Rainforest Alliance
SmartWood Program

Validation Assessment
Report for:

Sustainable Capital Group Panama S.A.
Commercial Reforestation with Paulownia and Carbon Dioxide Capture
in
Chepo District, Panama

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SUSTAINABLE CAPITAL GROUP VCS VALID 11 ENG

Rainforest Alliance

Document Prepared By Rainforest Alliance

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Summary:

The project is designed to establish a commercial reforestation in Panama using Paulownia for carbon sequestration. In general terms, the idea of the project is to plant and harvest trees in two phases. 800 hectares of degrading pastureland will be planted during 2011 and 2012 with a density of 750 seedlings per hectare within a total area of 1043.79 hectares. The total area of Phase I is around 700 hectares and phase II is around 340 hectares. In order to maintain a conservative approach, the project has been calculated with an effective area of 320 hectares planted in 2011 (Plan A), and 480 hectares planted in 2012 (Plan B). Under Plan A, only 64 hectares will be harvested per year after year 5, so the first harvest will take place in the year 2016. The second harvest will be after year 6, the third after year 7, the fourth after year 8 and the fifth after year 9. Plan B will follow the same pattern with the only difference being that the harvested area will be 96 hectares per year. Following each of these harvests, maintenance and forest management will recommence. After year 20, the 800 hectares of the project will be allowed to grow freely with no planned future harvests. The project will be the project proponent´s legacy to the community, which will receive guidance regarding management of the permanent forest at an appropriate time before the culmination of the initial 20 year harvesting cycle.

The Project Description (PD) and supporting documents were designed to conform to the VCS 2007.1 standard, specifically as an ARR project under the AFOLU project types. The project employed an approved CDM Afforestation and Reforestation methodology, AR-AM0005 ("Afforestation and reforestation project activities implemented for industrial and/or commercial uses"). The project intends to sequester a long term average of 1,169,834 tCO2e over the course of the 40 year crediting period.

The audit of the PD, supporting documentation, field visit, and interviews has provided Rainforest Alliance with the evidence to determine conformance with the VCS 2007.1 standard with reasonable assurance. The audit team identified 19 non-conformities which were addressed by the PP. Additional evidence was submitted to the audit team, and was reviewed to close all non-conformities prior to the finalization of this report.

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1   Introduction

The Rainforest Alliance's SmartWood program was founded in 1989 to certify forestry practices conforming to Forest Stewardship Council (FSC) standards and now focuses on providing a variety of forest auditing services.   In addition to being an ANSI ISO 14065:2007 accredited validation and verification body, Rainforest Alliance SmartWood program is also a member of the Climate, Community, and Biodiversity Alliance (CCBA) standards, and an approved verification body with a number of other forest carbon project standards.   For a complete list of the services provided by Rainforest Alliance see http://www.rainforest-alliance.org/climate.cfm?id=international_standards.

Dispute resolution: If Rainforest Alliance clients encounter organizations or individuals having concerns or comments about Rainforest Alliance / SmartWood and our services, these parties are strongly encouraged to contact the SmartWood program headquarters directly.

1.1   Objective

The purpose of this report is to document the conformance of Commercial Reforestation with Paulownia and Carbon Dioxide Capture with the requirements of the Verified Carbon Standard (VCS). The project was developed by Sustainable Capital Group Panama S.A. (SCG Panama), hereafter referred to as the "Project Proponent". The report presents the findings of qualified Rainforest Alliance auditors who have evaluated the Project Proponent's systems and performance against the applicable standard(s).

1.2   Scope and Criteria

Scope: The scope of the audit is to assess the conformance of Sustainable Capital Group Panama S.A. Reforestation project in Chepo District, Panama against the Verified Carbon Standard.   The objectives of this audit included an assessment of the project's conformance with the standard criteria.   In addition, the audit assessed the project with respect to the baseline scenarios presented in the project design document.   The project covers an area of 800 hectares divided into two phases. The land is privately owned.   The project has a lifetime of 40 years, and has calculated a GHG reduction and/or removal of 1,169,834 tCO$_2$e over the course of the project lifetime.

Standard criteria: Criteria from the following documents were used to assess this project:
  - Verified Carbon Standard, 2007.1 (November 18, 2008)
  - Verified Carbon Standard, Guidance for Agriculture, Forestry, and Other Land Use (November 18, 2008),
  - Verified Carbon Standard, Tool for Methodological Issues (November 18, 2008)
  - Verified Carbon Standard, Tool for AFOLU Non-Permanence Risk Analysis and Buffer Determination (November 18, 2008),
  - Verified Carbon Standard Program Updates (please see VCS website for the latest updates) and as applicable,
  - The VCS approved methodology/modules used by the project.

Materiality: All GHG sinks, sources and/or reservoirs (SSRs) and GHG emissions equal to or greater than 5% of the total GHG assertion unless otherwise defined by the standard criteria.

1.3   Project Description

Taken from the VCS Project Description:
"The commercial reforestation project in Panama using Paulownia for Carbon sequestration is located to the east of Panama City, in the district of Chepo, in the Province of Panama, on the territory of the village named El Llano, in the hydrographical basin Nr. 148, called the Bayano River basin.
This area is characterized as an area that is currently used for agriculture and grassland purposes. Historically, it should be highlighted that it has been the development of ranching and subsistence agriculture that has left large areas without forest and consequently has caused nutritional impoverishment of these soils.
Based on the characteristics of the site (edaphoclimatic and geographic), the project promoter considered it an appropriate and viable alternative land use to protect these soils through the ecological activities of reforestation which will be planted and harvested in phases, with a broad vision as to what the project represents for the mitigation of climate change by reducing greenhouse gas emissions.
In this respect, the Reforestation Project with Paulownia will generate benefits such as:
• Recovery of microclimate and environmental conditions in the project area
• Control of the hydrological cycle
• Conservation of biodiversity

• Reduction of soil erosion and improvement of the chemical, physical and biological characteristics of soils by changing land use for livestock to land use for forestry.
• Creation of migration corridors for wildlife
• Creation of habitats for wildlife
• Improvement of living conditions of the local community through social assistance programs and the generation of employment during the various stages of project
• Carbon Dioxide sequestration

*The Project will begin in 2011 with the reforestation of an area of approximately 800 hectares net, with a density of 750 seedlings per hectare. The project will be implemented in two phases. Based on the carbon stock ex-ante calculation, the project cannot be considered a micro project or a mega project. The project hopes to capture a total of **1,169,834** tCO$_2$e, from 800 hectares over 40 years.*"

1.4   Level of assurance

The assessment was conducted to provide a reasonable level of assurance of conformance against the defined audit criteria and materiality thresholds within the audit scope. Based on the audit findings, a positive evaluation statement reasonably assures that the project GHG assertion is materially correct and is a fair representation of the GHG data and information.

2 Audit Overview

Based on Project's conformance with audit criteria, the auditor makes the following recommendation:

Final Report Conclusions		
☒	Validation approved: The project conforms with the audit criteria, and is likely to achieve estimated GHG emission reductions and/or removals. *No NCRs issued*	
☐	Validation not approved: The project has not demonstrated conformance with the audit criteria. *Conformance with NCR(s) required*	
Draft Final Report Conclusions		
☒	Validation approved: *No NCRs issued*	The Project Proponent has 7 days from the date of this report to submit any comments related to the factual accuracy of the report or the correctness of decisions reached. The auditors will not review any new material submitted at this time.
☐	Validation not approved: *Conformance with NCR(s) required*	
Draft Report Conclusions		
☐	Validation approved: *No NCRs issued*	The Project Proponent has 30 days from the date of this report to revise documentation and provide any additional evidence necessary to close the open non-conformances (NCRs). If new material is submitted the auditor will review the material and add updated findings to this report and close NCRs appropriately. If no new material is received before the 30 day deadline, or the new material was insufficient to close all open NCRs the report will be finalised with the NCRs open, and validation and/or verification will not be achieved. If all NCRs are successfully addressed, the report will be finalised and proceed towards issuance of an assessment statement.
☒	Validation not approved: *Conformance with NCR(s) required*	

2.1 Audit Conclusions

The validation audit team have reviewed all the exhibits submitted by the PP, such as a new version of the PD, calculations, supporting documents. Major changes were made to the Project Description, the appropriate use of tools, guidance, procedures and the methodology. The GHG removal calculations are now well organized and better reflect the reality of the proposed project activities including the Long-term Average criteria; and finally, the project boundary delimitation was substantially improved.

Based on the facts, the audit team considers that the project entitled "*Commercial Reforestation with Paulownia and Carbon Dioxide Capture*" is in compliance with VCS 2007.1 standard.

2.2 Non-conformance evaluation

Note: A non-conformance is defined in this report as a deficiency, discrepancy or misrepresentation that in all probability materially affects carbon credit claims. Non-conformance Request (NCR) language uses "shall" to suggest its necessity but is not prescriptive in terms of mechanisms to mitigate the NCR. Each NCR is brief and refers to a more detailed finding in the appendices.

NCRs identified in the Draft Report must be closed through submission of additional evidence by the Project Proponents before Rainforest Alliance can submit an unqualified statement of conformance to the GHG program.

NCR#:	01/11
Standard & Requirement:	VCS 2007.1
Report Section:	4.3. Project location
Description of Non-conformance and Related Evidence:	

Although the file type is not specified in the VCS documentation, or on the VCS website, the VCS requires that KML files of the project areas are submitted at the time of validation (personal communication, VCS). These files, for the correct areas, have not yet been provided.

SCG Panama has not provided the audit team with KML files of all the project areas.

Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above.
	Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The KML File was provided via a web link.
Findings for Evaluation of Evidence:	The PP shared the link where the area information is clearly defined in KML format.

Polygone No.	Plot name	Area (ha)
1	Alcibiades Castillo	26.88
2	Eliecer Villarreal	108.60
3	Juan Castillo	155.82
4	Larlu S.A.	79.39
5	Larlu S.A.	33.33
6	Ovidio Gonzáles	31.05
7	Ovidio Gonzáles	3.00
8	Ovidio Gonzáles	11.03
9	Ovidio Gonzáles	57.62
10	Ricardo Gonzáles	170.47
11*	Candelario Díaz	69.48
12*	Herminio Sáenz	85.27
13*	Ovidio Jaen	106.14
14*	Rafael Herrera	34.40
15*	Rafael Herrera	71.31
* Polygons 1 to 10 corresponds to Phase I of the project, and 11 to 15 corresponds to Phase II		

	This link shows the total area per plot where the project will be implemented, which means the eligibility area is not addressed in this step. See related details in findings of *1.9 Whether the project is eligible under the VCS.*
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	02/11
Standard & Requirement:	VCS 2007.1
Report Section:	4.9 Whether the project is eligible under the VCS
Description of Non-conformance and Related Evidence:	
The categories in tables are different from the categories used in the maps (e.g. in the maps, the category shrub does not exist, instead the map includes the category fallow, and viceversa). Considering that only 40% of the total land (320 hectares) will be reforested this year, these errors can be reflected in the fields as inconsistencies at the moment of planting trees. The Project Proponent has not provided one clear eligible map of the project area, using standard definitions of forest and other categories. The maps do not include a standardized definition of land cover, which leads to ambiguity within the project area maps.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above.
	Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	A series of three maps per farm: one showing slope percentage, the second showing the presence/absence of forest, and the last one showing the effective/non effective land.
Findings for Evaluation of Evidence:	The PP presented new maps as a result of new and improved measurements in the fields. As it is stated in the new version of the PD, CATALAHC helped the PP to create more accurate

maps and to determine the effective (eligibility area) and non-effective area of the project.

The eligibility area was again determined by subtracting from the total the area with more than 45% of slope, and then subtracting areas covered by intervened forest. Being so, a series of three maps were designed, the audit team summed the total area, effective area and non-effective area, and found small inconsistencies, in average 1.67 hectares of difference between the KML map and the final eligibility map.

However, the PP as a conservative measure only considered 800 hectares as eligibility area, from a total of 905.10 hectares, which includes by far the difference detected by the audit team.

Finally, it is important to mention that the maps now show standardized categories of vegetation (intervened forest, high and short shrubs areas, and fallow).

NCR Status:	CLOSED
Comments (optional):	None

NCR#:	03/11
Standard & Requirement:	VCS 2007.1
Report Section:	4.11. Roles and responsibilities

Description of Non-conformance and Related Evidence:

In Section 1.15 of the PD, SCG Panama is mentioned as the Project Proponent. However this section does not clearly define responsibilities. Also, during the field visit it was explained that CATHALAC will be part of the project, however this organization was not defined if as another PP or only as a participant. Same case with the forest service provider, Ecomanagement Services. As such, the roles in responsibilities of organizations involved in project activities are not clearly defined.

Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above. Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD. In the new version of the PD, the PP clarifies the roles and responsibilities among Sustainable Capital Group Panama (SCG Panama), and the project participants.
Findings for Evaluation of Evidence:	In section 1.15 of the PD, role and responsibilities of SCG Panama are clearly defined as the unique Project Proponent (based on the official definition), and two subcontracted organizations acting as project participants: Eco Management LLP, and CATHALAC (Centro del Agua del Trópico Húmedo para América Latina y El Caribe).
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	04/11
Standard & Requirement:	VCS 2007.1
Report Section:	5.4. Conformance with methodology applicability conditions

Description of Non-conformance and Related Evidence:

SCG did not take into account the appropriate tool ("tool for the identification of degraded or degrading lands for consideration in implementing A/R CDM project activities") when demonstrating that lands are degraded or degrading. Also, the soil organic carbon pool has not been considered in the calculations of the project. This was not supported by any evidence. The PD does not clearly demonstrate how lands were identified as degraded or degrading, nor does it justify the exclusion of soil organic carbon pool.

Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above. Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.

Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD. In the new version of the PD, Section 2.2. Justification of the choice of the methodology and why it is applicable to the project activity.
Findings for Evaluation of Evidence:	In Section 2.2 of the PD, the PP determined that the proposed land is degraded based on stage 1 of the corresponding methodological tool. The two main criteria that lead the PP were: a FAO classification was used (National Soil Degradation Map for Panama) where the land is classified as "Severe Human Induced Soil Degradation"; and also, this map is from 2008, so the land has been classified as degraded for no more than 10 years.
	Regarding the soil organic carbon pool issue, the PP demonstrated that this can be neglected in the proposed A/R CDM project activity. The appropriate procedure was followed step by step: applicability of the tool was assessed, then it was also determined, following the procedure that the changes in the carbon stocks of the mineral soil component of the soil organic carbon pool may be conservatively neglected.
	Finally, the rest of applicability conditions were also assessed. The analysis is shown in the new version of the PD.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	05/11
Standard & Requirement:	VCS 2007.1
Report Section:	5.5. Correct application and justification of selected baseline methodology
Description of Non-conformance and Related Evidence:	

The use of the "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities" is not mentioned in the PD. It is not clear if this tool was used to assess additionality. The use of this tool is required by the methodology used by the project. Evidence of the use of this tool was not available to the audit team, and was not included within the PD.

Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above.
	Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD. The PP followed the required steps of the tool in the new version of the PD.
Findings for Evaluation of Evidence:	In section 2.4 of the PD, the PP followed the methodological tool "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities". The main results are:
	Step 0. The project activity has a starting date after 1999, and also the project's incentive was to sell the carbon credits in a voluntary engagement.
	Sub-step 1a. The list of credible alternative land use scenarios that would have occurred on the land within the project boundary consists of continuation of grassland for cattle farming, and forestation performed without being registered as the project activity.
	Sub-step 1b. Both possible scenarios are considered to be legal activities.
	Sub-step 2a. The following barriers were assessed: Investment barriers; technological barriers; barriers related to local tradition; traditional equipment and technology; barriers due to prevailing practice; barriers due to local ecological conditions; barriers due to social conditions.
	Sub-step 2b, 2c. Forestation was eliminated in this step, since more than one barrier could prevent it. Being so, grassland for cattle farming is defined as the alternative land use scenario. The demonstration of the alternative land use scenario was based on a combination of historical data, stakeholder comments, and technical documentation generated by the PP.
	Step 3. The use of the decision tree conducted the PP to determine that no investment analysis is necessary to conduct.

	Step 4. Using information provided by ANAM and satellite imagery maps, it is evident that reforestation activities of the same type and scale as the proposed A/R CDM project activity have not been conducted since 1989. This was ratified by the audit team during the field visit and through interviews with CATALAHC.
	According to the audit team criteria, the PP has demonstrated that the project activity is additional, by following the required methodological tool.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	06/11
Standard & Requirement:	VCS 2007.1
Report Section:	5.7. Assessment and demonstration of additionality should be summarised in this section.
Description of Non-conformance and Related Evidence:	
The PP did not use the steps required by the methodology to demonstrate the baseline and assess the additionality of the proposed project (See findings in 2.7). In addition to the use of the methodology's requirements for the assessment of additionality, the VCS 2007.1 requires the use of one of three tests outlined in the VCS Standard 2007.1. Evidence of the use of one of the three required VCS additionality tests was not provided to the audit team, nor was it included within the PD.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above.
	Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP followed the required steps of the VCS 2007 in the new version of the PD.
	Legal counsel where an attorney states the reforestation is not mandatory.
Findings for Evaluation of Evidence:	In section 2.5 of the PD, the PP followed the Test 1 – The project test, as is required by the VCS 2007.1. The main results are:
	Step 1. The implementation of the reforestation project is voluntary, as it was also stated by ANAM during the interview with the audit team.
	Step 2: The project faces several barriers as it was explained in the sub-step 2a of the methodological tool. Barriers were assessed including investment barriers, technological barriers, and institutional barriers.
	Step 3. It was demonstrated that the reforestation project is not common practice in the country.
	According to the audit team criteria, the PP has demonstrated that the project activity is additional, by following the project test.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	07/11
Standard & Requirement:	VCS 2007.1
Report Section:	6.2. Correct application and justification of selected monitoring methodology
Description of Non-conformance and Related Evidence:	
The PD mentions that some variables related with soil will be monitored, however, the PD does not include SOPs for the measurement and monitoring of soil variables specific to soil erosion, nor does it provide clarification about why the PP assumes it is not necessary to apply the procedures. The VCS requires clear establishment of monitoring plan for all measured parameters. Specifically the PD mentions monitoring impacts of site preparation activities on soil erosion, but the PD does not provide clear guidance as to how these impacts will be monitored.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above.
	Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-

	conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD.
Findings for Evaluation of Evidence:	In Section 3.2.3.1 of the new PD, the PP explains that site preparation does not consist of activities that could cause impacts on soil erosion. In other sections of the PD the PP also clarifies this. As a result, it is not necessary to implement SOP for the measurements and monitoring of soil variables. NCR 07/11 is no longer applicable.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	08/11
Standard & Requirement:	VCS 2007.1
Report Section:	6.2. Correct application and justification of selected monitoring methodology
Description of Non-conformance and Related Evidence:	
The PD mentions the process for sampling designing and the forest inventory intensity, also the size and distribution of the plots (15 plots representing one of the five cycles of the plantation project). There is basic information which can lead the PP to meet some statistic parameters, but this information was not presented based on the methodology requirements. It is not clear how the sampling design will meet the requirements of the methodology, which require the use of the latest version of the tool for the calculations of the number of sample plots for measurement within A/R CDM project activities, and specifically require a precision level of 10% of the mean at 90% confidence level.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above. Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD.
Findings for Evaluation of Evidence:	In section 3.4.2.1 of the PD, the PP explains in general terms how the methodological tool was used to determine the number of sample plots. Equation 2 of the tool was used, assuming the area sampled is less than 5% of the project area. The sample size was determined to be 84 sample plots as follows: $n = (1.645 / 0.45)^2 \times (1 \times 2.5)^2 = 84$ sample plots As it can be noted, the project area is considered as a unique stratum, however it was explained that if in the near future the number of strata is extended, the estimation will be modified accordingly. Considering only one stratum, the allocation of the sample plots is easy to define. Finally, the maximum error is 45% which apparently corresponds to one-half of the confidence level (90%). If so, this is an incorrect interpretation of the tool which requires as an example, to use "one-half of confidence interval". Although this is not an important issue at this time, apparently the PP used a different statistic from the one required by the methodological tool. In this regard, using "confidence level" instead of "confidence interval", both with different meanings in statistics, the first one refers to a percentage of error while the other refers to carbon stocks in tones. This will need to be corrected at verification. **OBS 07/11.**
NCR Status:	CLOSED
Comments (optional):	**OBS 07/11:** SCG Panama should use an acceptable margin of error in estimation of biomass stock within the project boundary.

NCR#:	09/11
Standard & Requirement:	VCS 2007.1
Report Section:	6.2. Correct application and justification of selected monitoring methodology
Description of Non-conformance and Related Evidence:	
In section 3.4.1 of the PD, the PP mentions some provisions to undertake the uncertainties during the implementation of the monitoring plan. However, the audit team considers it is necessary that the PD clearly explains how the project will deal with the conservative approach and uncertainties section of the selected methodology. The approach taken to address uncertainty is not clearly outlined within the PD. The VCS standard guiding principle requires "Accuracy: Reduce bias and uncertainty as far as is practical". Within the PD it is not clear how the project developers has assured the project meets this guiding principle, as the project conformance with the methodology conservative approach and uncertainty section is not well described within the PD.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above. Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD.
Findings for Evaluation of Evidence:	In section 3.4.8.1 of the PD, the PP presented an "Uncertainty assessment". As a methodology to address uncertainties for the monitoring, strategies were selected to implement based on the IPCC´s 2006 Guidelines for National Greenhouse Gases Inventory. The proposed strategies are focused to deal with the most common uncertainties (e.g. lack of data, missing data, measurement error), and it is expected to use 95% as confidence interval level to address the uncertainties. Some examples of the uncertainties that the PP will take into account during the monitoring, are: GPS measurements, number of trees, volume of trees harvested, volume of trees lost due to disturbances, tree diameter at breast height).
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	10/11
Standard & Requirement:	VCS 2007.1
Report Section:	7.2 The correctness and transparency of formulas and factors used
Description of Non-conformance and Related Evidence:	
Multiple versions of the project GHG assertion calculation spreadsheets were reviewed by the audit team. The final version, the spreadsheet named "Copia corregido Calculos de Carbon en 800 Has peso total 160 Has june 30th 11.xls" shows the final carbon calculations. In Section 4.4 of the PD, the PP shows different results due to the fact that the final spreadsheet was submitted after the validation visit.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above. Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	Spreadsheet calculations: GHG_emissions_reductions_ex-ante_calculations.xls The PP submitted a revised PD.
Findings for Evaluation of Evidence:	The PP submitted a revised spreadsheet. A new sheet named "Total biomass" was created as a summary of all the calculations. Then in Section 4.4 of the PD, the summary was copied showing the final carbon stock estimations.

NCR Status:	CLOSED
Comments (optional):	None

NCR#:	11/11
Standard & Requirement:	VCS 2007.1
Report Section:	7.3. Calculation of emissions in the baseline scenario (ex-ante estimate)
Description of Non-conformance and Related Evidence:	
The PP does not demonstrate that the methodology was followed step by step to estimate the emissions in the baseline scenario. The project did not provide clear and transparent evidence that the methodology was followed. During the field audit and review of documents, it was not clear how the project followed all steps required within the methodology for the estimation of emissions in the baseline scenario (ex-ante estimate).	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above.
	Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD.
Findings for Evaluation of Evidence:	After the PP reviewed the specifications and applicability conditions of the selected methodology, there was a better understanding of the concepts. As a result, the previous estimation of changes in the baseline scenario (37,693 tCO_{2e}) were no longer applicable.
	In the PD, the correct interpretation is described as:
	"*According to the methodology, if the pre-project crown cover of trees within the project boundary is less than 20% of the threshold for crown cover reported to the EB by the host party then the baseline net GHG removals by sinks may be accounted for as zero. The stratum affected by the project activities (namely by clearing of the land for planting of seedlings) is only pasture, with less than 20% of the threshold crown cover in Panama.*"
	The ex ante baseline GHG emissions and removals may therefore be conservatively assumed to be zero.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	12/11
Standard & Requirement:	VCS 2007.1
Report Section:	7.5. Calculation of emissions reductions or avoided emissions due to the project (ex-ante estimate)
Description of Non-conformance and Related Evidence:	
In general the PP did not follow the steps of the methodology for how to make an ex-ante estimate of the reductions or avoided emissions due to the project. (See steps listed in findings of 4.5 below).	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above.
	Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD: Spreadsheet calculations: GHG_emissions_reductions_ex-ante_calculations.xls .
Findings for Evaluation of Evidence:	In sections 4.2 and 4.3 of the PD, the PP explains in detail how the methodology was followed step by step and the assumptions used. The audit team reviewed the spreadsheet to make sure

the ex-ante carbon stock calculations had followed these steps, and also to make sure the factors, formulas were used correctly.

The calculations were updated to align with the silvicultural schedule, mainly to better reflect the number of hectares to be harvest each year, and how many thinnings there will be. Below-ground carbon estimation was also added to the total carbon stocks.

In the PD, the PP also clarifies that the allometric equation method was used, not the BEF method or a combination of them, as it was used in the previous version of the calculations.

NCR Status:	CLOSED
Comments (optional):	None

NCR#:	13/11
Standard & Requirement:	VCS 2007.1
Report Section:	7.5. Calculation of emissions reductions or avoided emissions due to the project (ex-ante estimate)
Description of Non-conformance and Related Evidence:	
In the spreadsheet or in the PD, the long-term average applicable for the crediting period has not been estimated. This is a VCS requirement for all projects involving harvests during the crediting period, in order to calculate the maximum number of credits issued. The financial analysis did not take into account this long-term average criteria.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above. Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	Spreadsheet calculations: GHG_emissions_reductions_ex-ante_calculations.xls The PP submitted a revised PD.
Findings for Evaluation of Evidence:	As a consequence of the new estimations of carbon stocks, and also due to the fact that the PP followed the methodology step by step, the audit team recognizes that the LTA estimation is now well done. The long term average (LTA) of the project GHG removals was calculated as 1,169,834.03 tCO_2e. It is important to mention that the PP now better understands the procedure to estimate LTA, but also is aware of that any change on the assumptions (e.g. volume or biomass estimated via sample plots) may lead to a different estimation.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	14/11
Standard & Requirement:	VCS 2007.1
Report Section:	7.5. Calculation of emissions reductions or avoided emissions due to the project (ex-ante estimate)
Description of Non-conformance and Related Evidence:	
In the calculation spreadsheet, the PP did not include the estimation of below-ground biomass. Since the methodology requires to measure this variable, the PP has to measure it unless there is a justification of conservative deviation according to VCS criteria.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above. Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by	Spreadsheet calculations: GHG_emissions_reductions_ex-ante_calculations.xls

Organization:	The PP submitted a revised PD.
Findings for Evaluation of Evidence:	In the spreadsheet the PP added a table named "total biomass underground" meaning below-ground as it is called in the methodology. The important thing is that there is now an estimation. In section 4.3 of the PD, it is explained that under the allometric equation method, step 4, the PP used a factor of 0.1719 as Rj (root-shoot ratio for biomass stock). This factor comes from literature species-specific to *Paulownia*.
	The audit team considers the factor value and the source appropriate at estimating the ex-ante carbon removals. As a result, no deviation was used.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	15/11
Standard & Requirement:	VCS 2007.1
Report Section:	7.5. Calculation of emissions reductions or avoided emissions due to the project (ex-ante estimate)
Description of Non-conformance and Related Evidence:	
During the validation visit, the audit team did not see standing trees in the visited lands. However, the PD estimates the biomass of three kinds of vegetation, still standing in the lands: intervened forest, pasture and scrub. However, the estimations were not submitted to the audit team, so it was considered that the PP did not use any of the cases. It is not clear how pre-existing vegetation was incorporated into GHG assertion calculations. Specifically, it is not clear how the project estimated the increase in non-CO$_2$ emissions from removal of the pre-project woody biomass, following either method 1 or method 2 outlined in the methodology.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above.
	Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD.
Findings for Evaluation of Evidence:	In the PD it is explained that even though there are different kinds of vegetation within the project boundary, the individual trees and bushes will not be removed to implement the project, therefore it is not necessary to take this biomass in calculations, as a consequence there is no increase in non-CO$_2$ emissions from removal of the pre-project woody biomass.
	From the field visit no standing trees were reported by the audit team, only small patches of natural forests but these are not considered within the project boundary. Non-woody bushes were seen in the project boundary. Considering this findings, the audit team closed the NCR since it is no longer applicable.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	16/11
Standard & Requirement:	VCS 2007.1
Report Section:	7.6. Calculation of emissions from leakage (ex-ante estimate)
Description of Non-conformance and Related Evidence:	
According to the selected methodology (section 6. Leakage), the PP is required to use equation 33 to estimate leakage. This is because the displacement of grazing activities to areas outside the project may occur under the project scenario. It is not clear how this equation was used in the calculation of leakage emissions associated with project activities.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above.
	Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-

	conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD. A sign letter statement (Nota_del_ganado_correcta.pdf) from Ovidio Gonzáles, the former land owner in which farm the cattle existed.
Findings for Evaluation of Evidence:	In the PD, the PP explains that some cattle were found in the proposed project boundary prior to the purchase of the land. The exact number was unknown so in the PD an estimated of 100 cattle is presented. It was demonstrated that Section 6 (leakage) of the methodology is not applicable due to the fact that all the animals were slaughtered. Evidence was presented to demonstrate this. Being so, displacement of grazing activities to other areas would not have happened. By the time of the validation, the audit team did not see any evidence of cattle at the farms visited. This was confirmed through interviews which agreed that the cattle were slaughtered, and sold immediately.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	17/11
Standard & Requirement:	VCS 2007.1
Report Section:	7.9. Uncertainties
Description of Non-conformance and Related Evidence:	
The selected methodology requires project developers to evaluate the conservative approach and uncertainties. In the PD there are some references to uncertainty but does not follow the methodology requirements.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above. Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD.
Findings for Evaluation of Evidence:	As explained in the findings of NCR 09/11, the PP presented an "Uncertainty assessment". The strategies to be implemented were taken from literature. The audit team considers that the plan (strategies) follows the methodology requirements and also will help the PP reduce the uncertainties in the accounting of removals.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	18/11
Standard & Requirement:	VCS 2007.1
Report Section:	11.1. Risk factors applicable to ARR projects
Description of Non-conformance and Related Evidence:	
It is not clear in the PD if the Project will be endorsed to the local communities after the harvesting period. In the PD the PP explains that after the harvesting period, "the biomass will remain in the project and will be the developer´s legacy". By the time of the field visit, people interviewed were not clear about this topic.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above. Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation

Evidence Provided by Organization:	The PP submitted a revised PD. Nota_de_conocimiento_del_proyecto.pdf
Findings for Evaluation of Evidence:	In section 1.9.4 of the PD the PP explains in detail the process for the termination of the project crediting period will follow, meaning that after the last harvest cycle, the project will be considered as a legacy to the community which will be in charge of the monitoring of the project and also the responsible of the permanence of the project. As evidence, the PP presented a letter signed by the community representative (Presidente de la Junta Comunal de El Llano). In the PD it is mentioned that during the first 20 years of the project, the PP will train the community members.
NCR Status:	CLOSED
Comments (optional):	None

NCR#:	19/11
Standard & Requirement:	VCS 2007.1
Report Section:	Default buffer withholding percentages for ARR projects
Description of Non-conformance and Related Evidence:	
In the PD it is not clear which risk class is self determined: In the PD it is stated "The Default buffer withholding percentages for proposed ARR project according to the tool will fall under 10% to 20% but we do not see that buffer zone should be higher than 20%". The audit team interprets this as a misunderstanding between the two risk classes. It is not clear if the risk class is "low" or "medium".	
SCG Panama shall clearly state in the PD which risk class applies to the plantation project based on the risk associated.	
Corrective Action Request:	The organization shall implement corrective actions to demonstrate conformance with the requirement(s) referenced above. Note: Effective corrective actions focus on addressing the specific occurrence described in evidence above, as well as the root cause to eliminate and prevent recurrence of the non-conformance.
Timeline for Conformance:	Prior to validation
Evidence Provided by Organization:	The PP submitted a revised PD.
Findings for Evaluation of Evidence:	In section 1.11 of the PD the PP states the following "*The project developer considers this project to be of a medium risk class, therefore a 40% buffer will be applied.*" The audit team agrees with this statement.
NCR Status:	CLOSED
Comments (optional):	None

2.3   Observations

Note: Observations are issued for areas that the auditor sees the potential for improvement in implementing standard requirements or in the quality system; observations may lead to direct non-conformances if not addressed. Unlike NCRs, observations are not formally closed. Findings related to observations are discussed in Appendix A below.

OBS	01/11	Reference Standard & Requirement:	VCS 2007.1 – 5.4. Conformance with methodology applicability conditions
Description of findings leading to observation:	Section 2.2 describes how the project meets the methodology; however the information is not organized based on the methodology which could lead to a misunderstanding or difficulty at tracking the compliance.		
Observation:	SCG Panama should clearly document the applicability of the methodology that aligns with the steps in the methodology.		

OBS	02/11	Reference Standard & Requirement:	VCS 2007.1 – 5.5. Correct application and justification of selected monitoring methodology
Description of findings leading to observation:		Section 3 does not make clear links back to the methodologies steps or equations. This could cause difficulties when it comes to verification and the Proponents are required to show how their monitoring results and execution of ex-post calculations have complied with the methodology.	
Observation:		SCG Panama should clearly document a monitoring plan that aligns with the steps in the methodology.	

OBS	03/11	Reference Standard & Requirement:	VCS 2007.1 – 6.4. Whether the monitoring plan provides detailed information related to the collection and archiving of all relevant data
Description of findings leading to observation:		It is not clear if the monitoring results will be archived as it is recommended by the methodology: "All data collected as part of monitoring should be archived electronically and be kept at least for 2 years after the end of the last crediting period."	
Observation:		SCG Panama should archive electronically all data collected as part of monitoring, and keep all data for least 2 years after the end of the crediting period.	

OBS	04/11	Reference Standard & Requirement:	VCS 2007.1 – 7.1. The appropriateness of the source, sink and reservoir (pools)
Description of findings leading to observation:		It is not explicitly stated in the PD which sources, sinks and pools will be estimated during the crediting period. Also, the audit team considers this statement as a deviation which has not been defined in the PD as such: "the decision on which carbon sink to measure will depend on cost-effective..."	
Observation:		SCG Panama should explicitly explain in the PD which sources, sinks and pools will be monitor during the crediting period, also considering potential deviations from the methodology.	

OBS	05/11	Reference Standard & Requirement:	VCS 2007.1 – 7.5 Calculation of emissions reductions or avoided emissions due to the project (ex-ante estimate)
Description of findings leading to observation:		The PP submitted an updated version of the carbon stock calculations considering the available literature of DBH and H. Using these data could lead the PP to expect exceptionally high growth rates and final biomass estimates, which may not be achieved at the site. The verification of the actual GHG removals should reflect real data, based on field measurements.	
Observation:		SCG Panama should demonstrate that the growth rates and final biomass estimates (GHG removals) are accurate based at least as a combination of literature and actual field measurements. The monitoring report should reflect this consistently.	

OBS	06/11	Reference Standard & Requirement:	VCS 2007.1 – 7.7. Calculation of net VCUs to be issued (ex-ante estimate)
Description of findings leading to observation:		The PD does not contain an estimate of the VCUs that will be issued.	
Observation:		SCG Panama should produce an ex-ante estimate in the PD for the number of VCUs they will receive at each monitoring period.	

OBS	07/11	Reference Standard & Requirement:	VCS 2007.1 – 7.8. The assumptions made for estimating GHG emission reductions
Description of findings leading to observation:		It was concluded that the assumptions were not transparently documented in the PD (although it was possible to determine the assumptions by looking through the excel sheets).	
Observation:		SCG Panama should document transparently any assumptions involved in the carbon calculations of emission reductions or removals.	

OBS	08/11	Reference Standard & Requirement:	VCS 2007.1 – 7.8 The assumptions made for estimating GHG emission reductions
Description of findings leading to observation:		The PP used the appropriate tool to estimate the number of plots, however when using the equation 2 of the tool, 45% was used as the acceptable margin of error, with no statistical justification. This can be interpreted as an incorrect interpretation of the tool and can lead to a non conformance during the verification.	
Observation:		SCG Panama should use an acceptable margin of error in estimation of biomass stock within the project boundary.	

2.4 Actions taken by the Project Proponent address NCRs (including any resolution of material discrepancy)

Action Taken by Project Proponent following the issuance of the Draft Report		Date
Additional documents submitted to audit team (additional documents listed below)	☒ Yes ☐ No ☐ N/A	August 9, 2011
Additional stakeholder consultation conducted (evidence described below)	☐ Yes ☒ No ☐ N/A	
Additional clarification provided	☒ Yes ☐ No ☐ N/A	August 14, 2011
Documents revised (document revision description noted below)	☒ Yes ☐ No ☐ N/A	August 10-16, 2011
GHG calculation revised (evidence described below)	☒ Yes ☐ No ☐ N/A	August 14, 2011

The following documents were viewed in the production of the final draft validation report:

Included in the actions taken by the Project Proponent to address NCRs was the submission of the following revised files:

Ref	Title, Author(s), Version, Date	Electronic Filename
1a.	SCG Panama S.A. See right.	VCS_validation_corrective_actions.pdf
2a.	SCG Panama S.A. See right.	Mapa 1 Finca Ovidio Gonzales
3a.	SCG Panama S.A. See right.	Mapa 1 Finca Ovidio Gonzales Pendiente 2
4a.	SCG Panama S.A. See right.	Mapa 1 Finca Ovidio Gonzales Caminos
5a.	SCG Panama S.A. See right.	Mapa 2 Finca Ricardo Gonzales
6a.	SCG Panama S.A. See right.	Mapa 2 Finca Ricardo Gonzales Pendiente 2
7a.	SCG Panama S.A. See right.	Mapa 2 Finca Ricardo Gonzales Caminos
8a.	SCG Panama S.A. See right.	Mapa 3 Finca Juan Castillo
9a.	SCG Panama S.A. See right.	Mapa 3 Finca Juan Castillo Pendiente 2
10a.	SCG Panama S.A. See right.	Mapa 3 Finca Juan Castillo Caminos
11a.	SCG Panama S.A. See right.	Mapa 4 Finca Eliecer Villarreal
12a.	SCG Panama S.A. See right.	Mapa 4 Finca Eliecer Villarreal Pendiente 2
13a.	SCG Panama S.A. See right.	Mapa 4 Finca Eliecer Villarreal Caminos
14a.	SCG Panama S.A. See right.	Mapa 5 Finca Larlu S.A.
15a.	SCG Panama S.A. See right.	Mapa 5 Finca Larlu S.A. Pendiente 2
16a.	SCG Panama S.A. See right.	Mapa 5 Finca Larlu S.A. Caminos
17a.	SCG Panama S.A. See right.	Mapa 6 Finca Alcibiades Castillo
18a.	SCG Panama S.A. See right.	Mapa 6 Finca Alcibiades Castillo Pendiente 2
19a.	SCG Panama S.A. See right.	Mapa 6 Finca Alcibiades Castillo Caminos
20a.	SCG Panama S.A. See right.	Mapa 7 Finca Ovidio Jaen
21a.	SCG Panama S.A. See right.	Mapa 7 Finca Ovidio Jaen Pendiente 2
22a.	SCG Panama S.A. See right.	Mapa 7 Finca Ovidio Jaen Caminos
23a.	SCG Panama S.A. See right.	Mapa 8 Finca Rafael Herrera
24a.	SCG Panama S.A. See right.	Mapa 8 Finca Rafael Herrera Pendiente 2
25a.	SCG Panama S.A. See right.	Mapa 8 Finca Rafael Herrera Caminos
26a.	SCG Panama S.A. See right.	Mapa 9 Finca Herminio Saenz
27a.	SCG Panama S.A. See right.	Mapa 9 Finca Herminio Saenz Pendiente 2
28a.	SCG Panama S.A. See right.	Mapa 9 Finca Herminio Saenz Caminos
29a.	SCG Panama S.A. See right.	Mapa 10 Finca Candelario Diaz
30a.	SCG Panama S.A. See right.	Mapa 10 Finca Candelario Diaz Pendiente 2
31a.	SCG Panama S.A. See right.	Mapa 10 Finca Candelario Diaz Caminos
32a.	SCG Panama S.A. See right.	Mapa Localizacion Proyecto

33a.	SCG Panama S.A. See right.	Project Design Document (Eng)
34a.	SCG Panama S.A. See right.	VCS validation corrective actions
35a.	SCG Panama S.A. See right.	Reforestation plan
36a.	SCG Panama S.A. See right.	GHG emissions reductions, ex-ante calculations
37a.	SCG Panama S.A. See right.	Legal counsel
38a.	SCG Panama S.A. See right.	Community endorsement statement
39a.	SCG Panama S.A. See right.	Cattle slaughter confirmation
40a.	SCG Panama S.A. See right.	Mapa 6 Finca Alcibiades Castillo_uso_c.pdf
41a.	SCG Panama S.A. See right.	Mapa 6 Finca Alcibiades Castillo_pendiente_c.pdf
42a.	SCG Panama S.A. See right.	Mapa 5 Finca Larlu SA_Pendiente_c.pdf
43a.	SCG Panama S.A. See right.	Mapa 5 Finca Larlu SA uso_c.pdf

3 Audit Methodology

3.1 Audit Team

Overview of roles and responsibilities:

Auditor(s)	Responsibilities							
	Lead	Desk Review	On-site visit	Climate Specialist	Biodiversity Specialist	Social Specialist	Report	Senior Internal Review
William Arreaga	X	X	X	X			X	
Edwin Alpizar			X	X			X	
Jared Nunery		X		X				
Adam Gibbon								X

Auditor qualifications:

Auditor(s)	Qualifications
William Arreaga	William is a Rainforest Alliance Lead Carbon Auditor. Guatemalan; Forester, Central American SmartWood Office. Forestry degree from the *Escuela Nacional Central de Agricultura*, and an engineering degree from USAC; in 2002 he received his M.Sc. in Tropical Forest Management and Biodiversity Conservation from CATIE (Costa Rica). His work has been focused in plantations and natural forests managed in Central America. He also has experience in carbon storage and carbon flows in natural forests and plantations. In 2007, he spent two months at Winrock International as a fellow. William has participated as auditor and lead auditor in various VCS, CCBA, CFS validation and verification processes. Recently, he obtained a certificate of EMS Lead auditor (ISO 14001:2004).
Edwin Alpizar	Costa Rican, Forestry Engineer from Instituto Tecnológico de Costa Rica, around 30 years of experience working as a consultant in Latin America. His most recent experience in carbon projects consisted of a development of a carbon protocol to implement the Climate Module in Agroforestry Systems; identification of scenarios of mitigation impacts in El Salvador, and Costa Rica; GEI National Inventory of El Salvador; evaluation of projects against MDL, and others. Edwin has participated with SmartWood/Rainforest Alliance as VCS auditor in two processes in the Central America region.
Jared Nunery	Jared has led the technical review of multiple validation assessments for the VCS. In addition he has participated in two Improved Forest Management methodological assessments for the VCS. Before joining the Rainforest Alliance, Jared worked as a member of the Carbon Dynamics Lab at the University of Vermont, where he conducted research on the effects of forest management on carbon sequestration. Jared has published multiple scientific articles on forest carbon dynamics as well as general forest ecological processes. Jared has a B.S. in Environmental Sciences from the University of Vermont and earned his M.Sc. in Forestry from the University of Vermont. Jared has extensive experience in forest stand dynamics, forest carbon dynamics, forest mensuration, GHG quantification, forest growth and yield modeling, and wildlife habitat conservation. In addition, Jared is a certified lead auditor with the Climate Action Reserve for Forest and Urban Forest projects.

3.2 Description of the Audit Process

The audit was conducted in a two step process. The first step consisted of a pre-validation assessment, conducted through a remote desk audit of the Project Design, and all corresponding annexes. The purpose of the pre-validation assessment is to identify any major gaps within the project design document, and to determine if the project was ready for a field visit. As part of the pre-validation audit, six minor gaps were identified, and the Project Proponent was notified of these findings on January 13, 2011 with the submission of the pre-validation report. This process offers the Project Proponent a minimum of three weeks to address any gaps identified in the pre-validation assessment prior to the arrival of auditor for the field audit.

The second step consisted of the validation of the "Commercial Reforestation with Paulownia and Carbon Dioxide Capture". In total, 10 project participants (small land owners) were included in the VCS scope, meaning a total of 22 small parcels. The field audit consisted of a total of four days. The auditors were able to visit three of the project sites - but only one of them already reforested-, representing 30% of the parcels, and 40% of the total project area (see table below for details). Stakeholder interviews were conducted at all farms visited, including interviews of small landowners (project participants), and key personnel of SCG Panama S.A. and Ecomanagement (the forest service provider). The following is a list of places visited including field visit, stakeholder consultations and documentation review:

Location/Facility	Date(s)	Length of Audit	Auditor(s)
Opening meeting Stakeholder consultation in Panama city	14 Feb 11	6 hours	William Arreaga, Edwin Alpizar
Stakeholder consultation in Chepo	15 Feb 11	3 hours	William Arreaga, Edwin Alpizar
Field visit to reforestations	15 Feb 11	4 hours	William Arreaga, Edwin Alpizar
Documentation review and discussion with PP and the forest service provider staff	16, 17 Feb 11	8 hours	William Arreaga, Edwin Alpizar
Closing meeting	17 Feb 11	2 hours	William Arreaga, Edwin Alpizar

3.3 Review of Documents

The following documents were viewed as a part of the field audit:

Ref	Title, Author(s), Version, Date	Electronic Filename
1	See right, Authored by SCG Panama S.A.	VCS PD Final 07 June 2011.pdf
2	See right, Authored by SCG Panama S.A.	Copia de (2).xls
3	See right, Authored by SCG Panama S.A.	Cálculos+…xls
4	See right, Authored by SCG Panama S.A.	Reforestation plan final 2011.pdf
5	See right, Authored by SCG Panama S.A.	Copia de Calculos de Carbono en 800 has plantadas en dos años y cortes de 160 has anuales (May 31 11) with comercial lumber.xls
6	See right, Authored by SCG Panama S.A.	Geology.jpg
7	See right, Authored by SCG Panama S.A.	Land_use_1984.jpg
8	See right, Authored by SCG Panama S.A.	Land_use_1992.jpg
9	See right, Authored by SCG Panama S.A.	Land_use_2000.jpg
10	See right, Authored by SCG Panama S.A.	Land_use_2008.jpg
11	See right, Authored by SCG Panama S.A.	Letter of gratitude from community.pdf
12	See right, Authored by SCG Panama S.A.	Life_zones.jpg
13	See right, Authored by SCG Panama S.A.	Mapa_1_Finca_Ovidio_Gonzales.pdf
14	See right, Authored by SCG Panama S.A.	Mapa_1_Finca_Ovidio_Gonzales_Pendiente2.pdf
15	See right, Authored by SCG Panama S.A.	Mapa_2_Finca_Ricardo_Gonzales.pdf
16	See right, Authored by SCG Panama S.A.	Mapa_2_Finca_Ricardo_Gonzales_Pendiente2.pdf
17	See right, Authored by SCG Panama S.A.	Mapa_3_Finca_Juan_Castillo.pdf
18	See right, Authored by SCG Panama S.A.	Mapa_4_Finca_Eliecer_Villarreal.pdf
19	See right, Authored by SCG Panama S.A.	Mapa_4_Finca_Eliecer_Villarreal_Pendiente2.pdf
20	See right, Authored by SCG Panama S.A.	Mapa_5_Finca_Larlu_SA.pdf
21	See right, Authored by SCG Panama S.A.	Mapa_5_Finca_Larlu_SA_Pendiente2.pdf
22	See right, Authored by SCG Panama S.A.	Mapa_6_Finca_Alcibiades_Castillo.pdf
23	See right, Authored by SCG Panama S.A.	Mapa_6_Finca_Alcibiades_Castillo_Pendiente2.pdf
24	See right, Authored by SCG Panama S.A.	Mapa_7_Finca_Ovidio_Jaen.pdf
25	See right, Authored by SCG Panama S.A.	Mapa_7_Finca_Ovidio_Jaen_Pendiente2.pdf
26	See right, Authored by SCG Panama S.A.	Mapa_8_Finca_Rafael_Herrera.pdf
27	See right, Authored by SCG Panama S.A.	Mapa_8_Finca_Rafael_Herrera_Pendiente2.pdf

28	See right, Authored by SCG Panama S.A.	Mapa_9_Finca_Herminio_Saenz.pdf
29	See right, Authored by SCG Panama S.A.	Mapa_9_Finca_Herminio_Saenz_Pendiente2.pdf
30	See right, Authored by SCG Panama S.A.	Mapa_10_Finca_Candelario_Diaz.pdf
31	See right, Authored by SCG Panama S.A.	Mapa_10_Finca_Candelario_Diaz_Pendiente2.pdf
32	See right, Authored by SCG Panama S.A.	Mapa_Localizacion_Proyecto.pdf
33	See right, Authored by SCG Panama S.A.	Mapa_Suelos.pdf
34	See right, Authored by SCG Panama S.A.	Pendiente.pdf
35	See right, Authored by SCG Panama S.A.	Satellite_imagery_2000.jpg
36	See right, Authored by SCG Panama S.A.	Satellite_imagery_2010.jpg

3.4 Interviews

The following is a list of the people interviewed as part of the audit. The interviewees included those people directly, and in some cases indirectly, involved and/or affected by the project activities.

Audit Date	Name	Title
14 Feb 2011	Keren Viesser	Legal Representative, SCG Panama S.A.
14 Feb 2011	Maurice Sjerps	Legal Representative, SCG Panama S.A.
14 Feb 2011	Herminio Rodríguez	Forestry Engineer, Ecomanagement Services
14 Feb 2011	Eduardo Reyes	Consultant (PD)
14 Feb 2011	Daribel Martínez	Consultant (EIA)
14 Feb 2011	Juan David Bárcenas	Attorney, Pinzon, Hidalgo & Co.
14 Feb 2011	Emil cherrington	GIS expert, CATALHAC
14 Feb 2011	José María Guardia	GIS expert, CATALHAC
15 Feb 2011	Ovidio Gonzáles	Former land owner
15 Feb 2011	Lorenzo Banda	Representative, Corregimiento El Llano
15 Feb 2011	Ricardo Gonzáles	Former land owner
15 Feb 2011	Bernardino Guevara	Forester, Finca Juan Castillo
15 Feb 2011	Olmedo Barrios	Major El Llano Municipality
16 Feb 2011	Ovidio Jaén Cano	Former land owner
16 Feb 2011	Alcibiades Castillo	Former land owner
16 Feb 2011	Narciso Cubas	Forestry Department, ANAM
16 Feb 2011	Alcides Villareal	Forestry Department, ANAM
17 Feb 2011	Silvano Vergara	Sub administrator, ANAM
17 Feb 2011	Cinthia Deville	Mitigation specialist, Climate Change and Desertification Unit, ANAM
17 Feb 2011	René López	Analyst, Climate Change and Desertification Unit, ANAM

APPENDIX A: Field Audit Findings

Note: Findings presented in this section are specific to the findings resulting from the field audit as presented in the Draft Audit Report. Any non-conformances or observations identified during the field audit are noted in this section, and specific NCR and OBS tables are included in section 2 of this report for each identified non-conformance and observations. All findings related to audit team review of additional evidence submitted by the Project Proponent following the issuance of the Draft Audit Report by Rainforest Alliance, is included within section 2 of this report.

4 Project Design

The conclusions regarding (as required by VCS 2007.1, Section 5.7 PD requirements)*:*

- *project title, purpose(s) and objective(s);*
- *Type of GHG project;*
- *project location, including geographic and physical information allowing for the unique identification and delineation of the specific extent of the project;*

The conclusions regarding (as required by VCS 2007 Validation Template, Section 3.1)*:*
- *the technology used*
- *project duration, crediting time and project start date*
- *Ownership*
  - *Proof of title*
  - *Double counting and whether the project participated in another emission trading programme*
- *Project applicability to the VCS for projects rejected under other GHG programme (if applicable)*
- *Whether the project is eligible under the VCS*
- *Any relevant findings relating to the project* should be summarised in this section.

4.1 Project title, Purposes and Objectives

Findings from the assessment dated 07 July 2011
The project title is "Commercial Reforestation with Paulownia and Carbon Dioxide Capture" corresponds with the objectives of the project indicated in Section 1.4. A brief description of the project:

In this respect, the Reforestation Project with Paulownia will generate benefits such as:
- *Recovery of microclimate and environmental conditions in the project area*
- *Control of the hydrological cycle*
- *Conservation of biodiversity*
- *Reduction of soil erosion and improvement of the chemical, physical and biological characteristics of soils by changing land use for livestock to land use for forestry.*
- *Creation of migration corridors for wildlife*
- *Creation of habitats for wildlife*
- *Improvement of living conditions of the local community through social assistance programs and the generation of employment during the various stages of project*
- *Carbon Dioxide sequestration*

The purposes and objectives correlate with the project activities.

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

4.2 Type of GHG project

Findings from the assessment dated 07 July 2011
The project is an afforestation/reforestation project. This is an approved VCS AFOLU project type.

In Section 1.2 of the PD, it is clearly stated: "*The project can be classified as an Afforestation, Reforestation, and Revegetation (ARR) project, under the VCS Standard.*"

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

4.3 Project Location

Findings from the assessment dated 07 July 2011

The location of the project defined in the PD, section 1.5.4 where it is stated that "*the project area is located to the east of the capital Panama City in the village of El Llano, Chepo District, Province of Panama.*" CATHALAC, a local partner of SCG produced the maps showing all the general geographic information such as slope, life zone, other.

As it was observed during the field visit, the plantation will be established in several farms distributed in two municipalities (Chepo and El Llano). The PP plans to buy new lands and develop a second phase of the project during 2012, while the lands for the phase 1 will be reforested starting on May 2011.

Phase I and Phase II of the project are located one near the other; phase I consists of a total of 16 small plots and phase II consists of five plots (called locally *globos*), unique geographical identification are provided for all the plots. The plots are locally named with their former owner as reference, e.g. Rafael Herrera (two plots/*globos* in phase II), Juan Castillo (four plots in phase I). The land is owned by the PP so the project is not considered as a grouped project.

Phase I total area is 320 hectares while Phase II total area is 480 hectares which is equivalent to 60% of the total of the project, 800 hectares. The audit team understood from the field visit that a minimum part of the total proposed area of the project is under current control due to some problems to legalize the lands. However, after the field visit the PP submitted new information which lead to understand that although not all the lands are already titled, are now under clear control of the PP.

In section 1.5.4 of the PD an accurate description of the project zone´s elevation, climate, soils, hydrography, ecosystems and endangered species is provided. Maps are also provided. This was confirmed by the auditors through observations and comparison to published information on the region.

During the audit, the auditors were able to visit one farm with around one hectare already planted (Finca Juan Castillo), and other places where the PP was planning to implement the reforestation project. GPS points were taken at a sample of these and compared to the polygons defined on the project´s GIS system. One of the farms appeared to be incorrectly located, after the field visit these errors were corrected, but the audit team had not the opportunity to verify it.

Instead, an eligibility check was conducted on ten plots by attempting to trace their eligibility from the PD coordinates and the GIS database. During this check at least four of the plots partially appeared in land sat image 2008 under the category of "Secondary Forest (scrub)". The definition of secondary forest was provided by the PP, and also a clear justification about why these areas are eligible following the "Procedures to demonstrate the eligibility of lands for afforestation and reforestation CDM project activities".

Finally, although the file type is not specified in the VCS documentation, or on the VCS website, the VCS requires that KML files of the project areas are submitted at the time of validation (personal communication, VCS). These files, for the correct areas, have not yet been provided.

NCR 01/11

Conformance	Yes ☐	No ☒	N/A ☐
NCR/OBS	**NCR 01/11**		

4.4 Technology used

Findings from the assessment dated 07 July 2011

The Project intends to plant a less known species in Panama and in the tropics. The vegetative material (clonal seedlings) will be produced in its own nursery laboratory, already built in one of the farms (Finca Juan Castillo). Combined with experience of planting another species in Costa Rica for example (teak), SCG and its partner Ecomanagement Services controls the risks associated with mortality through research in their own plantations of Paulownia, and also SCG is a member of the World Paulownia Institute (www.worldpaulownia.com) from where the project is supported with technical and scientific information regarding the growth of the species. SCG and partners demonstrated the technical capacity to develop Paulownia tree

plantations in Panama.

In addition, the PP developed a Reforestation Plan specifically to establish the general guidelines to manage the plantations in the long term.

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

4.5 Project duration, crediting time and project start date

Findings from the assessment dated 07 July 2011

In Section 1.6 of the PD it is stated that the project start date is May 2011, the crediting period start date is May 2011, and finally that a forty year crediting period will be used for this project.

According to the reforestation plan and PD, during the crediting time the reforestation will be harvested in short cycles during the first 20 years, then the 800 hectares of the project will be allowed to grow freely, allowing the reforestation to continue removing GHG from the atmosphere the next 20 years.

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

4.6 Ownership/Proof of Title/Right of Use

Findings from the assessment dated 07 July 2011

The audit team interviewed a lawyer consultant firm hired by the PP. During the meeting it was explained that the PP prefers to buy the land and then start planting the trees. However, it was also explained that due to the paper work some of the lands are still under some of the following category: rights of use, possessory rights, other. In this case, the PP continues negotiating the land with the owner.

After the field visit, the PP submitted an updated list of lands. By June 2011 the total lands the PP owns as private property is 720.74 hectares (n = 17 plots, equivalent to 70% of the land) and the other 30% corresponds with 5 plots, equivalent to 315.29 hectares are under rights of possession. Contracts were signed by the parties in the case of rights of possession where it is established that SCG Panama will be the owner of the lands, right after the paper work is finished.

Comparing both dates, in February when the field visit happened, only around 530 hectares belonged to the PP, by June the total land is under control of the PP, including the land under rights of possession.

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

4.7 Double counting and whether the project participated in another emission trading programme

Findings from the assessment dated 07 July 2011

In section 1.13 of the PD it is stated that "The project is not seeking to generate any other environmental credits other than carbon credits associated with the VCS". This was confirmed by the ANAM representatives, saying that there has not been other project registered under voluntary market or under CDM in Panama. The audit team considers there is no risk of double counting.

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

4.8 Project applicability to the VCS for projects rejected under other GHG programme (if applicable)

Findings from the assessment dated 07 July 2011

The PP stated that the project had not been rejected under any other GHG program. It is not listed on the CDM´s website of rejected projects: http://cdm.unfccc.int/Projects/rejected.html.

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

4.9 Whether the project is eligible under the VCS

Findings from the assessment dated 07 July 2011

The Project is a tree planting project that falls within the VCSs ARR category.

The selected methodology (AR-AM0005 version 4) states that the PP shall apply the latest version of the tool "Procedures to demonstrate the eligibility of lands for afforestation and reforestation CDM project activities". In this context, in Section 1.16.2 the PP assesses the eligibility of the land, in summary the results step by step are:

1.a.i. The forest national thresholds are used: pre project land use is either cattle grazing activities of fallows (called locally "barbecho"), as a result the area do not meet all the thresholds. Maps are shown in the PD where it is clear that the areas were deforested from 1984 to 2008. Around 4 out of 22 plots (small farms) presents vegetation categorized as "secondary forest (scrub)" but according to the definition, the audit team considers this areas eligible.

1.a.ii. Few shrubs or trees could occasionally reach the threshold of height, but do not meet the 30% of cover.

1.a.iii. The predominant use of the land has been pastures (Paja canalera - *Saccharum spontaneum*)

1.b.i. Through maps of land use in 1984, 1992, 2000 and 2008 it is demonstrated that the forest was mostly cleared before 1990, and only some area presented secondary vegetation.

1.b.ii. Not applicable, since the project corresponds to an reforestation project.

2. Aerial photographs and satellite images were used to demonstrate steps 1.a and 1b.

The PP also did various analyses through GIS system to subtract areas greater than 45% of slope, and those plots classed as forest as well as high shrub. In this context, the total area diminished from 1043.77 hectares to only 800 hectares. Every step was represented with a map showing the non eligible area due first to % of slope, and then due to de forest cover. However, the audit team identified the lack of a unique map of a plot (farm) considering both criteria combined, this could lead to some errors. Consider as an example the following plot:

Name of Plot: Ovidio Gonzáles, four plots
Total Area: 102.537 hectares (also this area is different in two parts in the PD)
Area with more than 45% of slope: 2.595 hectares
Area with forest: 11.202 hectares
Total area already discounted: 88.74 hectares, which would correspond to the eligible VCS land

In this case, the errors detected might be the definition of forest: while the PD states that "*Areas classed as forest as well as high shrub were neglected, so only those areas classed as low shrub or grassland were considered for the project.*", the categories in tables are different than the categories used in the maps (e.g. in the maps, the category shrub does not exist, instead does exist the category fallow, and vice versa). Considering that only 40% of the total land (320 hectares) will be reforested this year, these errors can be reflected in the fields as inconsistencies at the moment of planting trees.

NCR 02/11

The national DNA's definition of a forest has been recorded correctly in the PD[1].

In addition, the VCS has an eligibility rule applicable to ARR projects. VCS 2007.1, section 3.4 specifically states that,

"*AFOLU projects that convert native ecosystems to generate carbon credits are not eligible under the VCS. Documented evidence shall be provided in the VCS PD that no ARR or ALM project areas were cleared of native ecosystems within the ten year period prior to the proposed Project Start Date.*"

The Landsat images above date back far enough (to 1984) to ensure that no forest was present on the land parcels 10 years prior to the start data of 2011.

Conformance	Yes ☐	No ☒	N/A ☐
NCR/OBS	**NCR 02/11**		

4.10 Chronological plan for project initiation and monitoring

Findings from the assessment dated 07 July 2011
VCS 2007.1 (section 5.7) states that VCS PD must contain, "*a chronological plan for the date of initiating project activities, date of terminating the project, frequency of monitoring and reporting and the project period, including relevant project activities in each step of the GHG project cycle.*" (p.15) The PD contains the required information and this was well understood by project staff.

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[1] http://cdm.unfccc.int/DNA/index.html

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

4.11 Roles and responsibilities

Findings from the assessment dated 07 July 2011
In Section 1.15 of the PD, SCG Panama is mentioned as the Project Proponent. No responsibilities are described. Also, during the field visit it was explained that CATHALAC will be part of the project, it was not defined if as another PP or only as a participant. Same case with the forest service provider, Ecomanagement Services. **NCR 03/11**

Conformance	Yes ☐	No ☒	N/A ☐
NCR/OBS	**NCR 03/11**		

4.12 Observation of local laws and regulations

Findings from the assessment dated 07 July 2011
In Section 1.10 of the PD the legal framework is explained in which the project is immersed. Stakeholders ratified that the project has been following the legal steps in order to get the approbation of the environmental impact analysis and other studies required by law. The PP hired a specialist in this topic; the audit team considers the implementation of the project met all the legal requirements of the country.

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

5   Baseline

The conclusions regarding (as required by VCS 2007.1, Section 5.7 PD requirements)*:*
- *Conditions prior to project initiation*

The conclusions regarding (as required by VCS 2007 Validation Template, Section 3.2)*:*
- *Correct application and justification of selected baseline methodology,*
- *Approval of the baseline methodology,*
- *Application of methodology deviations or revisions (if applicable),*
- *Conformance with methodology applicability conditions (added by Rainforest Alliance to aid reporting clarity)*
- *Appropriate setting of baseline scenario, and*
- *Assessment and demonstration of additionality should be summarised in this section.*

5.1   Conditions prior to project initiation

Findings from the assessment dated 07 July 2011
In Section 1.7 of the PD, the PP describes the previous land use as croplands and grasslands. These descriptions were consistent with neighboring parcels seen by the auditors.

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

5.2   Approval of the baseline methodology

Findings from the assessment dated 07 July 2011
Section 2.1 of the PD states "The methodology of the baseline and monitoring are based on the approved methodology A/R-AM005 Afforestation and Reforestation Project Activities implemented for industrial and / or commercial-use version 4." This is the current version of the methodology as documented at: http://cdm.unfccc.int/methodologies/DB/QAM97WQWX94URIJXOJMTJFIS8KSE28

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

5.3   Application of methodology deviations or revisions (if applicable)

Findings from the assessment dated 07 July 2011

The PD does not specify if deviations or revisions were used while implementing the methodology to determine the baseline. The audit team observed only one deviation at estimating the emission reductions from below-ground biomass: - In the PD, it is stated "The belowground biomass will include living thin roots >2mm diameter." However, the methodology describes it as "Root-shoot ratio appropriate for biomass increment for species j".				

Conformance	Yes ☐	No ☐	N/A ☒
NCR/OBS	No NCRs or OBS raised.		

5.4 Conformance with methodology applicability conditions

Findings from the assessment dated 07 July 2011
Section 2.2 describes how the project meets the methodology; however the information is not organized based on the methodology which could lead to a misunderstanding or difficulty at tracking the compliance. The boxes below describe the auditors' findings.

OBS 01/11

Applicability Condition	Finding
The conditions under which this methodology is applicable to A/R CDM project activities are: • Land cover within the project boundary is degraded grasslands, which are expected to remain degraded without human intervention or to be partly afforested and/or reforested at a rate observed in the periods prior to the A/R CDM project activity;	During the field visit, the audit team interviewed former owners and some neighbours who ratified that the area has been used for cattle or grassland (pasture) the last 30 to 40 years. It was also mentioned that this land use will be the most likely scenario unless a reforestation project appears. The methodology states "*The latest version of the "Tool for the identification of degraded or degrading lands for consideration in implementing A/R CDM project activities" shall be applied for demonstrating that lands are degraded or degrading.*" However, it is not clear how the PP used this tool when demonstrating that lands are degraded or degrading. **NCR 04/11**
• Encroachment of natural tree vegetation that leads to the establishment of forests according to the host country definition of forest for CDM purposes is not expected to occur;	Stakeholders (ANAM, others) explained the socioeconomic context of the Chepo District which is applicable to other regions in the country, in summary: land owners dedicate the lands to agriculture or cattle during a period of time (regularly five years in a row), then the vegetation is cut down again since it is considered illegal to cut trees older than five years, without a permission from the government. This is considered to be a cultural behaviour, and also an economic matter due to the fact that the land owners´ status increases, so they tend to establish pastures again. Being so, the national threshold level is never achieved. The audit team observed that no natural vegetation was present in any of the lands where the reforestation will be established.
• Soil organic carbon pool may be conservatively neglected in the proposed A/R CDM project activity;	The methodology states "*The latest version of the "Procedure to determine when accounting of the soil organic carbon pool may be conservatively neglected in A/R CDM project activities" shall be applied to demonstrate that the soil organic carbon pool may be conservatively neglected in A/R CDM project activities.*" The soil organic carbon pool has not been considered in the calculations of the project. This was not supported by any evidence or justification. **NCR 04/11**
• Flooding irrigation is not applied in the project activity;	No systems of irrigation are implemented in the project activity
• Roots of the harvested trees shall not be removed from the soil;	Scarce trees are found in the field, but none of them will be removed nor will their roots.

• If at least a part of the project activity is implemented on organic soils, drainage of these soils is not allowed and not more than 10% of their area may be disturbed as result of soil preparation for planting.	The project activity will be implemented on degraded lands, no organic soils are found in the project boundary. This was confirmed by stakeholder consultation. The audit team observed that soil preparation for planting in the farm (Juan Castillo) did not disturb the area more than 10%.

Conformance	Yes ☐	No ☒	N/A ☐
NCR/OBS	**NCR 04/11** **OBS 01/11**		

5.5 Correct application and justification of selected baseline methodology

Findings from the assessment dated 07 July 2011

According to the selected methodology, the PP shall use the most recent version of a tool to identify the baseline. See Section 2. Identification of the baseline scenario and demonstration of additionality:

"PPs shall use the most recent version of the "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities".

In Section 2.4 of the PD, it seems that the PP used another 7-steps tool:

Step 1 Identify and list plausible alternative land uses on the project lands.

Step 2 Map current and historical land use for at least two reference dates

Step 3 Determine land-use change matrices of the strata and the representative vicinities

Step 4 Reality-check of land-use change

Step 5 Derive land-use change trends from the land-use change

Step 6 Extrapolate the observed past trends into the future

Step 7 Estimate baseline net GHG removals by sinks from the baseline scenario

This tool does not correspond with the tool the VCS requires to use.

NCR 05/11

The 4-steps tool is listed below, which correspond with the combined tool.

Baseline Determination Step	Findings
STEP 0. Preliminary screening based on the starting date of the A/R project activity	These steps were not followed by the PP in the PD.
STEP 1. Identification of alternative land use scenarios to the proposed A/R CDM project activity *Sub-step 1a. Identify credible alternative land use scenarios to the proposed CDM project activity*	These steps were not followed by the PP in the PD.
Sub-step 1b. Consistency of credible alternative land use scenarios with enforced mandatory applicable laws and regulations	These steps were not followed by the PP in the PD.
STEP 2. Barrier analysis Sub-step 2a. Identification of barriers that would prevent the implementation of at least one alternative land use scenarios	These steps were not followed by the PP in the PD.
Sub-step 2b. Elimination of land use scenarios that are prevented by the identified barriers	These steps were not followed by the PP in the PD.
Sub-step 2c. Determination of baseline scenario (if allowed by the barrier analysis)	These steps were not followed by the PP in the PD.
STEP 3. Investment analysis (if needed)	These steps were not followed by the PP in the PD.
Sub-step 3a. Determine appropriate analysis method	These steps were not followed by the PP in the PD.
Sub-step 3b. – Option I. Apply simple cost analysis *Sub-step 3b. – Option II. Apply investment comparison analysis*	These steps were not followed by the PP in the PD.

Sub-step 3b. – Option III. Apply benchmark analysis	
Sub-step 3c. Calculation and comparison of financial indicators (only applicable to options II and III):	These steps were not followed by the PP in the PD.
Sub-step 3d. Sensitivity analysis (for Option II and III)	These steps were not followed by the PP in the PD.
STEP 4. Common practice analysis	These steps were not followed by the PP in the PD.

Conformance	Yes ☐	No ☒	N/A ☐
NCR/OBS	**NCR 05/11**		

5.6 Appropriate setting of baseline scenario

Findings from the assessment dated 07 July 2011
The VCS standard has a number of specific requirements for baselines as stated in the VCS Tool for AFOLU Methodological Issues; Step 4. However, none of these apply to the ARR project type. Please see section 2.7 below for findings related to the use of the baseline and additionality tool.

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

5.7 Assessment and demonstration of additionality should be summarised in this section.

Findings from the assessment dated 07 July 2011
The VCS 2007.1 clearly states: 5.8. Additionality "In addition to using a VCS Program approved methodology; the project proponent shall demonstrate that the project is additional using one of the following tests". Test 1 – The project test, Test 2 – Implementation barriers, and Test 3 – Performance test. The selected methodology also clearly states the following: **1. Project boundary and eligibility of land** *PPs shall apply the latest version of the tool "Procedures to demonstrate the eligibility of lands for afforestation and reforestation CDM project activities" as approved by the Executive Board."* **2. Identification of the baseline scenario and demonstration of additionality** *PPs shall use the most recent version of the "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities".* In section 2.5 of the PD, the PP also states that "In accordance with the applied A/R CDM methodology, this is carried out by applying the "Tool for the demonstration and assessment of additionality in A/R CDM project activities" in its latest version". However, the PD uses the next steps which do not correspond with the procedures or tool mentioned above: Step 0 Preliminary screening Step 1 Identification of alternatives to the A/R project activity consistent with the current laws and regulations Sub Step 1.a: Define alternatives to the project activity. Sub Step 1.b Enforcement of applicable laws and regulations Sub Step 1.c: Selection of the baseline scenario Step 3 Barrier analysis Sun Step 3.a: Identify barriers that would prevent the implementation of type of the proposed project activity Sub Step 3b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity) Step 4 Impact of VCS registration **NCR 06/11**

Conformance	Yes ☐	No ☒	N/A ☐
NCR/OBS	**CAR 06/11**		

6 Monitoring Plan

The conclusions regarding (as required by VCS 2007 Validation Template, Section 3.3)*:*

- *Approval of the monitoring methodology,*
- *Correct application and justification of selected monitoring methodology, and*
- *Whether the monitoring plan provides detailed information related to the collection and archiving of all relevant data needed to:*
  - *Estimate or measure emissions occurring from GHG sources, sinks and reservoirs*
  - *Determine the baseline emissions*
  - *Estimate changes in emissions from the site should be summarised in this section.*

The conclusions regarding conformance with VCS specific criterion relating to monitoring (VCS 2007.1 section 5.11 and Tool for AFOLU Methodological Issues).

6.1 Approval of the monitoring methodology

Findings from the assessment dated 07 July 2011			
Section 3.1. of the PD states that the project uses "Afforestation and reforestation project activities implemented for industrial and/or commercial uses" *AR-AMS0005.*			
Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

6.2 Correct application and justification of selected monitoring methodology

Findings from the assessment dated 07 July 2011
Section 3 of the PD describes the monitoring activities that will be undertaken. Overall, the monitoring plan was found to be adequate. However, the section does not make clear links back to the methodologies steps or equations. This could cause difficulties when it comes to verification and the Proponents are required to show how their monitoring results and execution of ex-post calculations have complied with the methodology.
OBS 02/11
The PD states that SCG Panama and CATHALAC will implement all of the monitoring aspects of the project as it is required by VCS 2007.1 and the selected methodology. The audit team interviewed CATHALAC staff who did a demonstration about the Tropicarms 2.0 platform that will be used for the project´s implementation. It was explained that this platform requires a combination of both remote sensing and field work, in order to get detailed and accurate information.

Step in Monitoring Methodology	Findings
1. Monitoring of Project Implementation Information shall be provided, and recorded in the project design document (PD), to establish that: (a) The geographic position of the project boundary is recorded for all areas of land: (i) The geographic coordinates of the project boundary (and any stratification inside the boundary) are established, recorded and archived. This can be achieved by field survey (e.g., using GPS), or by using georeferenced spatial data (e.g., maps, GIS datasets, orthorectified aerial photography or georeferenced remote sensing images).	According to the explanation of CATHALAC, the audit team agrees that the Tropicarms 2.0 platform is designed for monitoring the establishment and management of the project´s forest areas. Using this platform, the PP will have accurate information regarding the project boundary (geographic position and coordinates).
(b) Commonly accepted principles of forest inventory and management are implemented: (i) Standard operating procedures (SOPs) and quality control/quality assurance (QA/QC) procedures for forest inventory including field data collection and data management shall be applied. Use or adaptation of SOPs already applied in national forest monitoring, or available from published handbooks, or from the *IPCC GPG LULUCF 2003*, is recommended;	Section 3.2.3 of the PD describes the SOPs and QA/QC procedures. As it is stated and ratified by the audit team, the project will be monitored by a combination of field measurements and remote sensing analysis and modelling the removal of GHGs. Since during the field visit the plantation was not fully established, the audit team could not have the opportunity to visit the field plots that are planned in the PD, but could discuss general and specific parameters of the forest inventory and the management plan.

(ii) Apply SOPs, especially, for actions likely to minimize soil erosion in those circumstances in which site preparation or planting involves soil disturbance capable to increase soil erosion above the baseline value;	The PD mentions that some variables related with soil will be monitored, but no SOPs are designed, or a clarification about why the PP assumes it is not necessary to apply the procedures. **NCR 07/11**
(iii) The forest planting and management plan, together with a record of the plan as actually implemented during the project shall be available for validation or verification, as appropriate.	According to ANAM representatives, the forest management plan (Plan de reforestación y manejo forestal) was presented and approved due to the fact that it is in compliance with the minimum legal and technical requirements. It was submitted by Eco Management Inc who will be the responsible of implementing the management guidelines. A copy of the forest management was shared with the audit team.
2. Sampling design and stratification *2.1 Updating of strata* The *ex post* stratification shall be updated because of the following reasons: • Unexpected disturbances occurring during the crediting period (e.g., due to fire, pests or disease outbreaks), affecting differently various parts of an originally homogeneous stratum; • Forest management activities (cleaning, planting, thinning, harvesting, coppicing, rereplanting) that are implemented in a way that affects the existing stratification.	The monitoring plan is basically based on Pearson et al. In this regards, the following procedures will be implemented: - Definition of project coverage area; - Stratification of the project area; - Decision on the deposits of carbon that have to be measured; - Decision of which type and number of the sample plots of land that will be used; - Decision on the frequency of measurements. The stratification will include the implementation of preliminary stratification, pre-stratification and also post stratification procedures. The decision will be taken based upon the actual conditions.
2.2 Sampling framework	The PD mentions the process for sampling design and the forest inventory intensity, also the size and distribution of the plots (15 plots representing one of the five cycles of the plantation project). There is basic information which can lead the PP to meet some statistic parameters, but this information was not presented based on the following methodology requirements: "To determine the sample size and allocation among strata, this methodology uses the latest version of the tool for the "Calculation of the number of sample plots for measurements within A/R CDM project activities", approved by the CDM Executive Board. The targeted precision level for biomass estimation within each stratum is ± 10% of the mean at a 90% confidence level." **NCR 08/11**
3. Data and parameters monitored	The monitoring plan is probably one of strengthens of the project, mainly in selecting the data and parameters monitored. In the PD, the PP has define more than 100 different parameters to monitor, among them, the data and parameters included in the selected methodology (pag 31). The specific use of DBH (cm) and H (m) of the trees are considered to be used in equations 12, 21, 29, and 30, referenced in the methodology. See more details of this in section 4.2 of this report below.
4. Conservative Approach and Uncertainties	In section 3.4.1 of the PD, the PP slightly mentions some

		provisions to undertake the uncertainties during the implementation of the monitoring plan. However, the audit team considers it is necessary that the PD clearly explains how the project will deal with the conservative approach and uncertainties section of the selected methodology. **NCR 09/11**	
Conformance	Yes ☐	No ☒	N/A ☐
NCR/OBS	**OBS 02/11** **NCR 07/11** **NCR 08/11** **NCR 09/11**		

6.3 Conformance with VCS specific criterion relating to monitoring (VCS 2007.1 section 5.11 and Tool for AFOLU Methodological Issues Step 6)

Findings from the assessment dated 07 July 2011
From VCS 2007.1 Section 5.11: The project proponent shall establish and maintain criteria and procedures for obtaining, recording, compiling and analysing data and information important for quantifying and reporting GHG emissions and/or removals relevant for the project and baseline scenario (i.e. GHG information system). Monitoring procedures should include the following:

VCS Required Monitoring Procedures	Findings
Purpose of monitoring	The purpose of the monitoring is not explicitly stated; however, it can be derived from the monitoring plan considering all the variables and specifications: to quantify the above-ground & below-ground biomass and monitor leakage.
Types of data and information to be reported - including units of measurement	The types of data and information, frequency, variables, units of measurement are specified in Tables 9, 10, 13, 14, 15, and 16 of the PD. The audit team discussed the content of these tables with CATHALAC.
Monitoring methodologies, including estimation, modelling, measurement or calculation approaches	The audit team confirmed that the PP along with CATHALAC as the primary responsible entity that will be in charge of implementing the monitoring plan, estimations, modelling, measurements, analysis and interpretation of the results.
Monitoring times and periods, considering the needs of intended users	The monitoring time will last at least the first 20 years, which corresponds with the cutting period. Within this time, it is established different frequency of monitoring depending of the nature of the variable, e.g. number of trees (annually), DBH (annually), number of fires (monthly), plot locations (every 10 years). In the PD it is not determined yet who the responsible will be to implement the monitoring plan from January 2032 to December 2051.
Monitoring roles and responsibilities	The responsibilities for the monitoring are explained in section 3.2.1. of the PD.
GHG information management systems, including the location and retention of stored data	See section 3.2.3 of the PD.
Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

6.4 Whether the monitoring plan provides detailed information related to the collection and archiving of all relevant data

Findings from the assessment dated 07 July 2011
In Section 3.2.3.5 of the PD, there are specific procedures to keep files including administrative files and technical files. It is stated "*Due to the project´s overall 40-year time frame, electronic copies of data and reports will be periodically updated or converted to newer file formats*".
During the interview it was stated that an electronic copy and a hard copy of the results will be archived in CATHALAC offices. Regarding the time, it is not clear if these results will be archived as it is recommended by the methodology: "All data collected as part of monitoring should be archived electronically and be kept at least for 2 years after the end of the last crediting period."

			OBS 03/11
Conformance	Yes ⊠	No ☐	N/A ☐
NCR/OBS	**OBS 03/11**		

7 Calculation of GHG Emissions

The conclusions regarding (as required by VCS 2007 Validation Template, Section 3.4)*:*

- *The appropriateness of the source, sink and reservoir (pools),*
- *The correctness and transparency of formulas and factors used,*
- *The assumptions made for estimating GHG emission reductions, and*
- *Uncertainties should be summarised in this section.*

7.1 The appropriateness of the source, sink and reservoir (pools)

Findings from the assessment dated 07 July 2011

In section 3.4.1.3 of the PD, the PP specifies "according to the LULUCF GBP there are five types of carbon deposits that <u>can</u> be measured": living biomass (biomass above ground and belowground biomass), dead organic matter (dead organic matter and litter), soils (organic matter from soils). Regarding the sinks, it is stated "the decision on which carbon sink to measure will depend on cost-effective to perform the sampling, in accordance with the requirements of the market where it intends to negotiate the project."

Sources and sinks are considered in the monitoring plan specifically when the PP will monitor leakage and the implementation of the project.

Based on the information below, the audit team find that:

    a) It is not explicitly stated which sources, sinks and pools will be estimated during the crediting period.

    b) The statement "the decision on which carbon sink to measure will depend on cost-effective..." can be considered as a deviation.

OBS 04/11

Conformance	Yes ⊠	No ☐	N/A ☐
NCR/OBS	**OBS 04/11**		

7.2 The correctness and transparency of formulas and factors used

Findings from the assessment dated 07 July 2011

Different calculation spreadsheets were reviewed by the audit team. At last, the spreadsheet named "Copia corregido Calculos de Carbon en 800 Has peso total 160 Has june 30th 11.xls" shows the final carbon calculations. In Section 4.4. of the PD, the PP shows different results due to the fact that the final spreadsheet was submitted after the validation visit.

NCR 10/11

Formulas and factors were correctly used in the calculations.

Conformance	Yes ☐	No ⊠	N/A ☐
NCR/OBS	**NCR 10/11**		

7.3 Calculation of emissions in the baseline scenario (ex-ante estimate)

Findings from the assessment dated 07 July 2011

Baseline calculations were not submitted to the audit team, only the results as:

Phase I baseline estimation: 19638 tons (not specified if tCO_{2e} or only tC)

Phase II baseline estimation: 18055 tons (not specified if $t\ CO_{2e}$ or only tC)

According to the PD, it appears to be a "baseline report" but it was not presented either. However a total was estimated as "37693 t CO_{2e} was found in the 800 ha for the year 2008, which gives an average of 47.12 tons of CO_{2e} per hectare, mainly from intervened forest, pasture lands and scrubs."

The PP has not clearly demonstrated that the methodology was followed step by step.

NCR 11/11

Conformance	Yes ☐	No ⊠	N/A ☐

NCR/OBS	**NCR 11/11**

7.4 Calculation of emissions from project activities (ex-ante estimate)

Findings from the assessment dated 07 July 2011			
The methodology does not require the calculation of emissions from project activities.			
Conformance	Yes ☐	No ☐	N/A ☒
NCR/OBS	No NCRs or OBS raised.		

7.5 Calculation of emissions reductions or avoided emissions due to the project (ex-ante estimate)

indings from Review on 23 March 2011

Section 5 of the methodology contains the steps for the ex-ante estimate of project removals by sinks. The findings are presented in the boxes below. Section 4.4 of the PD contains the ex-ante estimates. The spreadsheet "Copia corregido Calculos de Carbon en 800 Has peso total 160 Has june 30th 11" documents the ex-ante calculations.

In general the PP did not follow the steps of the methodology for how to make an ex-ante estimate of the reductions or avoided emissions due to the project.

The ex-ante projections do include thinning based on the technical schedule defined in the forest management plan.

NCR 12/11

Methodology Step	Findings
5.1 Estimation of changes in the carbon stocks The verifiable changes in the carbon stock in tree above-ground biomass and below-ground biomass, litter and soil organic carbon within the project boundary are estimated using the following approach: Equation 15 of the methodology (p11).	In the spreadsheet or in the PD, the long-term average applicable for the crediting period is not estimated. This is a VCS requirement for all kinds of projects involving harvests during the crediting period, in order to calculate the maximum number of credits issued. **NCR 13/11**
5.1.1 Tree Biomass The mean carbon stock in above-ground and below-ground biomass per unit area is estimated on the basis of field measurements in permanent sample plots. Two methods are available:	The basis of the calculations in the spreadsheet is technical information provided by The Paulownia Institute (TPI) not from field measurements in permanent plots, due to the fact that the plantations have not been established by the date of the validation visit (start date is May 2011). The PP explains that once they monitoring plan is implemented, the calculations will be based on their own PSP system. DBH and H data are considered to be too high for an A/R typical project, e.g. dbh at year 1, 14 cm and height of 6.93 m, which means 26 tons per hectare; however, the PP estimates bigger growth of the species. This is considered by the audit team as acceptable at this time, but it should be noted that the growth rates and final biomass estimates are exceptionally high and will thus need careful consideration at verification. **OBS 05/11**
Allometric method:	It is not explicitly stated in the PD which method the PP is using, but it can be derived that it was not the BEF method, but the Allometric method, see below the findings:
Step 1 (from BEF method): Determine on the basis of available data, e.g., volume tables (*ex ante*) and measurements (*ex post*), the diameter at breast height (*DBH,* at typically 1.3 m above-ground level), and also preferably height (*H*), of all the trees above some minimum *DBH* in the permanent sample plots.	The calculations are based on average data of DBH and H from TPI. In the spreadsheets a range of data were used, from age/dbh/h of 1/14/6.93 to 26/96/32.
Step 2: Select or develop an appropriate allometric equation (if possible species-specific, or if not from a similar species) - see Section II.8 for additional guidance.	The following allometric equations were selected by the PP. These were provided by The Paulownia Institute (TPI): LgWs = 0.9234LgD2H - 1.7713 (r = 0.9980) LgWL = 0.7945LgD2h - 1.8580 (r = 0.9930)

	LgW = 0. 8925LgD2H - 1.2409 (r = 0.9982) here Ws = weight of trunk WL = weight of leaves W = weight of whole plant
Step 3: Estimate carbon stock in above-ground biomass for each individual tree *l* of species *j* in the sample plot located in stratum *i* using the selected or developed allometric equation applied to the tree dimensions determined in Step 1, and sum the carbon stocks in the sample plot: Eq 21 (pag 14)	By the time of the field visit, only around one hectare of land had been reforested. The start date of the project is May 2011, when the PP intends to plant the first 320 ha, then on May 2012, the other 480 hectares. To estimate the carbon stocks onsite, the PP used the allometric equation as follows: LgW (weight of whole plant) x 0.495 (carbon fraction) x 3.67 (44/12), then the results were extrapolated to the whole plantations using 750 trees per hectare and 800 hectare. No plots were used.
Step 4: Convert the carbon stock in above-ground biomass to the carbon stock in below-ground biomass via root-shoot ratio:	Below-ground biomass was not estimated in the calculations, but it is considered in the monitoring plan as "The belowground biomass will include living thin roots >2mm diameter." However, the methodology describes it as "Root-shoot ratio appropriate for biomass increment for species j". As such, the audit team considers this as a deviation from the methodology. **NCR 14/11**
Step 5: Calculate total carbon stock in the biomass of all trees present in the sample plot *sp* in stratum *i* at year *t*:	Estimation of the total carbon stock was not done considering sample plots or stratum. However, these two variables are considered in the monitoring plan for future estimations.
Step 6: Calculate the mean carbon stock in tree biomass for each stratum, as per equation (20) - i.e., Step 7 of the *BEF* method.	At this moment, the estimation of the mean carbon stock in tree biomass was done considering the whole plantation.
5.1.2 Increase in CO_2 emissions from removal (including burning) of the pre-project woody biomass. 5.1.2.1 Case 1: Method 1 (Carbon gain-loss method) is used to estimate the baseline net GHG removals by sinks 5.1.2.2 Case 2: Method 2 (stock change method) is used to estimate the baseline net GHG removals by sinks	During the validation visit, the audit team did not see standing trees in the visited lands. However, the PD estimates the biomass of three kind of vegetation, still standing in the lands: intervened forest, pasture and scrub. However, the estimations were not submitted to the audit team, so it is considered that the PP did not use any of the cases. **NCR 15/11**
5.2 Estimation of increase in non-CO2 GHG emissions within the project boundary 5.2.1 Burning of pre-project trees in preparation for the initial planting 5.2.2 Use of fire as a part of the forest management	According to the forest management plan the use of fire is not an option.

Conformance	Yes ☐		No ☒	N/A ☐
CAR/OBS	**OBS 05/11** **NCR 12/11** **NCR 13/11** **NCR 14/11** **NCR 15/11**			

7.6 Calculation of emissions from leakage (ex-ante estimate)

Findings from the assessment dated 07 July 2011
According to the selected methodology (section 6. Leakage), the PP shall use the equation 33 to estimate the leakage. This is because the displacement of grazing activities to areas outside the project may occur under the project scenario. Two of the variables to measure at implementing the monitoring plan are the "Average leakage from conversion of non-

grassland to grassland per displaced animals in NGL areas" (where NGL meaning is unknown).

Actually in the monitoring plan the PP has defined that many more variables will be monitored, but not related with the displacement of grazing; instead, related with fuel consumption, vehicle activities, which is not required to be monitored by the methodology.

NCR 15/11

Conformance	Yes ☐	No ☒	N/A ☐
NCR/OBS	**NCR 15/11**		

7.7 Calculation of net VCUs to be issued (ex-ante estimate)

Findings from the assessment dated 07 July 2011
The VCS guidelines do not state specifically that the number of VCUs to be issued must be estimated. However, it does state,   "The (ex-ante) determination and quantification of the baseline and project scenario, including the leakage assessment shall follow either relevant IPCC 2006 Guidelines (GL) for AFOLU, or approved CDM or VCS methodologies. An ex-ante calculation of the net carbon benefits of the project is only required to determine whether decreases in carbon pools or increases in GHG emissions are insignificant and need not be measured and monitored."   The PD does not contain an estimate of the VCUs that will be issued.   Since the CDM calculates credits in a different way to VCS (CDM issues temporary credits and has no buffer), it would benefit the project to calculate VCUs now in order to demonstrate the VCS system for credit calculation   **OBS 06/11**   It should be also noted that the procedure clearly explains that the buffer percentage shall be multiplied by net GHG credits, meaning the project proponent cannot subtract leakage before applying the buffer percentage.

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	**OBS 06/11**		

7.8 The assumptions made for estimating GHG emission reductions

Findings from the assessment dated 07 July 2011

In the PD or the spreadsheets where the carbon calculations are shown, it is not explicitly stated which assumptions were taken for estimating emissions/removals. However, the audit team identified the following assumptions:
     a) The growth rate of the plantation of the same variety of Paulownia. DBH and H were taken from published source (Final Technical report of Paulownia project –Phase II, called the Paulownia "bible").
     b) The plantations density is the same, 750 trees per hectare during the crediting period. This will be guaranteed because the PP has its own nursery in one of the farms, so any dead tree will be replaced immediately no matter the difference of age among the trees.
     c) An allometric equation is used for all the species.
 	
 It was concluded that the assumptions were not transparently documented in the PD (although it was possible to determine the assumptions by looking through the excel sheets). The assumptions were taken from a technical report of Paulownia project, dated July 1990. According to the PP, only The World Paulownia Institute (WPI) has developed experience of the species, but once the permanent plots of the PP has reached important results, the carbon stock estimations will be based on that.
 	
 OBS 07/11

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	**OBS 08/11**		

7.9 Uncertainties

Findings from the assessment dated 07 July 2011
The selected methodology requires the project developer to evaluate the conservative approach and uncertainties. In the PD there are some references to uncertainty but does not follow the methodology requirements.   **NCR 16/11**

Conformance	Yes ☐	No ☒	N/A ☐
NCR/OBS	**NCR 16/11**		

8 Environmental Impact

The conclusions regarding (as required by VCS 2007 Validation Template, Section 3.5)*:*
- *Requirements for and approval of an Environmental Impact Assessment (if applicable)*
- *The sufficient documentation of environmental impact should be summarised in this section.*

8.1   Requirements for and approval of an Environmental Impact Assessment (if applicable)

Findings from the assessment dated 07 July 2011			
In order to comply with national regulation, the PP shall develop an environmental impact assessment. During the field visit, the audit team interviewed ANAM representatives. As the authority in Panama, ANAM has received and approved the EIA under the Resolution No. IA-458-2010. The resolution states: Artículo 1: APROBAR el Estudio de Impacto Ambiental, Categoría I, del Proyecto denominado "PRINCESS PROJECT, REFORESTACION COMERCIAL CON PAULOWNIA ELONGATA PARA CAPTURA DE CARBONO", con todas las medidas de mitigación, contempladas en el referido Estudio, que son de forzoso cumplimiento. El proyecto de reforestación consiste en el establecimiento de 800 hectáreas netas con la especie Paulownia elongata, considerando aprovechar los beneficios que genera la venta de los certificados de reducción de emisiones por la reforestación, contribuyendo a la mitigación de los efectos del calentamiento global… Este proyecto se realizará en la localidad de Tres Quebradas, Corregimiento de El Llano, Distrito de Chepo, Provincia de Panamá, República de Panamá. The audit team also had the opportunity to review the EIA document and discuss with the PP, mainly with the consultant hired specifically for environmental topics.			
Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

9   Comments by stakeholders

The conclusions regarding (as required by VCS 2007 Validation Template, Section 3.6)*:*

Findings from the assessment dated 07 July 2011			

As part of the environmental impact assessment, the PP implemented a survey with the purpose of collecting first-hand information as well as to make a bibliography investigation for the secondary sources analysis. As stated in the PD, the combination of both sources and the analysis allowed the PP to gain a wide understanding of the social required to achieve the objectives of the project.
 The audit team reviewed a summary of the results and responses from 24 inhabitants to questions such as:
   a) Do you believe that operation activities of this Project will contribute to create job opportunities among members of this community.
   b) Do you believe that this project could generate positive or negative impacts to the nature.
 	
 One of the recommendations of the survey was to elaborate manuals and didactic materials, for on-going communication.			

Conformance	Yes ☒	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

10 Negative environmental and socio-economic impacts of the project

The conclusions regarding (as required by VCS 2007.1 section 3.4):AFOLU projects potential negative environmental and socio-economic impacts and mitigation steps prior to generating Voluntary Carbon Units (VCUs).

Findings from the assessment dated 07 July 2011			
The environmental impact assessment also dealt with the potential impacts on potential negative environmental and socio-economic impacts, and mitigation steps.			
Conformance	Yes ⊠	No ☐	N/A ☐
NCR/OBS	No NCRs or OBS raised.		

11 Risk factors applicable to all project types

Note: Risk factors are determined through a qualitative analysis conducted, following the guidance of the VCS Tool for Non-Permanence Risk Analysis and Buffer Determination, combined with the 13 April 2010 VCS Program Update. Evidence supporting the qualitative assessment must be provided by the project proponent.

Risk Factor	Self Assessment Risk Rating	Findings	NCR/OBS
Risk of unclear land tenure and potential for disputes	Low	It is been a policy of the company to buy only lands with no current or potential disputes. As of the validation visit date, the lands were involved in paper work but the attorney of the PP assured through legal documentation, that the process of title would finish before the Project start date. After the validation visit, the project attorney sent an updated list where the audit team ratifies that almost all the land belongs now to the PP, and another lands are under right of possession, but it does not implies unclear land tenure or potential disputes.	No NCRs or OBS raised.
Risk of financial failure	Medium	The audit team reviewed the financial analysis submitted by the PP as evidence. Although it is demonstrated that financial indicators (VPN, IRR, Cost-benefit analysis), are expected to be acceptable, the reforestation project is subject to future income from the sale of VCU as well as commercial timber. However, after estimating the maximum credits through the long-term average, the audit team considers there is a medium risk of financial failure.	No NCRs or OBS raised.
Risk of technical failure	Low	SCG Panama has been registered as a reforestation company in October 2009 through the Resolution No. SAG-003-2009. According to staff and employees, the company has been developing reforestation projects even before 2009, in Panama and Costa Rica. The project is also supported with local consultants, organizations (CATHALAC, TPI) and experts in climate change.	No NCRs or OBS raised.

Risk of management failure	Low	See previous findings.	No NCRs or OBS raised.
Risk of rising land opp. costs causing reversal of sequestration/protection	Low	The low productivity of the lands makes them not attractive to develop other project than a reforestation project. Rising land opportunity costs is not an option, also ratified by local representatives, such as the major of El Llano.	No NCRs or OBS raised.
Risk of political instability	Low	Panama holds a strong political stability in the region. According to interviews, the audit team determined that the political relationship between local institutions and the Project do not represent a risk of instability for the Project itself. The auditors agree that a low rating is acceptable.	No NCRs or OBS raised.
Risk of social instability	Low	The audit team determined that there is poor level of the small landowners, but this does not represent a risk; project participants use marginal areas to implement the project. The auditors agree that a low rating is acceptable.	No NCRs or OBS raised.
Risk of devastating fire	Low	It might be a potential level of fire in the area mainly due to the presence of pasture, however the historic statistics demonstrates the low risk of fires in El Llano. Also, the species planted is considered to be a fired resistant species.	No NCRs or OBS raised.
Risk of pest and disease attacks	Low	Paulownia species has no natural enemies or depredators. The main disease of Paulownia species is known witches broom in its natural environmental. Being a non-native species in Panama, the disease is not presented. Also, the selective breeding of trees has permitted to conceive resistance.	No NCRs or OBS raised.
Risk of extreme weather events (e.g. floods, drought, winds)	Low	The region of the project has no extreme weather events/impacts history.	No NCRs or OBS raised.
Geological risk (e.g. volcanoes, earthquakes, landslides)	Low	The project is not located in a geological risk area.	No NCRs or OBS raised.
Summary of findings and assessment of risk rating The auditors agreed with the rating and defence provided by the Project Proponent.			
NCR/OBS	No NCRs or OBS raised.		

11.1 Risk factors applicable to ARR projects

Risk Factor	Self Assessment Risk Rating	Findings	NCR/OBS
Project longevity/ Commitment period	Medium	The first 20 years of the Project, the PP will harvest the plantations and sell the wood (furniture), after this period the whole plantation will grow freely, with no harvesting.	No NCRs or OBS raised.
Ownership type and user rights	Low	The land will be owner-operated private land. The rights of selling carbon credits will belong to the PP only.	No NCRs or OBS raised.
Technical capability	Medium	Technologies proven to be effective in other regions under similar conditions, but lacking local experimental results, mainly in regards of the growth rate of the species.	No NCRs or OBS raised.
Financial capacity	Medium	High operative costs in order to start the Project including the nursery facilities, a laboratory, land purchase. Funding is needed for future but it is not secure, unless the credits can be ex-ante sold.	No NCRs or OBS raised.
Management capacity of project developer	Low	SCG Panama alone has no more than five years of experience, but it is compensated with the experience of the strategic partners.	No NCRs or OBS raised.
Future income	Medium	Financial analysis is documented, the results suggests a future financing of management activities. Social costs associated are taken into account. However, the long-term average criteria was not taken into account at estimating the maximum credits of the project during the crediting period. The audit team considers that the financial analysis indicators will be modified significantly.	No NCRs or OBS raised.
Future/current opportunity costs	Low	The project is not competing with other land uses. So, alternative land uses are unlikely to become attractive in the future.	No NCRs or OBS raised.
Endorsement of project	Medium	It is not clear in the PD if the Project will be endorsed to the local communities after the harvesting period.	**NCR 17/11**
Summary of findings and assessment of risk rating The auditors disagree with the rating and defence provided by the Project Proponent.			
NCR/OBS	**NCR 17/11**		

Default buffer withholding percentages for ARR projects

	Rating/Amount	Findings
Self Assessment Risk Class	Medium	The audit team considers that medium was found to be an appropriate risk rating. In the PD it is not clear which risk class is self-determined: "The Default buffer withholding percentages for proposed ARR project according to the tool will fall under 10% to 20% but we do not see that buffer zone should be higher than 20%". The audit team interpret this as a misunderstanding between the two risk classes.

			NCR 18/11
Self Assessment Buffer Withholding Percentage		20%	The audit team considers this project as a medium risk class, then a 40% would be an acceptable deduction.
NCR/OBS	**NCR 18/11**		

APPENDIX B: Organization Details

Contacts

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