lands and their greatest importance is to buffer, at least partially, against pressure on the main forest block immediately behind them. Once gone, community requirements for timber, firewood, materials and game will act directly into the adjacent forest, contributing to the general pressure on San Rafael as a whole.

With-project scenario

Expected net benefits

- Maintenance of the La Amistad community forest as a buffer against degradation in the immediate hinterland. As these are all Guyra Paraguay properties, selected for high HCVs as a core area for the putative San Rafael National Park, positive biodiversity impacts may be expected.
- Improved conservation management of San Rafael as a whole, through establishment of the San Rafael Trust Fund. This was designed as the chief instrument for underpinning activities to maintain the High Conservation Values of the area.

Possible negative offsite impacts and mitigation strategy

- Negative offsite biodiversity impacts directly attributable to the project are extremely unlikely and none have been identified. The possibility remains that the indirect effect of improved protection in San Rafael could displace illicit activity to other forest areas in the region, but any such effect should be detected by the monitoring programme.
- The project has been designed to be expandable and replicable. In the event that significant displacement of illicit activity affecting other important forest areas is detected by the monitoring programme, the strategy would be to extend the approach to cover the areas concerned.

Impact monitoring

Indicators

■ Not clearly mentioned.

Methodologies

 Guyra Paraguay maintains a biodiversity data-base for San Rafael, regularly updated and using the standard Important Bird Area (IBA) monitoring methodology. This acts as the on-going monitoring system, using species of special conservation concern as indicators.

Frequency

• 5 year intervals - i.e. running alongside the carbon and community monitoring. This will be maintained through the project life

Progress



Validation	VCS validation report issue date:
	Under Validation
	CCBA validation report issue date:
	Validation Approved - CCB Standards Second Edition, Biodiversity Gold Level (Dec 6, 2010)
Verification	VCS verification period and report issue date:
	None
	CCBA verification period and report issue date:
	Undergoing Verification
Number VCUs	Number: o
issued	As of: 1 January 2016

Further information



■VCS Project Database:

http://www.vcsprojectdatabase.org/#/pipeline_details/PL1403

■CCBA Projects

http://www.climate-standards.org/2010/06/21/the-paraguay-forest-conservation-project/

Documents reviewed

VCS Draft Project Description-13 Jan 2015:

http://www.vcsprojectdatabase.org/#/pipeline details/PL1403

CCBA project design document - 21/June/2010

http://www.climate-standards.org/2010/06/21/the-paraguay-forest-conservation-project/