JACO CDM

VERIFICATION REPORT

Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin

(Reference number: 0547)

Report No. GR11W0036D
Revision 01

03 October, 2012

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GR11W0036D

Verification Report

Date of first issue: 20 July, 2012	
Approved by: Michio HIRUTA CEO & President, JACO CDM	Project No.: UNFCCC ref. No. 0547
Client: International Bank for Reconstruction and Development (IBRD) as Trustee of the BioCarbon Fund (BioCF)	Client ref.:

Summary:

JACO CDM has performed a verification of the AR CDM project “Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin” (hereinafter the Project). The verification is based on the currently valid documentation of the UN Framework Convention on Climate Change (UNFCCC). In this context, the relevant documents are the "Marrakech Accords" and subsequent decisions by the CDM Executive Board as well as the host country criteria.
The Project Management Unit is responsible for the preparation of the GHG removals data. The reported GHG removals of the Project on the basis set out within the Monitoring Plan indicated in the registered PDD version GIFDCP02 dated 21 July, 2006, comply with the methodology AR-AM0001/ version 02. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG removals from the project is the responsibility of the Project Management Unit.
The verifier assesses that the project is implemented and operated as planned and described in the validated and registered PDD. Established forest being essential for GHG removals is operated reliably and is managed appropriately. The monitoring system is in place and the project is resulting in GHG removals.
The verifier assesses that the monitoring was done in accordance the monitoring plan and the GHG removals in the Monitoring Report/ version 02 dated 23/05/2012 are calculated without material misstatements.
We pointed out 1 CAR and 24 CLs.
Our opinion relates to the project’s GHG removals and resulting GHG removals reported and related to the valid and registered project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement. :
Reporting period: From 01-04-2006 to 31-12-2011
Verified GHG removals in the above reporting period:

Net GHG Removals by sinks:	131,964 tCO_2 equivalents
Carbon stock change in project trees:	138,985.0 tCO2 equivalent
Carbon stock change in project shrub:	−6,962.0 tCO_2 equivalents
Baseline net GHG removals by sinks:	58.9 tCO_2 equivalents
Leakage emissions:	0.0 tCO_2 equivalents

Report No.: GR11W0036D		
Report title: Verification report Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin		
Work carried out by: Teruo FUKUDA, Yukio TAKANO, Eiichiro NAKAMA		
Work verified by: Tokunori MORI, Akihide Madenokoji		
Date of this revision: 03 October, 2012	Rev. No.: 01	Number of pages: 38

Indexing terms

Climate Change
Kyoto Protocol
Clean Development Mechanism
Verification

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Abbreviations

AR	
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CPMO	County Project Management Office
DBH	Diameter Breast Height
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
ER	Emission Reduction
ERPA	Emission Reduction Purchase Agreement
FAR	Forward Action Request
GFIPI	Guangxi Forestry Inventory and Planning Institute
GHG	Green House Gas
GWP	Global Warming Potential
H	Height
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
MP	Monitoring Plan
PDA	Personal Digital Assistant
PDD	Project Design Document
PE	Project Emission
PMO	Project Management Office
PP	Project Participant
PPMO	Provincial Project Management Office
SOP	Standard Operational Procedures
UNFCCC	United Nations Framework Convention for Climate Change
VVM	Validation and Verification Manual
WB	The World Bank

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1. INTRODUCTION

1.1 Objective

The International Bank for Reconstruction and Development (IBRD) as Trustee of the BioCarbon Fund (BioCF) has commissioned an independent verification by JACO CDM., Ltd of its CDM project “Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin” (UNFCCC ref. 0547).

The objective of the verification is to comply with the requirements of paragraph 62 of the CDM modalities and procedures.

This assessment shall:

(a) Ensure that the project activity has been implemented and operated as per the registered PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;

(b) Ensure that the monitoring report and other supporting documents provided are complete in accordance with latest applicable version of the completeness checklist for requests for issuance of CERs and verifiable and in accordance with applicable CDM requirements. The CDM Executive Board provided a standardized format for monitoring report to improve consistency in reporting of the implementation and monitoring of the project activity by project participants;

(c) Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology;

(d) Evaluate the data recorded and stored as per the monitoring methodology.

1.2 Scope

Verification scope of AR project is defined as an independent and objective review and ex post determination by the Designated Operatinal Entity of the monitored GHG removals by sinks. The verification is based on the submitted monitoring report, the validated project design document including its monitoring plan and validation report, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and EB and any other information and references relevant to the project activity’s resulting GHG removals by sinks. These documents are reviewed against Kyoto Protocol requirements, UNFCCC rules, approved methodology AR-AM0001, version 02 and associated interpretations. JACO CDM, based on the recommendations in the Validation and Verification Manual version 01.2, employs a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of CERs. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.

The verification shall consider both quantitative and qualitative information on GHG removals by sinks. Quantitative data comprises the monitoring report submitted to the verifier by the project entity. Qualitative data comprises information on internal management controls, calculation procedures, and procedures for transfer, frequency of emissions reports, review and internal audit of calculations/data transfers.

The verification is not meant to provide any consulting towards the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

The verification team has been provided with a Monitoring Report, Version 01 on 13 March, 2012, covering the period from 01/04/2006 to 31/12/2011 which was made publicly available on the UNFCCC web site on 14 March, 2012 (http://cdm.unfccc.int/Projects/DB/TUEV-SUED1154534875.41/iProcess/JACO1331630315.21/view) and serves as the basis for the assessment presented herewith. (/1/)

Based on this Monitoring report dated 07 March, 2012, a document review and a fact finding mission in the form of an on-site assessment has taken place.

JACO CDM conducted the verification for the CDM project "Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin" based on the Kyoto Protocol requirements, modalities as agreed in Marrakech Accords and decisions of UNFCCC CDM EB, using the Validation and Verification Manual (VVM) version 01.2.

1.3 Verification team

The verification team for the verification was selected considering the need of knowledge for the team members in the following aspects:

- Knowledge of the Kyoto Protocol and the Marrakech Accords
- Environmental and Social Impact Assessment
- Skills in environmental auditing
- Quality assurance
- Technical aspects
- Monitoring concepts
- Political, economical and technical conditions in host country

According to these requirements, JACO CDM has comprised following verification team in accordance with the appointment rules of the JACO CDM QC Manual. The results of verification team activities were reviewed by the internal verifiers.

Verification team

Teruo FUKUDA	JACO CDM Team Leader
Yukio TAKANO	JACO CDM Team Member
Eiichiro NAKAMA	Japan International Forestry Promotion & Cooperation Center (SS 14, TA 14.1 Qualified)

Internal verifiers

Tokunori MORI	Japan International Forestry Promotion & Cooperation Center (SS 14, TA 14.1 Qualified)
Akihide MADENOKOJI	General Manager of JACO CDM

Duration of verification

Document Review:	From 13 March, 2012 to 27 April, 2012
On-site Assessment:	From 06 April, 2012 to 14 April, 2012
Reporting:	From 16 April, 2012 to 20 July, 2012

1.4 GHG Project Description

The A/R CDM project activity, Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin has been under implementation since 2006 in the Guangxi province of China. The project has implemented afforestation and reforestation (A/R) activities to achieve multiple objectives of restoring the degraded areas, soil, water and biodiversity conservation and poverty alleviation in the Guangxi watershed in the Pearl River basin. The specific objectives of the project are:

(1) To sequester CO_2 through forest restoration in small watershed areas and pilot reforestation activities to generate high-quality GHG emission reductions that can be measured, monitored and verified;

(2) To enhance biodiversity conservation by increasing the connectivity of forests adjacent to nature reserves;
(3) To improve soil and water conservation;
(4) To generate income for local communities.

To achieve the objectives, the 3,008.8 ha of multiple-use forests have been established on degraded lands in Huanjiang County and Cangwu County of Guangxi Province. The major species covered in the forestation models are: *Pinus massoniana* (1,464.8 ha), *Cunninghamia lanceolata* (148.3 ha), *Schima superba* (297.6 ha), *Eucalyptus* sp. (821.7 ha), *Liquidambar formosana* (89.4 ha), *Quercus griffithii* (26.8 ha), *P. massoniana* mixed with L. *formosana* (109.2 ha), and P. massoniana mixed with C. lanceolata (51.0 ha). The anthropogenic GHG net removals by sinks from the first monitoring period of the project are 131,964 t CO2e .

The A/R CDM project activity has been implemented involving farmers/communities and forest companies through following cooperative arrangements .

(1) Shareholding arrangements between local farmers/communities and forest company. The farmers/communities contribute land and labour and local forest companies invest in planting activities, provide technical inputs and manage plantations during the crediting period. The contractual arrangements between the farmers/communities and the companies cover the plantation establishment and management responsibilities, inputs and benefit sharing. The forest companies pay farmers for labour input to the project, providing income to farmers through temporary employment. The project area of 2,651.9 ha is managed under this model.

(2) Arrangements involving farmers groups. Individual farmers voluntarily invest in groups and undertake project activities such as site preparation, planting and forest management. The local forestry agencies provide assistance for the design of planting models, training, supervision, and other technical services. Income from forest products and sale of CERs accrue solely to local farmers. The project area of 356.9 ha is managed under this arrangement.

The farmers participating in the project have authorized through formal contracts the Xinghuan Forestry Development Company, Ltd, the forest company and the project participant to conduct project registration, implementation and monitoring of the A/R CDM project activity, and sale of CERs on behalf of the project.

The A/R CDM project activity has been implemented separately, but linked with a larger umbrella Guangxi Integrated Forestry Development and Conservation Project (GIFDCP), which supports monitoring of environmental and social impacts of the project in relation to natural forest, watershed and biodiversity aspects of the Guangxi Zhuang Autonomous Region.

2. METHODOLOGY

The proposed assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual (for further information, see http://cdm.unfccc.int/Reference/Manuals/accr_man01.pdf) version 01.2, an initiative for all Applicant Entities, which aims to harmonize the approach, and quality of all such assessments.

In order to ensure transparency, a verification checklist was customized for the project, according to the Validation and Verification Manual 01.2. The checklist shows, in a transparent manner, criteria (requirements), means of verification and the results. The verification checklist serves the following purposes:

- It organizes, details and clarifies the requirements that a CDM/JI project is expected to meet;
- It ensures a transparent verification process where the verifier will document how a particular requirement has been met and the result of verification.

The verification checklist consists of 2 tables. The different columns in these tables are described in Figure 1. The completed checklist is enclosed in Appendix 1 to this report.

Figure 1. Verification Checklist Tables

Table 1: Periodic Verification Checklist

OBJECTIVE	**Ref.**	**COMMENTS**	**Concl. (incl. FARs/CAR$_S$/CLs)**
The requirements the project must meet	Gives reference to the legislation or agreement where the requirement is found	Description of circumstances and further commendation to the conclusion	This is either acceptable based on evidence provided **(OK)**, or **Clarification (CL),** or a **Corrective Action Request (CAR)** of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Verification report. The Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further verifications.

Table 2 : Resolution of Corrective Action and Forward Action Requests

Draft report clarifications and corrective action requests by verification team	**Ref. to checklist question at Table I & II**	**Summary of project owner response**	**Verification team conclusion**
Detailed FAR, CL and/or CAR pointed at previous table.	Item at the table 1 where FAR/CL/CAR were found.	Answer of the project owner	Analysis and conclusion of the verification team

2.1 Review of Documentation

The monitoring report submitted by the client and additional background documents related to the project implementation and the project performance were reviewed. A complete list of all documents reviewed is shown in References (chapter 5 of this report).

2.2 On-site inspections

Verification team visited the project site during 06/04/2012 to 14/04/2012. The team interviewed organizations, visited sites and covered topics relating to project implementation, which are summarized in Table 1 below.

Table 1 Interviewed Organization and Topics at Verification

Interviewed organizations/ visited sites	**Interview topics/ Inspected items**
The World Bank, TNC China (Consultant)	Monitoring plan Monitoring Report and relevant documents GHG removals calculation and reporting procedures

	Environment and socio-economic impacts Stakeholders comments Compliance with National laws and regulations Monitoring equipment
Provincial Project Management Office (PPMO), County Project Management Office (CPMO)	Project implementation Monitoring plan Monitoring Report and relevant documents GHG removals calculation and reporting procedures Environment and socio-economic impacts Stakeholders comments Compliance with National laws and regulations Monitoring equipment Record storing IT system
Guangxi Forestry Inventory and Planning Institute	Project implementation Monitoring plan Monitoring Report and relevant documents GHG removals calculation and reporting procedures Compliance with National laws and regulations Monitoring equipment Demonstration of actual area monitoring and sample plot measuments GIS demonstration (ex.: project area of PDD and actual)
Xinghuan Forestry Development Company Ltd. (PP)	Project implementation Monitoring plan Environment and socio-economic impacts Stakeholders comments Compliance with National laws and regulations
Villagers of Huanjiang County	Actual Project activities involved Economic Impact of the project Environmental impact of the project
Villagers of Cangwu County	
Visited sites (Sample plots with measurable trees: 10 out of total 52 plots)	Check of boundary coordinates by GPS (sampling) Check of sample plot coordinates by GPS Check of tree species Number of trees in the sample plots Demonstration of monitoring activities (sample plot setting, monitoring of coordinates, monitoring of H and DBH) Confirmation of field data
Visited sites (Sample plots without measurable trees: 6 out of total 50 plots)	Check of boundary coordinates by GPS (sampling) Check of sample plot coordinates by GPS Check of tree species

2.3 Resolution of Corrective and Forward Action Requests

The objective of this phase of the verification was to resolve the requests for corrective actions and any other outstanding issues which needed to be clarified for JACO CDM's positive conclusion on the GHG removals calculation.

Findings established during the past verifications can either be seen as a non-fulfillment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality GHG removals by sinks is identified.

Corrective Action Requests (CAR) is raised, where:

i) Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;

ii) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions

iii) Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants

Clarification Request (CL) is raised, where:

iv) If information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Forward Action Requests (FAR) are raised, where:

v) During verification for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

All CARs and CLs raised during verification shall be resolved prior to submitting a request for issuance.

To guarantee the transparency of the verification process, the concerns raised and responses that have been given are summarized in chapter 3 below and documented in more detail in the verification checklist in Appendix 1.

2.4 Internal Quality Control

As the final step of verification, the final documentation including the verification report and the checklist have to undergo an internal quality control by JACO CDM's Certification Determination Committee (CDC) to ensure that all procedures have been followed and all conclusions are justified. After the documents have been satisfactorily approved, then only the request for issuance is submitted to the CDM-EB with the relevant documents. Two-third of the CDC members is selected from outside of JACO CDM. The project was discussed and approved in the CDC meeting of 19 July, 2012.

3. VERIFICATION FINDINGS

The verification team assessed and verified the following in line with the Verification Checklist in Appendix 1.

3.1 Remaining Issues, CARS, FARs from previous Validation or Verification

Project was registered on 10 November, 2006.

The verification team confirmed that there is no open issue by the validation.
(/5a/)

3.2 General description

3.2.1 Discussion

Outline

The project area is 3,008.8 ha and less than the original plan of 4000 ha (Huanjiang County: 2000ha and Cangwu county: 2000ha) described in the PDD.
In the monitoring report, the major species described are the same as the registered PDD.

The installed technology is briefly explained. The description is consistent with the PDD.
The reforestation activities have been implemented since 2006 in the Guangxi province in China and they are consistent with the PDD.
Net GHG removals by sinks are indicated as 131,964 tCO2 during this monitoring period.

Project participants

The project participants in the PDD are Xinghuan Forestry Development Company Ltd, Huanjiang County, P. R. China,Spain and Italy.

After registration, new participants are added.
The project participants in the monitoring report are the same as the list of the project view page (http://cdm.unfccc.int/Projects/DB/TUEV-SUED1154534875.41/view).

Project location

The project activity is located in Huanjiang County and Cangwu County of Guangxi Zhuang Autonomous Region, in Southern China as described in the monitoring report..
GPS coordinates of the Townships and Villages of the project activity are indicated in the monitoring report Table A-2.

Technical description

Detailed technical description about site preparation, planting stock development, nursery technology and planting technique/ spacing is provided in the monitoring report. The project implemented reforestation through direct planting of tree spcies to restore the degraded lands using environmental-friendly techniques. Good practice guidance of reforestation and experience gained from the World Bank financed forestry projects were adopted in the project. The technical and regulatory standards indicated in the PDD A.4.8 have been followed. (/15/)
The local forestry agencies, i.e., Guangxi Provincial Forestry Department, Cangwu and Huanjiang County Forestry Bureaus, Guangxi Forestry Inventory and Design Institute and Guangxi Forestry Research Institute provided guidance, and quality control in the implementation of the A/R CDM project activity. The up-to-date technologies and silvicultural models were adopted. No technology has been transferred to the host party.

The verification team confirmed by the sub-compartment monitoring cards that the same amount of fertilizer as described in the PDD is applied. (For Eucalyptus, at planting 750g, 2nd year 300g, 3rd year 400g/tree) (**CL 3**)

Organization of project operation and management

The project is implemented involving farmers/communities and forest companies under the same cooperative arrangements as described in the PDD.

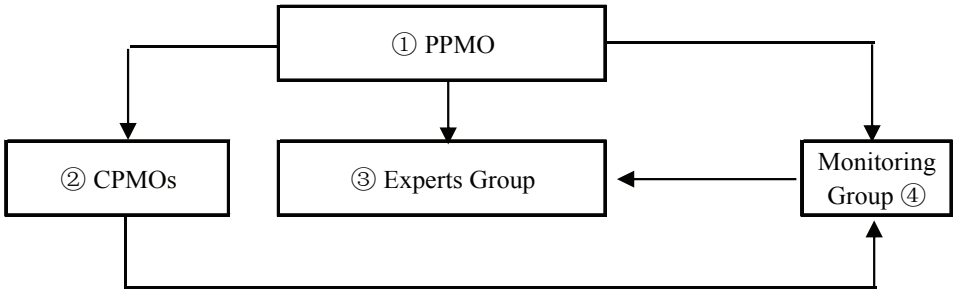
Share holding arrangements between local farmers/communities and forest company:
2651.9ha (PDD: 3,560ha),
Farmer group: 356.9ha (PDD: approx. 440ha)

The project implementation bodies directly participated in the project are as below;

- Xinghuan Forestry Development Company Ltd. (PP of China)
- Huanjiang Kangyuan Forest Farm
- Huanjiang Fuyuan Forest Farm
- Huanjiang Lvhuan Forestry Co., Ltd.
- 18 farmers groups
- 12 farmers

Among above bodies, Xinghuan Forestry Development Company Ltd. is the project participant representing all of above bodies, and it is responsible for project application to CDM and signed the ERPA with the World Bank. (/14/)
The farmers of the project have authorized the forest company as project participant to conduct project registration, implementation and monitoring of the A/R CDM project activity, and sale of CERs on behalf of the project. (/9/)

Organization of the project management is the same as the registered PDD (C.7 of the PDD) and roles and responsbilities are added in the monitoring report Section C. Outline is as below.



PPMO: Provincial Project Management Office
CPMO: County Project Management Office

3.2.2 Findings

CL1:

Please inform about the changes in production arrangements and management models, if any. (Ref. PDD A.2)

Response

There is no change in production arrangements and management models.

Conclusion

The verification team confimed by the interviwes with PPMO that there is no change in production arrangements and management models.

CL 2:

Please provide the detail information of the project coordinates and changes from the coordinates of the registered PDD.

Response

Actual project area data is provided as GIS shp file along with the area calculation spread sheet. The boundary measurement is conducted by PDA and recorded in GIS shp files. The procedures of actual boundary measurements using GPS and PDA were demonstrated to the verification team during the on-site assessment.
Examples of maps of the project are provided.

Conclusion

The GIS shp files for Huanjiang County and Cangwu County (arc GIS data using Beijing 1954 geographical coordinate) along with the area calculation spread sheet and examples of maps were provided. (/5/, /6/)

The verification team checked the area calculation spread sheet and GIS shp file by sampling and confirmed that area data are consistent.

CL 3:

(1) Please provide the evidence of fertilizer application.

(2) Please justify the description of monitoring report “On poor soils, small quantities of nitrogenous fertilizer with 10% nitrogen content was applied to eucalyptus at the rate of : 750g per tree at planting, 300g per tree in the second year and 400g per tree in the third year.”

Response

(1) The sub-compartment monitoring cards were provided for the evidences of fertilizer application.

(2) It is recorded in the sub-compartment monitoring card.

Conclusion
(1) OK
The sub-compartment monitoring cards for Eucaliptus plantation were provided.
(2) OK

It was confirmed by the sub-compartment monitoring card that the fertilizer was applied in accordance with the plan described in the PDD.

CL 4: Please provide the CER calculation spread sheet.

Response
2 types of calculations are provided. One is based on the UNFCCC A/R tool "Estimation of carbon stocks and change in carbonstocks of trees and shrubs in A/R CDM project activities" (EB60, Annex 13). The other one is based on the application of the equations of the methodology in a spreadsheet format. Both calculation methods give the same results.

Conclusion
CER calculation spread sheets were provided. The verification team confirmed that the calculated CER results are identical.

3.2.3 Conclusion

CL1, CL2, CL 3 and CL 4 were clarified.
The project complies with the requirements.

3.3 Project Implementation

3.3.1 Discussion

Forest establishment

The starting date of the project is 01 April 2006 and it is confirmed the same date as in the validation report. (/32/)

The verification team was provided with the GIS shp file (/5/), project area calculation spread sheet (/6/) and sub-compartment monitoring cards (25 randomly selected cards (/8/) among total 536 sub-compartment cards). The data and interviews with PMO staffs confirmed followings;

(i) Site and soil preparation were done in the same manner as stated in the registered PDD A.4.8. (no burning, no overall tillage) (/8/) (**CL 5 (1)**)
(ii) Survival checking has been conducted based on the description of the registered PDD and recorded (checking timing and suvival rate > 90%).
(iii) Weedings are conducted manually as stated in the PDD and recorded in the sub-compartment monitoring card. (/8/) (**CL 5 (2)**)
(iv) By comparing the GIS shp file data, project area calculation spread sheet and sub-compartment monitoring cards, the year wise planted area is correctly described in the monitoring report Table B.1 in comparison with the original proposal in the PDD. The monitored project area is 3,008.8 ha and is less than the original plan of 4000 ha (Huanjiang County: 2000ha and Cangwu county: 2000ha) described in the PDD.
The reason for this reduction is explained in the monitoring report E.6 such as poor site conditions, contract with households not implemented, land tenure conflicts, natural regeneration, washed gally, etc.
The species composition has changed, which is indicated in the monitoring report Table B.1.
(**CL 5 (3)**)
(v) Information regarding the actual operation during the monitoring period, including information on special events (ex. drought or unexpected disaster events linked to climate which affect the project activity were confirmed. (**CL 5 (4)**)

Project boundaries

The control over all A/R project area was confirmed by the interviews with PPMO, CPMO and randomly selected contract documents between the project owner and farmers communities. (/9/) (**CL 6**)

Change in operation

Table B.2 of the monitoring report shows the types of changes from the description in the registered PDD as outlined in the guidelines (Annex 24, EB66) and their applicability to the implemented project.（**CL 7**）

Table 2: The types of changes from the registered PDD and applicability of Annex 24, EB66

No.	Types of changes	Applicability to the project	DOE Comment
a	Changes in year-wise areas planted	Yes, 3008.8ha was planted out of planned 4000 ha, i.e., 991.2 ha was not planted.	OK (Comply with EB 66 Annex 24)
b	Changes in species composition (to be consistent with the baseline identification and additionality at the validation)	Yes, changes in species composition and stand models occurred during the project implementation. It was found that due to poor site conditions and location specific factors, survival and growth rates of some species were not as projected in the PDD. In addition, small changes to the stand models needed to be made as per the requirements of field implementation. The species planted are relevant to the project area and the changes in species composition of the project are consistent with the baseline identification and additionality demonstration made at the validation stage which can be demonstrated as below. For the baseline identification: As the changes in project area do not affect the baseline information. The 35 ha with growing trees in stratum II remains unchanged, hence the baseline net removals by sinks remains same as PDD). The changes in area of other baseline strata also do not affect baseline removals given no growing trees on these strata. For the additionality: - In the project design, the revenue from the project activity was expected from the short rotation oak (7 years) and eucalyptus (10 years). The area of eucalyptus and oak actually planted is 28.2% of total planted area, compared to 34% designed in PDD. The revenue will reduce relative to PDD; - Price level (for labor and seedlings) in China has been increasing year after	OK Changes in species composition and stand models occurred during the project implementation. Consistency was demonstrated in the monitoring report with the baseline identification and additionality demonstration made at the validation stage. Baseline identification: The verification team confirmed by the interview with PPMO and CPMO that the 35 ha with growing trees in stratum II which corresponds to the baseline as described in the registered PDD section D.2 remains unchanged, hence the baseline net removals by sinks remains same as PDD. Additionality: As explained in PDD B.3, revenue is expected from the timber of Eucalyptus and oak but pine will not be harvested during the

		year, while the unit costs in PDD were based on 2004 price level. The actual costs are much higher than those used in PDD; - The adverse climate events such as snow/ice storms and droughts damaged significant area of the project. The snow/ice storms in early 2008 damaged 595.1 ha of plantation, and were re-established. Out of the re-established area, 120.3 ha of eucalyptus plantation again suffered from the snow/ice storms again during early 2011. 197.8 ha of planted area also was affected by extreme droughts during 2009-2011 and had to be re-planted. The repeated planting has significantly increase the project cost. - In summary, the reduction of project revenue and increase of the project cost would reduce the project internal return rate relative PDD. Therefore the change in the project area will not affect the additionality.	crediting period. The planted area in the PDD and actual area for these trees are as shown in Table 3 below. The area of eucalyptus and oak actually planted is 28.2 % compared to 34% of PDD, thus the revenue will be reduced compared to PDD. On the other hand, the cost has been increasing due to price level increase and repeated re-plantation. Based on above assessment, the verification team confirms that the changes in the project area and species composition will not affect the additionality.
c	Changes in stocking density	No change in stocking density	—
d	Changes in timing and choice of silvicultural operations	Yes, changes of silvicultural operation due to changes in species composition.	OK
e	Changes in timing of harvest occurring before the 3rd verification	Yes, changes of potential harvesting before 3rd verification.	OK
f	Changes related to collection of non-timber forest products	Yes, changes such as resin collection of pine.	OK
g	Changes in tree/shrubs propagation method	No change	—
h	Changes in post-harvest re-planting/regeneration methods;	Not applicable	—
i	Changes in technology employed;	No change	—
j	Changes in inputs (e.g. fertilizers, certified seeds, watering);	No change	—
k	Changes in	Yes, ex post stratification has been	OK

	stratification for sampling;	implemented.	
l	Changes in type of sample plots (e.g. temporary, permanent, point-sampling);	No change (Permanent sample plots)	—
m	Changes in number of sample plots and their allocation to strata;	Yes, due to ex-post stratification.	OK
n	Changes in the project boundary (limited to reduction in project area)	Yes, Changes in project boundary occurred as a consequence of the reduction in project area by 991.2 ha.	OK
o	Changes in quality assurance/quality control (QA/QC) procedures	Yes, QA/QC procedures consistent with procedures used by the national forest inventory are implemented.	OK
p	Changes in parameters, equations, or methods used in tree biomass estimation	No change	—
q	Changes from provisions regarding shifting of pre-project activities,	Not applicable.	—
r	Changes in use of fire in site preparation,	Not applicable	—
s	Changes in extent of soil disturbance in site preparation,	Not applicable	—
t	Changes in methods of estimation of changes in any carbon pool	Yes, the latest methodological tool for trees and shrubs has been used. (EB60 Annex 13)	OK

Table 3: Actual planted area of major species and plan of PDD

Species	Planted area (ha)		
	Plan of PDD (A)	Actual (B)	B/A (%)
Eucalyptus	1000	821.7	82.2
Oak	360	26.8	7.4
(Pine)	(1320)	(1463.7)	(110.9)
Eucalyptus + Oak	1360	848.5	62.3
Total	4000	3008.8	75.2
(Eucalyptus + Oak)/ total	**34%**	**28.2%**	

3.3.2 Findings

CL 5:

(1) Please provide the evidence indicating that the site preparation is conducted as planned in the PDD.

Please provide the actual plantation activity record up to 2011 as the evidence of Table B.1.

(2): Please explain with evidence that the survival checking and weeding have been done as planned.

(3) Please provide with the information of actual planted area in Table B.1.

(4) Please provide special events during the monitoring period, if any.

Response

(1), (2): Example of sub-compartment monitoring cards are provided. (for Huanjiang: 10, Cangwu: 15, total 25 sub-compartments among 536 sub-compartments (ref Annex 1 of the monitoring report and area calculation spread sheet. (/1/, /6/, /8/)

(3) Actual measured area in Table B-1 is based on GIS, indicated in area calculation spread sheet (/6/) and the results are shown in Annex 1 of the monitoring report.

(4) The special events such as cold weather, drought, etc were explained.

Conclusion

(1), (2): It was confirmed by the sub-compartment monitor cards that the site preparation is conducted as planned in the PDD.

(3) Actual planted area in table B.1 was confirmed by the area calculation excel sheet and it was confirmed that the area data is consistent with the following information;

(a) monitoring report: Table B.1, Table C.1, Table C.2, Annex I (/1b/)
(b) Sub-compartment monitoring card (/8/)
(c) Calculation sheet of project area (/6/)
(d) GIS shp file (/5/)

(4) The verification team confirmed through the interviews with the PP and sub-compartment monitoring card that the special events such as cold weather, drought, etc., damaged significant area of the project and replanting works have been conducted on such areas.

CL 6: Please explain about the control of all the project area during the monitoring period with evidences.

Response

All the contracts were signed.

The ownership of the actual project area is confirmed by the contract documents.

Samples of contract are provided. (Huanjiang: 5, Cangwu: 10)

Conclusion

15 contract documents were provided as the samples of the signed contract documents.

The verification team confirmed that the control of the project is appropriate based on these signed contract documents.

Number of samples of contract documents are 15 and is more than 10 which is specified in VVM version 01.2 §142 as the minimum number for sampling approach.

CL 7: The each item of changes in Table B.2 is to be confirmed with evidences.

- Year-wise areas planted,
- Species composition,
- Stocking density,
- Timing and choice of silvicultural operations
- Timing of harvesting (before 3rd verification)
- Collection of non-timber forest products
- Stratification for sampling
- number of sample plots and allocation to strata

- project boundary (limited to reduction in project area)

Response

- Species composition, stocking density, timing – this information can be confirmed by sub-compartment monitoring cards: Samples are provided.
- The spacing of major species is the same as noted in the PDD. However, the actual stocking density is different from the planting density noted in the PDD due to several reasons such as changes in species composition, stand models,poor growth and damage to the seedlings planted.
- Stratification for sampling is based on species and planting year.
- Number of sample plots is based on the sampling plot calculation tool (EB58, Annex 15).
- Project boundary is changed due to the reasons described in the monitoring report E.6.

Conclusion

The types of the changes in the Project activity are listed in the monitoring report. The verification team assessed the changes based on "Guidelines on accounting of specified types of changes in A/R CDM project activities from the description in registered project design documents" (Version 02.0) (EB 66 Annex 24) and confirmed that the description in the revised monitoring report is appropriate as stated in DOE's comments in the table 2 of this verification report.

The verification team concludes;

(i) The verification team based on the assessment of relevant documents such as sub-compartment monitoring cards, area calculation spread sheet, GIS information and interviews with PMO, PP, GFIPI, etc that description of Table B.2 of the monitoring report is appropriate.

(ii) All the changes happened do not affect the additionality and are considered as minor in nature, therefore submitting a notification of changes or a request for approval is not required in accordance with the "Guidelines on accounting of specified types of changes in A/R CDM project activities from the description in registered project design documents" (EB66 Annex 24).

3.3.3. Conclusion

CL 5, CL 6 and CL 7 were clarified.

The project was implemented as planned with minor changes as defined in the Guidelines on accounting of specified types of changes in A/R CDM project activities from the description in registered project design documents Version 02.0 (EB 66, Annex 24)

The project complies with the requirements.

3.4 Monitoring System

3.4.1 Discussion

Compliance of the monitoring plan with the monitoring methodology

The monitoring plan of the project is based on the approved monitoring methodology AR-AM0001/ version 02 applied by the proposed project activity. In addition to above, "Guidelines on application of specified version of A/R CDM methodologies in verification of registered A/R CDM project activities" (EB 63 Annex 26) is applied.

The requirements of above guidelines applicable to the methodology AR-AM 0001/version 02 and applicability to the project are explained in the monitoring report. These are as below.

Table 4: Applicability of EB 63 Annex 26 to the project activity

Requirements	Guidelines (EB 63 Annex 26)	Applicability to the project
(1) Monitoring of data and parameters	(i) Only data and parameters obtained from field measurement are required to be monitored;	Yes, data and parameters required to be monitored in the methodological tool

	(ii) Monitoring is not required for data, parameters, or variables appearing as intermediate values in calculation steps and those taken from existing sources (e.g. published literature)	"Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities" were measured. (**CAR 1**: ref § 3.5 of this report)
(2) Sampling design, sample plot lay-out, and marking of permanent sample plots	(i) Use of temporary sample plots; (ii) Random lay-out of sample plots; (iii) A maximum allowable relative margin of error of the mean, for estimation of aboveground tree biomass, of ± 10% at 90% confidence level shall be allowed.	Yes, 90% confidence level was applied (**CL 12**)
(3) Accounting for uncertainty	Requirements related to uncertainty assessment, uncertainty analysis, methods of combining uncertainties and uncertainty in expert judgment are superfluous and compliance with these requirements shall not be enforced.	Yes, uncertainty analysis was conducted following the methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"
(4) Field measurement of soil organic carbon	(i) Instead of field measurement of soil organic carbon, the "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities" shall be used for areas which meet the applicability conditions of the tool; or (ii) The value of change in soil organic carbon shall be set to zero. Consequently, monitoring of data and parameters related to estimation of changes in soil organic carbon shall not be required.	Not applicable
(5) Clearance or burning of herbaceous vegetation	(i) Changes in carbon stocks resulting from clearance of herbaceous vegetation shall be set to zero; (ii) Emissions resulting from clearance or burning of herbaceous vegetation shall be set to zero. Consequently, monitoring of data and parameters related to (i) and (ii) above shall not be required.	Yes, loss of carbon in living herbaceous vegetation was not accounted for
(6) Estimation of emissions of nitrous oxide from use of fertilizers	Estimation and accounting of emissions of nitrous oxide from use of fertilizers shall not be required. Consequently, monitoring of data and parameters related to the above-mentioned emissions shall not be required.	Yes, emissions of nitrous oxide from use of fertilizers were not monitored and accounted for.
(7) Burning of fossil fuel	Estimation and accounting of emissions from burning of fossil fuel, both within and outside the project boundary, shall not be required. Consequently, monitoring of data and parameters related to the above mentioned emissions shall not be required.	Yes, emissions from burning of fossil fuel, both within and outside the project boundary were not monitored and accounted for.

Compliance of the monitoring with the monitoring plan

The PP implemented and followed the approved monitoring plan and applied monitoring methodology.

In this monitoring period (01 April, 2006 – 31 December, 2011), there was no harvesting activity. (**CL 8**)

The monitoring of baseline is not necessary as per the methodology AR-AM0001/version 02.

All the project area is within the project boundary of the planned registered project. (**CL 9**)
A revision to the ex-ante stratification has been conducted taking into account the changes in the area, species/stand models included in the project, the schedule of planting adopted during project implementation, and growth rates of species relevant to site conditions. The stratification map was created on a GIS platform. The project area was stratified into 22 strata (see table C.1 for the detailed ex post stratification). The boundary of strata was determined using PDA and GPS by going along the demarcation line of two connected strata. (**CL 10**)

Sample size

Permanent sampling plots were used for sampling over time to measure and monitor changes in carbon stocks of the relevant carbon pools. The plots were located with GPS and are invisible so as to be treated in the same way as other lands within the project boundary, e.g., during fertilization, tending, thinning, harvesting, etc.
A/R Methodological Tool "Calculation of the number of sample plots for measurements within A/R CDM project activities" (Version 02.1.0) was applied to re-calculate the number of sample plots for each stratum outlined in the PDD.

$$n = \frac{N \cdot t_{VAL}^2 \cdot (\sum_i w_i \cdot s_i)^2}{N \cdot E^2 + t_{VAL}^2 \cdot \sum_i w_i \cdot s_i^2} \quad \text{(B.1)}$$

$$n_i = n \cdot \frac{w_i \cdot s_i}{\sum_i w_i \cdot s_i} \quad \text{(B.2)}$$

Where

n	Number of sample plots required for estimation of biomass stocks within the project boundary, dimensionless
n_i	Number of sample plots allocated to stratum i for estimation of biomass stocks within the project boundary, dimensionless
t_{VAL}	Two-sided Student's t-value, at infinite degrees of freedom, for the required confidence level; dimensionless
N	Total number of possible sample plots within the project boundary (i.e. the sampling space or the population); dimensionless
w_i	Relative weight of the area of stratum i (i.e. the area of the stratum i divided by the project area); dimensionless
s_i	Estimated standard deviation of biomass stock in stratum i; t d.m. ha^{-1}
E	Acceptable margin of error (i.e. one-half the confidence interval) in estimation of biomass stock within the project boundary; t d.m. ha^{-1}

The standard deviation of biomass stock for stratum (s_i) for Pine, Eucalyptus, Schima and Maple was determined based on preliminary measurement in early 2010. (/3c/) For stratum without preliminary measurement, 30% of relative standard deviation was assumed. The t_{VAL} was determined based on the 90% confidence level. A default value equal to 10% of the mean biomass stock was used as the acceptable margin of error. The mean biomass stock is the expected biomass at the time of monitoring, which can be estimated as part of the ex-ante estimation of the actual net GHG removals by sinks.

For the purposes of statistics, if calculated n_i<3, then n_i=3. Furthermore, to ensure that 10% of the precision level can be achieved, the number of sample plots was increased by 25% in addition to

the requiredsize. The sample plots were allocated to each stratum based on size of each stratum relative to the total project area.

- Location of sample plots

To avoid subjective choice of plot locations (plot centres, plot reference points, movement of plot centres to more “convenient” positions) and to ensure that the sampling plots are evenly spread in each stratum as much as possible, the permanent sample plots were laid out systematically with a random start. The size of sample plots is 400 m^2 (20m × 20m). However, if the shortest distance between sampling plot boundary and project boundary is less than 10 m, or if the plot is across the project or stratum boundary, the sample plot shall be moved toward the center of the parcel of land. The geographical coordinates of all sample plots were listed in table C.3 below.

As per the monitoring procedures, if after the field measurement, the precision level is over 10%, the number of sample plots would need to be recalculated using above mentioned method, based on measured standard deviation of biomass stock to layout the additional sampling plots. (**CL 12**)

- Pre-project shrub biomass

Destructive method has been used to measure the pre-project shrub biomass in the summer 2006. 110 random sampling plots were measured. (**CL 13**)

Management and operational system

The project has been implemented by Xinghuan Forestry Development Company Ltd., other forest farms and farmers as described in 3.2.2 above.

The monitoring organization, roles and responsibilities are described in the monitoring report Section C, § 7 to 9. The verification team confirmed by the interviews with PPMO, CPMOs, GFIPI, expert group (TNC China) and PPs that the monitoring activities are conducted as indicated in the chart of the monitoring report Section C, § 7 to 9. (**CL 14**)

Management of the project monitoring such as documented instruction, data transfer, training, emergency procedures, internal QA/QC, data protection and IT system was assessed and it was confirmed that the monitoring has been conducted as described in the monitoring report. (**CL 15**)

3.4.2 Findings

CL 8: It is to be confirmed that there was no harvesting activity in the monitoring period.

Response

It can be confirmed by the site visit and the record of the sub-compartment monitoring card that there was no harvesting activity in the monitoring period.

Conclusion

It was confirmed by the on-site visit and the record of the sub-compartment monitoring card that there was no harvesting activity in the monitoring period. (/8/)

CL 9

It should be confirmed that all the project area is within the project boundary of the planned registered project.

Response

The GIS demonstration was conducted for ex-ante area and ex-post area during on-site assessment. It is demonstrated that the actual project area is within the boundary of the planned registered project.

Conclusion

It was confirmed by GIS demonstration that actual planted area is within the original areas of the PDD.

CL 10:

(1) Please explain the stratification map of GIS for Table C.1. (calculation of area of each stratum, stratum of compartment/sub-compartment indicated in Annex 1)

Please provide the calculation excel sheet of plantation areas (total 3008.8ha)

(2) Please demonstrate the procedures of determining boundaries using PDA and GPS during the on-site assessment.

Please explain about the QA/QC procedures of determining boundaries and measurements of areas.

(3) Stratification is to be checked at on-site assessment based on table C.1 and Annex I information by sampling.

- Location (compatment , sub-compartment)
- Species
- Planted year
- Condition of planted trees

(4) Stratum information is to be added to Annex 1.

(5) Please provide the examples of planting year evidence.

Response

(1) The stratification map of GIS for Table C.1 along with the area calculation spread sheet is provided.

(2) The procedures of determining boundaries were demonstrated at on-site assessment. QA/QC procedures involved sample cross-checking of boundaries and monitored areas.

(3)(4) Stratum information was added to Annex 1 of the monitoring report. Also, sub-compartment monitoring cards indicating location (compartment and sub-compartment, species, conditions of planted trees) are provided. The stratum of each sub-compartment can be checked by Annex 1 of the moitoring report and sub-compartment monitoring card at on-site visit.

(5) The information is indicated in the sub-compartment monitoring card. The examples of the monitoring cards are provided.

Conclusion

(1) OK GIS shp files which were based on the actual measurement of coordinates of each project area were provided. (/5/) Also, the area calculation excel sheet was provided. (/6/) Data are consistent: Refer to CL (5-3) above.

(2) OK

It was confirmed by the on-site assessment that the boundaries are determined using PDA and GPS properly.

(3)(4) It was confirmed that stratum information was added in the Annex 1 of the revised monitoring report. (/1b/)

(5) The verification team checked sub-compartment monitoring cards by sampling (25 cards) and confirmed that the planting years in the monitoring report in Table B.1, Table C.1 and Annex 1 are consistent with the information of the sub-compartment monitoring cards. (/1/, /8/)

CL 11:

(1) Please provide the excel sheet for the calculation of sampling plots.

(2) Please provide the standard deviation of preliminary measurement in 2010.

Response

(1) Sample plots calculation sheet which is a part of the spread sheet of ”Sample plot measurement data” is provided.

The spread sheet includes
(i) Each sample measurment data,
(ii) tree biomass calculation summary
(iii) Number of sample plots calculation

(2) Spread sheet was provided. This is also a part of above spread sheet. (/3a/)

Conclusion

(1) The verification team was provided with the excel sheet (/3a/) which includes;
(i) Each sample measurment data,
(ii) tree biomass calculation summary
(iii) Number of sample plots calculation
(2) The spread sheet (/3a/ (iii)) indicating the standard deviation by preliminary measurement in 2010 was provided.

CL 12:

(1) Please demonstrate the location of sample plots during on-site assessment. (evenly spread with random start)
(2) The size (20m x 20m) and location of sample plots are to be checked by on-site assessment.
- Sample plot boundary is not less than 10m from project boundary
- The plot is not across the project or stratum boundary.

(3) Please provide the precision level of field measurements for sample plots.

(4) Please inform, if applicable, the case that the number of sample plots are recalculated after the field measurement due to excessive precision level of 10%.

Response

(1) Location of the sampling plots was demonstrated and it is based on the monitoring manual of the project.
(2) It was confirmed at on-site assessment.
(3) Calculation sheet of precision level of field measurements was provided. (9.85%)
(4) At the first monitoring with 101 plots the precision level was exceeding 10% and 1 sample plot was added to meet the requirement and final sample plots are 102.

Conclusion

(1) Location of sample plots was demonstrated in Huanjian County and Cangwu County project sites. The sample plot location work is accurate and correctly implemented applying the monitoring manual. (/10/, /15/)
(2) The size of the sample plots are confirmed to be correct for all the visited sample plots. The location of the sample plots listed in Table C.3 were checked by GPS and it was confirmed that the coordinates of sample plots are correct.
(3)(4) It was confirmed that the precision level of field measurements is 9.85% and less than 10% (at 90% confidence level) which is a maximum allowable relative margin of error of the mean, for estimation of above-ground tree biomass as stated in the Guideline on application of specified version of A/R CDM methodologies (EB63, Annex 26) in verification of registered A/R CDM project activities. (/26/)

CL 13:

Please provide the measured data of shrub biomass of 2006.

Response

The report, spreadsheet and actual field data samples of pre-project shrub biomass are provided.

Conclusion

The report, spreadsheet and actual field data samples of pre-project shrub biomass were provided. (/4/) The verification team confirmed based on the report, spreadsheet and actual field data samples that the pre-project shrub biomass is correctly described as 6,962.0 tCO2 in the monitoring report.

CL 14

(1) The actual reporting procedures, including field data monitoring, aggregation of the data of Huanjiang & Cangwu County data and GHG removals calculation are to be explained.

(2) Please explain about approximate number of persons engaged in the project such as management, planting & monitoring.

Response

(1) The procedures are explained.

GHG removals calculation was provided.

(2) Approximate number of persons engaged in the project such as management, planting & monitoring is as below.

PPMO: 18

CPMO: 4 in Huanjiang, 5 In Cangwu

Expert Group: 8

Daily Monitoring Activity: approx. 20 (Huanjiang), 6 Cangwu

Silvicultural activities (site preparation , planting, weeding, tending, etc.: Approx. 1200 (Huanjiang), 860 (Cangwu)

Conclusion

(1) The verification team confirmed based on the monitoring and operation guideline (/10/) and interviews with project participants, PPMO, CPMO and GFIPI that the monitoring activities have been conducted as indicated in the monitoring report section C §7-9. (/41/-/63/, /73/-/77/)

(2) The verification team confirmed that the monitoring activities have been carried out by sufficient number of experienced people including GFIPI and TNC.

CL 15:

(1) Please provide the Manual of monitoring indicated in the monitoring report Section C, §7.

(2) The accessibility to project documents is to be explained.

(3) Data transfer is to be confirmed.

(4) Please provide the example of training material and record.

(5) Please explain provisions for emergency.

(6) Please demonstrate the actual activity of field measurement of sample plots and data entry.

(7) The record of QA/QC activity is to be explained. Please provide examples of cross checking.

(8) Data maintenance and archival are to be observed at on-site assessment.

(9) Data protection measures are to be demonstrated at on-site visit.

(10) IT system is to be demonstrated at on-site visit.

Response

(1) The Monitoring and Operating Guidelines made by PPMO and design institute dated September, 2011 was provided.

(2) The documents of the project are stored in the project office. (Huanjiang CPMO, Cangwu CPMO)

(3) The data transfer is explained during the on-site visit.

(Huanjiang & Cangwu)

(4) Examples of training material are provided.
(5) Provisions of emergency are explained.
(6) Field measurement and data entry were demonstrated at site.
(7) Typical QA/QC activities are as below.
Field measurement: Cross check by design institute.
Data Input: Cross check
Calculation: prepared by Institute and cross- checked by Expert group
Monitoring report: Expert group
(8)(9) Actual conditions of data maintenance, archival and protection are confirmed at CPMO. (Huanjinag, Cangwu)

(10) IT system was demonstrated at CPMO.

Conclusion
(1) Contents of the ”Monitoring and Operating Guidelines are as below. These are consistent with the monitoring report.
- Purpose of monitoring
- Rules
- Organization, roles and responsibilities
- Project boundary monitoring
- Project implementation monitoring
- GHG Removal monitoring using sample plots
- GHG removals calculation, flow
- QA/QC
- sub-compartment monitoring card
- field monitoring sheet (H, DBH/ sample plot)

(2) The verification team confirmed that the project documents are properly stored in the project offices of 2 counties.
(3) the verification team confirmed based on the interviews with PMO and GFIPI that the datatransfer is in accordance with the monitoring plan and Monitoring & Operating Guidelines.
(4) The verification team confirmed that the training materials for management staff and villagers are prepared and trainings have been conducted. (/12/)
(5) Provisions for emergency were explained by PMO as follwing.
The PP (Forest company) will report the emergency and record in the sub-compartment monitoring card and inform to PMO. PMO will take necessary action.
(6) The verification team confirmed that the field monitoring activities are conducted in accordance with the monitoring & operation guidelines whose summary is described in the monitoring report.
(7) The verification team confirmed based on the field record that the QA/QC activity has been conducted in accoradnce with the monitoring & operation guidelines such as (i) cross-checking of field measurements by other monitoring team (ii) data entry check by several persons, and (iii) training provided to the field staff on the project operation and monitoring.
(8), (9):The verification team confirmed that data maintenance and archiving are properly conducted in CPMOs’ offices (Huanjiang County and Cangwu County).

(10) The verification team confirmed that the IT system is properly introduced and controled in CPMOs’ offices. (Huanjiang County and Cangwu County)

3.4.3 Conclusion
CL 8, 9, 10, 11, 12, 13, 14 and 15 were clarified.

The monitoring system including the sampling scheme is appropriate as per the monitoring plan of the registered PDD and the Guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities (EB 63 Annex 26).

The project complies with the requirements.

3.5 Monitoring data and parameters

3.5.1 Discussion

Data and parameters determined at registration and not monitored during the monitoring period:

Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors are listed in § D.1 of Section D as below.

Table 5: Data and parameters determined at registration and not monitored

Tree species	Data and parameters		
	$BEF_{2,j}$ (biomass expansion factor)	D_j (wood density)	R_j (Root-shoot ratio)
Pinus massoniana	1.46	0.380	0.283
Cunninghamia lanceolata	1.53	0.307	0.255
Eucalyptus sp.	1.48	0.578	0.201
Quercus sp.	1.54	0.676	0.340
Schima superba	1.79	0.598	0.217
Liquidambar formosana	1.54	0.443	0.283

These values are identical with the values of the registered PDD. (/21/)

Following formulae for estimating the standing volume of trees are applied and these are also identical with the formulae of the registered PDD. (**CL 16**)

Table 6: Standing volume calculation formulae

Tree species	$V_{TREE\ ,j,p,i,t}$
P. massoniana	$V = 0.0000714265437 \cdot DBH^{1.867010} \cdot H^{0.9014632}$
C.lanceolata	$V = 0.000065671 \cdot DBH^{1.769412} \cdot H^{1.069769}$
Eucalyptus sp.	$V = 0.000109154145 \cdot DBH^{(C_1 - C_2 \cdot (DBH+H))} \cdot H^{(C_3 + C_4 \cdot (DBH+H))}$
Other broadleaf species	$V = 0.0000667054 \cdot DBH^{1.8479545} \cdot H^{0.96657509}$

Data and parameters monitored

Following parameters are monitored.

$A_{p,i}$	Area of sample *p* in stratum *i*	(**CL 17**)
A_i	Area of stratum *i*	(**CAR 1**)
DBH	the diameter at breast height of the tree (1.3 m)	(**CL 18**)
H	Height of tree	(**CL 19**)

3.5.2 Findings

CAR 1:

(1) The area of strata and sub-strata in the monitoring plan of the registered PDD is removed from the monitoring parameters. Please explain.

(2) Other items which are indicated to be monitored in the monitoring plan of registered PDD should be added as monitoring parameters, if applicable. (such as Plot location, Age of plantation, Number of trees, Area of stratum and sub-stratum)

Response

(1) Area of stratum and sub-stratum are added to the list of monitoring parameters. The monitoring report is revised.

(2) As per the "Guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities" (Version 01.0, EB 63 Annex 26, table 1, 1st column), "monitoring is not required for data, parameters, or variables appearing as intermediate values in calculation steps and those taken from existing sources (e.g. published literature)".

Conclusion

(1) It was confirmed that the stratum and sub stratum are monitored. The monitoring report was revised properly including the description of monitoring equipment. (/1b/)

(2) Following parameters are not used in the calculation of CERs and considered intermediate values in calculation steps, thus can be removed from the list of monitoring parameters in accordance with the guideline of EB 63 Annex 26.

- plot location: this is monitored along with area measurment
- age of plantation: this is monitored for ex-post stratification
- number of trees: this is monitored along with the sample plot measurement

CL 16:

(1) The value in the volume equation of *P. massoniana* is slightly different from that of registered PDD. It is to be clarified.

(2) Please justify each volume equation ($V_{TREE,j,p,i,t}$) as per the A/R methodological tool "Demonstrating appropriateness of volume equation for estimation of aboveground tree biomass in A/R CDM project activities" (EB 65 Annex 29)

Response

(1) There is an typo error in PDD. In the monitoring report, the error is corrected and it is conservative.

(2) The volume equtions for P.massoniana, C.lanceolata and others of the monitoring report p24 are indicated in the "Forestry Inventry Manual 1986" made by Guangxi Institute of Forestry Inventory and Design. (/16/) The volume equation of Eucalyptus is indicated in the " Yield table of Eucalyptus" made by Guangxi Institute of Forestry Inventory and Design,(March, 2006) (/17/) These documents have been used for National forestry inventory in Guangxi, therefore paragraph 5(a) of EB 65 Annex 29 is applied.

Conclusion

(1) The verification team confirmed that the error is corrected properly in the revised monitoring report and consistent with the CER calculation spread sheet.

(2) The verification team was provided with the Forestry Inventry Manual 1986 and Yield tabel of Eucalyptus both are made by Guangxi Institute of Forestry Inventory and Design and confirmed that the volume equations in the monitoring report are identical with those of these documents. (/16/,/17/) The verification team also confirmed from the interviews with the consultant that volume equations in these documents are used for National forestry inventory in Guangxi. (/42/)

The verification team concluded that the paragraph 5(a) of EB 65 Annex 29 is applied and the volume equations are appropriate.

CL 17: Please explain the purpose of the monitoring of this parameter $A_{p,j}$.

Response

Sample plot area ($A_{p,j}$) is monitored to identify the trees for their number, DBH & H measurement.

Conclusion

The verification team confirmed that the monitoring of Apj is a necessary step for the monitoring of number of trees, DBH and H of trees in the monitoring plot area.

CL 18: (DBH)

(1) The monitoring procedures are to be explained and demonstrated at site. (Huanjiang & Cangwu site)

(2) Actual field data is to be checked with the input data for removals calculation by sampling.

Response

(1) Procedures are based on the SOP of the World Bank and demonstrated. (Huanjiang, Cangwu)

(2) Field data was checked by sampling.(Huanjiang, Cangwu)

Conclusion

(1) The verification team observed the monitoring activities and confirmed that the monitoring procedures of height measurement are in accordance with the monitoring report and the Monitoring & Operating Guidelines.
It was also confirmed that cross checking of DBH and tree height measurement is done by sampling.

(2) The verification team checked actual field data for the sample plots (for 11 sample plots) and confirmed that there is 1 small transcription error in DBH data among 555 input data was found. (/3a/)
It was confirmed that this small error of DBH (2.7 instead of 3.2 cm) does not affect the CER calculation.
The data in the CER calculation spread sheet was corrected. (/2/, /3a/)

CL 19: H

(1) The procedures are to be explained and demonstrated at site.
(2) Please explain about the calibration of the hypsometer.
(3) Please explain about the meter accuracy.
(4) Actual field data is to be checked with the input data for removals calculation by sampling.

Response

(1) Explained and demonstarated.(Huanjiang, Cangwu)
(2) It is calibrated before starting to the project site measurement.
(3) 1% according to the manufacturer's data.
(4) Field data was checked by sampling.(Huanjiang, Cangwu)

Conclusion

(1)(2) The verification team observed the monitoring activities and confirmed that the monitoring procedures of height measurement are in accordance with the monitoring report and the Monitoring & Operating Guidelines.
(3) It was confirmed by the manufacturer's report. (/11/)
(4) The verification team checked actual field data for the sample plots (for 11 sample plots) and confirmed that all the 555 input data are correct.
As for (2) & (3), the verification team confirmed that the monitoring report is revised properly.

3.5.3 Conclusion

CAR 1 was resolved.

CL 16, CL 17, CL 18 and CL 19 were clarified.

The project complies with the requirements.

3.6 Emission Reduction Calculation

3.6.1 Discussion

The net anthropogenic GHG removals by sinks is the actual net GHG removals by sinks minus the baseline net GHG removals by sinks minus leakage.
Therefore, following general formula (equation 27 in AR-AM0001/version 02) is used to calculate the net anthropogenic GHG removals by sinks of an A/R CDM project activity (CAR-CDM), in tonnes CO2-e. (/21/, /26/)

$$C_{AR-CDM} = \Delta C_{ACTUAL} - \Delta C_{BSL} - LK \quad \text{------(1)}$$

Where:

C_{AR-CDM}:	Net anthropogenic GHG removals by sinks; tCO2-e
ΔC_{ACTUAL}	Actual net GHG removals by sinks; t CO2-e
ΔC_{BSL}	Baseline net GHG removals by sinks; CO2-e
LK	leakage, tonnes CO2-e

3.6.1.1 Baseline (ΔC_{BSL})

As stated in 3.3.1 above, it was confirmed that the changes in project area do not affect the baseline information. The 35 ha with growing trees in stratum II (ex-ante stratum) remains unchanged, hence the baseline net removals by sinks remains same as the registered PDD. Therefore, the baseline net GHG removals by sinks at the end of 2011 is 58.9 tCO2.

Baseline net GHG removals by sinks = 58.9 tCO2 ------(2)

3.6.1.2 Actual net GHG removals by sinks (ΔC_{ACTUAL})

ΔC_{ACTUAL}= [Carbonstock change in living biomass of the project] −
[Carbon stock change in shrub biomass] ------(3)

1. Carbonstock change in living biomass of the project:

Estimation of biomas stock in trees

The actual net GHG removals by sinks were estimated using the BEF method contained in the approved methodological tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities” (Version 02.1.0, EB 60 Annex 13).

Stock change method in the tool is applied.

The calculation steps are as below.

The verification team assessed the CER calculation spread sheet (/2/, /3/) and confirmed that the formula of the spread sheet in each step are correctly appling above methodological tool. Also, it was confirmed that parameters used in the spread sheet are correct as explained below.

(1) Volume equation (D.1 of monitoring report, C.3.1.3.1 of PDD)
Volume equation and parameters in the spreadsheet are the same as those in the registered PDD.

(2) Stem volume of each tree in sample plot was converted to above-ground tree biomass using basic wood density and biomass expansion factors, and the above-ground tree biomass was expanded to total tree biomass using root-shoot ratios.

$$B_{TREE,j,p,i,t} = V_{TREE,j,p,i,t} * D_j * BEF_{2,j} * (1 + R_j) \quad (4)$$

where:

$B_{TREE,j,p,i,t}$	Biomass of trees of species *j* in sample plot *p* of stratum *i* at a point of time in year *t*; t d.m.
$V_{TREE,j,p,i,t}$	Stem volume of trees of species *j* in sample plot *p* of stratum *i* at a point of time in year *t*, estimated by using the measured DBH and height as entry data into a volume equation; m^3
D_j	Basic wood density of tree species *j* (listed in Section D.1); t d.m. m^{-3}
$BEF_{2,j}$	Biomass expansion factor for conversion of stem biomass to above-ground tree biomass, for tree species *j* (listed in Section D.1); dimensionless
R_j	Root-shoot ratio for tree species *j* (listed in Section D.1); dimensionless
j	*1, 2, 3, …* tree species in plot *p*
p	*1, 2, 3, …* sample plots in stratum *i*
i	*1, 2, 3, …* tree biomass estimation strata within the project boundary
t	*1, 2, 3, …* years counted from the start of the A/R CDM project activity

Volume equation (E.1) is the same as above tool (formula (1) of the tool) and this is consistent with the registered PDD.

It was confirmed that in above, formula E.1, both of $V_{TREE,j,p,i,t}$ and $BEF_{2,j}$ are based on over-bark volume.

The formula E.1 is the same as formula (1) of the methodological tool.

(3) Tree biomass in sample plot p of stratum i: Formula (3) of the methodological tool is applied.

(4) Tree biomass per ha in plot p in stratum i: Formula (4) of the methodological tool is applied.

(5) Mean tree biomass per ha in stratum i and variance of tree biomass per ha in the stratum: Formula (5) and (6) of the methodological tool are applied.

(6) Mean tree biomass per ha within the project boundary and its variance: Formula (7) and (8) of the methodological tool are applied.

(7) Margin of error of the tree biomass per ha within the project boundary

Formula (9) of the methodological tool “Estimation of carbon stocks and changes in carbon stocks of trees and shrubs in A/R CDM project activities” (EB 60 Annex 13) is applied.

$$e_{b_{TREE}} = t_{VAL} * s_{b_{TREE}} \quad (5)$$

where:

$e_{b_{TREE}}$	Margin of error of the mean tree biomass per hectare within the project boundary; t d.m. ha^{-1}
t_{VAL}	Two-sided Student’s *t*-value for: (i) Degrees of freedom equal to $n - M$, where *n* is total number of sample plots within the project boundary, and *M* is the total number of tree biomass estimation strata; and (ii) The confidence level required by the methodology applying this tool (e.g. 90% or 95%); dimensionless. E.g. Two-sided Student’s *t*-value for a probability value of 10% (which implies a 90% confidence level) and 80[1] degrees of freedom can be

[1] Degree of freedom = [total number of sample plots] − [number of strata] = 102 -22 = 80

obtained in Excel spreadsheet as "=TINV(0.10,80)" which returns a value of 1.664125

$s_{b_{TREE}}$ Square root of the variance of mean tree biomass per hectare within project boundary at a given point of time in year *t* (i.e. the standard error of the mean); t d.m. ha^{-1}

In the CER calcuation, the confidence level of 90% is properly applied as an option of the methodological tool. (/2/, /3/, /29/) The uncertainty assessment is based on the methodological tool of EB 60 Annex 13 instead of the uncertainty assessment of the methodology AR-AM0001 version 02. This conforms with the "Guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities". (EB 63 Annex 26)

(8) Total tree biomass within the project boundary:
Formula (10) of the methodological tool is applied.

(9) Carbon stock in tree biomass within the project boundary:
Formula (11) of the methodological tool is applied.

The calculated biomass stock is as below. (Table E-2 of the monitoring report)

Strata	mean tree biomass $b_{TREE,i,t}$ (t d.m./ha)	Strata area (ha)	Number of sample plots	Variance of tree biomass (t d.m. ha^{-1})^2	Carbon stock in tree biomass and the margin of error
S－1	4.25	369.4	7	9.93	$b_{TREE,t}$=25.2008 t d.m. ha^{-1}
S－2	0.00	236.2	5	0.00	$B_{TREE,t}$=75,824.05 t d.m.
S－3	0.00	122.9	4	0.00	$C_{TREE,t}$=139,010.8 tCO$_2$-e
S－4	0.67	417.4	7	0.79	($C_{TREE,t}$ = $B_{TREE,t}$ x 0.5 x 44/12)
S－5	0.00	165.3	4	0.00	
S－6	0.00	153.6	4	0.00	$s_{b_{TREE}}$=1.4916249 t d.m. ha^{-1}
S－7	7.79	37.8	3	182.13	$e_{b_{TREE}}$=2.48225 t d.m. ha^{-1}
S－8	4.22	94.4	4	25.49	$e_{b_{TREE}} / b_{TREE,t} \times 100\% = 9.85\%$
S－9	0.00	16.1	3	0.00	
S－10	0.00	152.6	4	0.00	
S－11	0.00	119.6	4	0.00	
S－12	0.00	25.4	3	0.00	
S－13	122.42	518.0	19	1372.08	
S－14	77.74	63.3	3	1.48	
S－15	30.12	120.3	6	153.81	
S－16	6.45	120.1	4	7.52	
S－17	3.11	30.9	3	6.39	
S－18	0.31	58.5	3	0.29	
S－19	0.00	26.8	3	0.00	
S－20	14.53	25.7	3	9.44	
S－21	0.73	83.5	3	1.61	
S－22	0.00	51.0	3	0.00	
TOTAL		**3008.8**	**102**		

As indicated in above table, Carbon stock $C_{TREE,t}$ is calculated as 139,010.8t$CO_{2\text{-}e}$.for the monitoring period.

The relative margin of errors ($e_{b_{TREE}} / b_{TREE,t} \times 100\%$) is less than 10% and complies with the conditions of the "Guidelines on application of specified version of A/R CDM methodologies in verification of registered A/R CDM project activities" (EB 63 Annex 26)

Carbon stock changes in living tree biomass of the project

According to the methodological tool, carbon stock changes in living tree biomass of the project is calcullated as below.

$$dC_{TREE,(t1,t2)} = (C_{TREE,t2} - C_{TREE,t1})/T \quad (6)$$

where:

$dC_{TREE,(t_1,t_2)}$	Rate of change in carbon stock in tree biomass within the project boundary during the period between a point of time in year t_1 and a point of time in year t_2; t CO_2-e yr^{-1}
C_{TREE,t_2}	Carbon stock in tree biomass within the project boundary at a point of time in year t_2; t CO_2-e
C_{TREE,t_1}	Carbon stock in tree biomass within the project boundary at a point of time in year t_1; t CO_2-e
T	Time elapsed between two successive estimations (T=t_2 – t_1); yr

For the first verification, the variable C_{TREE,t_1} in Equation (E.11) was assigned the value of carbon stock in the pre-project tree biomass at the start of the A/R CDM project activity, which is estimated as 25.8 tCO_2 as a medium result for estimating carbon stock changes in pre-project living trees during the ex ante estimate of baseline net GHG removal by sinks.

The verification team confirmed above description in the monitoring report as complying with the methodological tool and the value of 25.8 tCO2 is the value of living tree biomass at 2005 and indicated in the CER calculation spread sheet submitted at the registration. (/23/)

Carbonstock change in living biomass

Based on above, the carbonstock change in living biomass is calculated as below.

Carbon stock change in living biomass = 139,010.8 – 25.8 = 138,985.0 tCO2 ------ (7)

2. Carbon stock change in shrub biomass

Carbon stock change in shrub biomass is estimated using the pre-project shrub biomass measurement data in the summer of 2006. (Ref. CL 13 of C.2.7 above) (/4/)

In the calculation, it is assumed that all the pre-project shrub biomass died and emitted at the time of planting. This assumption is considered conservative and appropriate. (**CL 21**)

The carbon stock change in shrub biomass = 6,962.0 tCO2 ------ (8)

3. Project emission

It was confirmed by the interviews with PMOs and PP and sub-compartment monitoring cards that there has been no biomass burning during site preparation and no forest fire during the verification period. (/8/, /44-48/, /54-63/)

Therefore there is no project emission in this monitoring period.

4. Actual net GHG removals by sinks

Based on above eq. (3), (7) & (8)

ΔC_{ACTUAL}= 138,985.0 − 6,962.0 = 132,023.0 tCO2-e ------ (9)

3.6.1.3. leakage

The potential leakage due to the implementation of the registered A/R CDM project activity is GHG emissions due to fossil fuel combustion from vehicles using for transporting seedling, labors, fertilizer, harvest products, etc., to and/or from project sites. However based on the guidance provided in para 35, EB 42 meeting report regarding accounting of GHG emissions in A/R CDM project activities, and the guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities (Version 01.0) (Annex 26, EB63), such emissions by sources were set as zero.

3.6.1.4. Emission reduction calculation results

Based on above calculation, the actual net GHG removals by sinks are calculated as below.

Baseline GHG removals by sinks	58.9	tCO2e
Actual net GHG removals by sinks[2]	132,023.0	tCO2e
Leakage	0.0	tCO2e
Net GHG removals by sinks	131,964.1	tCO2e

3.6.2 Findings

CL 20

The availability of the complete set of data for the monitoring period is to be confirmed.

(Huanjiang County and Cangwu County)

Response

The complete set of data for the monitoring period is confirmed in CPMO project office at the on-site assessment.

Conclusion

The verification team confirmed by observing each CPMOs' office that the complete set of data for the monitoring period area available.

CL 21:

Please explain how the shrub biomass is counted in the registered PDD.

Response

As stated in PDD D.1, 5t/ha including grass & shrubs is used as default value.

Conclusion

It was confirmed that the ex-ante calculation is using IPCC default data (Table 3.4.2 & 3.4.3) as stated in the registered PDD. The ex-post calculation is based on the actual measurements. (/22/, /4/)

CL 22:

(1) CER: Actual checks and reviews are to be confirmed at site visit.

(2) Please provide the SOP made by Guagnxi Forestry Planning and Inventory Institute.

Response

(1) Actual checks and reviews are done by expert group.

(2) SOP= Monitoring manual is provided.

---

[2]: [Actual net GHG removals by sinks] = [Carbonstock change in living biomass of the project] − [Carbon stock change in shrub biomass] (3)

Conclusion
(1) The verification team confirmed based on the interviews with PMO, GFIPI and expert group that the checks and reviews are conducted by expert group.

(2) OK

3.6.3 Conclusion

CL 20, CL 21 and CL 22 were clarified.

The Net GHG removals by sinks are correctly calculated as 131,964 tCO2e.

The project complies with the requirements.

3.7 Environmental and Social Indicators

3.7.1 Discussion
The verification team confirmed with the interviews with PMO, PP and villagers about the environmental and social impacts of the project.

3.7.2 Findings

CL 23: The environmental and social aspect of the implementation of the project is to be confirmed at site visit.

(1) Contribution to the Biodiversity and ecosystem integrity

(2) Controlling soil erosion

(3) Improving environmental services

(4) Building incentives to people to invest in sustainable land use

(5) Improving watershed management and contributing outside of the project boundary

Response
The environmental monitoring report to the World bank is provided. (2009)

Conclusion
The environmental monitoring report to the World bank was provided. (/13/)
(1) It is observed that the project is contributing to the ecosystem conservation.
(2) It was confirmed by the interview with the local villagers that the project is contributing to the controlling of soil erosion.
(3)(5) It was confirmed by the interviews with local villagers that the project is contributing to the improvement of water quality and availability.
(4) It was confirmed by the interviews with the local villagers that the project is giving incentives to the local villagers to invest in sustainable land use.

CL 24

Please inform environment Monitoring activity, if applicable.

Response
The environmental monitoring is carried out according to the World Bank practices.
Chinese version of initial report is provided.

Conclusion
The environmental monitoring report to the World bank was provided. (/13/)
The verification team confirmed that the environmental monitoring has been conducted according to the World Bank practice.

3.7.3 Conclusion
CL 23 and CL 24 were clarified.
The verification team confirmed the project activity contributes to the local environment and society.

The project complies with the requirements.

4. VERIFICATION STATEMENT

JACO CDM has performed a verification of the AR CDM project “Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin” (hereinafter the Project). The verification is based on the currently valid documentation of the UN Framework Convention on Climate Change (UNFCCC). In this context, the relevant documents are the "Marrakech Accords" and subsequent decisions by the CDM Executive Board as well as the host country criteria.
The Project Management Unit is responsible for the preparation of the GHG removals data and the reported GHG removals reductions of the Project on the basis set out within the project Monitoring and Verification Plan indicated in the registered PDD version GIFDCP02 dated 21 July, 2006, and complies with the methodology AR-AM0001/ version 02. The development and maintenance of records and reporting procedures are in accordance with that plan, including the calculation and determination of GHG removals from the project is the responsibility of the Project Management Unit.
The verifier assesses that the project is implemented and operated as planned and described in the validated and registered PDD. Established forest being essential for GHG removals is operated reliably and is managed appropriately. The monitoring system is in place to monitor and report the project parameters in a reliable manner and the project is generating GHG removals.
The verifier assesses that the monitoring was done in accordance the monitoring plan and the GHG removals in the Monitoring Report/ version 02 dated 23/05/2012 are calculated without material misstatements.
We pointed out 1 CAR and 24 CLs.
Our opinion is based on the verification of the project monitoring and implementation information and the resulting GHG removals by sinks reported along with the information of the validation reportof the registered project, and associated documents. Based on the information we have seen and evaluated, we confirm the following statement.

Reporting period: From 01-04-2006 to 31-12-2011

Verified GHG removals in the above reporting period:

Net GHG Removals by sinks:	131,964 tCO_2 equivalents
Carbon stock change in project trees:	138,985.0 tCO2 equivalent
Carbon stock change in project shrub:	−6,962.0 tCO_2 equivalents
Baseline net GHG removals by sinks:	58.9 tCO_2 equivalents
Leakage emissions:	0.0 tCO_2 equivalents

Date: 03 October, 2012

Michio HIRUTA
CEO, President of JACO CDM

5. References

Category 1 Documents:

List documents provided by the Client that relate directly to the GHG components of the project. These should have been used as direct sources of evidence for the verification conclusions, and are usually further checked through interviews with key personnel.

/1a/ Monitoring Report, Version 01 dated 07/03/2012 (for 01/04/2006 - 31/12/2011)
/1b/ Monitoring Report, Version 02 dated 23/05/2012 (for 01/04/2006 - 31/12/2011)
/2/ CER calculation spread sheet:
(i) Stratification and project area
(ii) Standard values
(iii) Tree field data
(iv) Tree biomass
(v) Project emissions
(vi) Leakage
(vii) Net GHG removals
/3a/ Sample plot measurement data (Excel sheet)
(i) Sample plot data
(ii) Tree biomass calculation summary
(iii) Number of sample plots
/3b/ Sample plot measurement data (Field data)
/3c/ Preliminary measurement in 2010 (for standard deviation data of main tree species)
/4a/ "Bio Carbon Fund, Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin; Pre-project non-tree vegetation survey report", (Guangxi University, GFIPI, Chinese Academy of Forestry, June, 2006)
/4b/ Pre project shrub biomass measurement data
/5/ Project boundary measurement data (GIS shp file)
/6/ Calculation of project area (Excel sheet)
/7/ Examples of project site map (for typical sample plot)
/8/ Sub compartment monitoring cards (for typical sub-compartments)
/9/ Contract documents for the reforestation project between project owners and farmers communities (for typical communities)
/10a/ Monitoring operation guidance for "China Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin" CDM forest project (Guangxi PMO, Guangxi Forestry Inventory & Design Institute, September, 2011)
/10b/ Plantation technology of Eucalyptus (Guangxi PMO)
/10c/ Management technology for Eucalyptus plantation (Guangxi PMO, World Bank, August, 2009)
/11/ Accuracy of Hypsometer
/12/ Training record for the project operation and monitoring (examples conducted in 2008 & 2011)
/13/ Environmental monitoring report to the World Bank (Guangxi PMO, 18 January, 2009)
/14/ Report on Project Implementation (PPMO, April, 2012)
/15/ Manual for Monitoring of CDM A/R projects/ Part 1- Standard Operational Procedures (BioCarbon Fund of the World Bank, 2011)
/16/ Forestry Inventry Manual 1986 (Guangxi Institute of Forestry Inventory and Design, June, 1986)
/17/ Yield table of Eucalyptus (Guangxi Institute of Forestry Inventory and Design, March, 2006)

Category 2 Documents:

List background documents related to the design and/or methodologies employed in the design or other reference documents. Where applicable, Category 2 documents should have been used to cross-check project assumptions and confirm the validity of information given in the Category 1 documents and in verification interviews.

/21/ Registered PDD for the project (ref. 0547)

/22/ Validation report “Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin”
/23/ CER calculation spread sheet at registration
/24/ IPCC GPG LULUCF
/25/ CDM Validation Verification Manual (Version 01.2) (EB 55 Annex 1)
/26/ AR-AM0001 / Version 02 (19 May 2006) “Reforestation of degraded land”
/27/ Guidelines on accounting of specified types of changes in A/R CDM project activities from the description in registered project design documents Version 02.0 (EB 66, Annex 24)
/28/ Guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities (EB 63 Annex 26)
/29/ A/R Methodological Tool “Estimation of carbon stocks and changes in carbon stocks of trees and shrubs in A/R CDM project activities” (EB 60 Annex 13)
/30/ A/R Methodological Tool "Calculation of the number of sample plots for measurements within A/R CDM project activities” (EB 58 Annex 15)
/31/ Decision of EB 42 paragraph 35: (about (i) fertilizer application, (ii) removal of herbaceous vegetation, and (iii) transportation)

Persons interviewed:

List persons interviewed during the verification, or persons contributed with other information that are not included in the documents listed above.

/41/ Liu Jin: Project Manager, the World Bank
/42/ Zhang Xiaoquan: TNC China
/43/ Jianhua Deng: Deputy Director, Guangxi Forestry Department
/44/ He Sanzhong: Forester, PPMO (Provincial Project Management Office)
/45/ Peng Wen Sheng: Forester, PPMO
/46/ Li Qui Yu: Chief of PPMO
/47/ Huang Jing: Deputy Chief of PPMO
/48/ Ye Chun Sheng: Senior Engineer, PPMO
/49/ Zhunping Mo: GFIPI (Guangxi Forestry Inventory and Planning Institute)
/50/ Huang Kai Yong: GFIPI
/51/ Yuang Sheng: GFIPI
/52/ Qi Zhong Wei: GFIPI
/53/ De Wen Tong: GFIPI
/54/ Wei Chou Ran: Deputy director of Huanjiang CPMO
/55/ Huang Bin Dao: Chief of Huanjiang CPMO (County Project Management Office)
/56/ Meng Zhengbao: deputy chief of Huanjiang CPMO
/57/ Wei Gan Quan: Huanjiang CPMO
/58/ Fan Jiang Quan: Huanjiang CPMO
/59/ Wei Ling Yun: Huanjiang CPMO
/60/ Wei Xing Yu: Huanjiang CPMO
/61/ Qin Zu Wang: Huanjiang CPMO
/62/ Qin Ya Kui: Huanjiang Xing Huan Company
/63/ Lu Yin Xue: Huanjiang Xing Huan Company
/64/ Liang Jian Chang: Huanjiang Cai Feng village
/65/ Liu Xiansheng: Huanjiang Ding Youshan Village
/66/ Liang Jianting: Huanjiang Weiji Village
/67/ Mo Shoya: Huanjiang Guoli Village
/68/ Liang Sanzhong: Huanjiang Caoge Village
/69/ Mo Chanzou: Huangjiang Xialong Village
/70/ Mo Changchun: Huangjiang Xialong Village
/71/ Mo Ziping: Huanjiang Cuishan Village
/72/ Li Guo: Vice Director of Cangwu County Government
/73/ Xu Kang: Director of Cangwu CPMO (County Project Management Office)
/74/ Lu Huan Yang: Vice director of Cangwu CPMO

/75/ Lian Yuan Wen: Vice director of Cangwu CPMO
/76/ Li Zhi Qi: Cangwu CPMO
/77/ Lu Muan Yang: Cangwu CPMO
/78/ Liang Peisheng: Cangwu Shatou Forestry Station
/79/ Xu Bingjie: Cangwu Cantian Village Group 1
/80/ Mo Jiantang: Cangwu Cantian Village Group 2
/81/ Xu Yongwei: Cangwu Cantian Village Group 1
/82/ Xu Souzhong: Cangwu Cantian Village Group 2
/83/ Xu Yongjiang: Cangwu Cantian Village Group 1
/83/ Xu BingLiang: Cangwu Cantian Village Group 1
/84/ Xu Souting: Cangwu Cantian Village Group 2
/85/ Lie Jiancai: Cangwu Forestry Company
/86/ Huang Richao: Cangwu Forestry Company

Appendix 1: AR Project Verification Checklist

Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin

(Reference number: 0547)

Monitoring Period: 01/04/2006 – 31/12/2011

VVM: 01.2

Table 1: Periodic Verification Checklist

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
Section A. Monitoring Report: General description			
A.1. Brief description of the project activity Does the Monitoring report describe a brief summary of the project as below? - The purpose of the project activity and the measures taken to reduce greenhouse gas emissions; - Brief description of the installed technology and equipments; - Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.) - Total emission reductions achieved in this monitoring period	/1/ /2/ /3/ /21/	- The purpose of the project activity is clearly indicated in the monitoring report. The specific objectives of the project are; (1) To sequester CO_2 through forest restoration in small watershed areas and pilot reforestation activities to generate high-quality GHG emission reductions that can be measured, monitored and verified; (2) To enhance biodiversity conservation by increasing the connectivity of forests adjacent to nature reserves; (3) To improve soil and water conservation; (4) To generate income for local communities. - The project area is 3,008.8 ha and less than the original plan of 4000 ha (Huanjiang County: 2000ha and Cangwu county: 2000ha) described in the PDD. - In the monitoring report, the major species are described which are the same as registered PDD. - The project is implemented involving farmers/communities and forest companies under the same cooperative arrangements as described in the PDD. Share holding arrangements between local farmers/communities and forest company: 2651.9ha (PDD: 3,560ha) Farmer group: 356.9ha (PDD: approx. 440ha) - The installed technology is briefly explained. The description is consistent with the PDD. - The reforestation activity has been implemented since 2006 in the Guangxi province in China and they are consistent with the PDD. - Total GHG removals by sinks are indicated as 131,964 tCO2 during this monitoring period. **CL1:** Please inform about the changes in production arrangements and management models, if any. (Ref. PDD A.2)	**CL 1**

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
A.2. Project participants Are the project participants consistent with the registered project activity?	/1/ /2/	The project participants in the PDD are Xinghuan Forestry Development Company Ltd, Huanjiang County, P.R. China, Spain and Italy. After registration, new participants are added. The project participants in the monitoring report are the same as the list of the project view page (http://cdm.unfccc.int/Projects/DB/TUEV-SUED1154534875.41/view).	OK
A.3. Location of the project activity Is complete information of the location of the project activity: town, city, country and GPS coordinates described?	/1/ /2/ /5/	The project activity is located in Huanjiang County and Cangwu County of Guangxi Zhuang Autonomous Region, in Southern China as described in the monitoring report.. GPS coordinates of the Townships and Villages of the project activity are indicated in the monitoring report Table A-2. **CL 2**: Please provide the detail information of the project coordinates and changes from the coordinates of the registered PDD.	**CL 2**
A.4. Technical description of the project Are the technology applied in the project activity and detailed technical process described?	/1/ /2/ /8/ /21/	Detailed technical description about site preparation, planting stock development, nursery technology and planting technique/ spacing is provided in the monitoring report. The project implemented reforestation through direct planting of tree spcies to restore the degraded lands using environmental-friendly techniques. Good practice guidance of reforestation and experience gained from the World Bank financed forestry projects were adopted in the project. The technical and regulatory standards indicated in the PDD A.4.8 have been followed. The local forestry agencies, i.e., Guangxi Provincial Forestry Department, Cangwu and Huanjiang County Forestry Bureaus, Guangxi Forestry Inventory and Design Institute and Guangxi Forestry Research Institute provided guidance, and quality control in the implementation of the A/R CDM project activity. The up-to-date technologies and silvicultural models were adopted. No technology has been transferred to the host party. The tree species are the same as planned in the registered PDD. The verification team confirmed by the sub-compartment monitoring cards that the same amount of fertilizer with PDD is applied. (For Eucalyptus, at planting 750g, 2nd year 300g, 3rd year 400g/tree) (**CL 3**) **CL 3**: (1) Please provide the evidence of fertilizer application. (2) Please justify the description of monitoring report “On poor soils, small	**CL 3**

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
		quantities of nitrogenous fertilizer with 10% nitrogen content was applied to eucalyptus at the rate of : 750g per tree at planting, 300g per tree in the second year and 400g per tree in the third year."	
A.5. Project title, reference number, monitoring period and version of the baseline and monitoring methodology applied to the project activity: Are they consistent with the Monitoring report spread sheet and the registered PDD?	/1/ /2/ /3/	Project title, reference number, monitoring period and version of the baseline and monitoring methodology are to be consistent in the monitoring report and CER calculation spread sheet. **CL 4**: Please provide the CER calculation spread sheet.	**CL 4**
A.6. Registration date of the project activity Is the registration date is consistent with the monitoring period?	/1/	The registration date indicated in the monitoring report is 10 November, 2006. The monitoring period of the project is 01 April, 2006 to 31 December, 2011. These dates conform to the monitoring plan of the project and the requirements of AR CDM project activity.	OK
A.7.Crediting period of the project activity and related information If applicable, does the report include changes to the start date of the crediting period post-registration that have been accepted by the Board?	-	Not applicable.	NA
A.8. Name of responsible person(s)/entity(ies) Is the contact information of the person(s)/ entity(ies) responsible for completing the monitoring report form?	/1/	Contact information of the responsible persons is clearly indicated in the monitoring report.	OK
A.9. Open issue by the validation or previous verification.	/1/ /22/	No open issues.	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
Section B. Implementation of the project This part is covering the essential checks during the on-site inspection at the project's site, which is indispensably for an initial verification			
B.1 Forest establishment (1) The starting date of the project: consistent with the registered PDD? (2) Site and soil preparations are implemented based on PDD? (3) Removal of pre-vegetation based on PDD? - no slash and burn: emissions to be counted, if any - no soil disturbance (4) Survival checking (5) Weeding checking (6) Species and planting for each stratum: in line with PDD? - Detail record showing the plantation for each stratum & sub-stratum is to be provided. Including map, tree species, number of trees - Comparison of plan (PDD) and actual status are to be explained (such as mixed species to minimize risks as PDD A.4.8) (7) Is the information described regarding the actual operation of the project activity during the monitoring period, including information on special events? (ex. Fire, draught or unexpected climate change which affect the project activity). (8) Is a brief explanation described; (i) events or situations that occurred during the monitoring period, which may impact the applicability of the methodology? (ii) how the issues resulting from these events or situations are being addressed?	/1/ /2/ /3/ /4/ /5/ /21/	(1) The starting date of the project is 01 April 2006 and it is confirmed the same date as in the validation report. (/32/) (2)(3) It was confirmed by the sub-compartment monitoring cards (25 randomly sampled cards) and interviews with PMO staffs that site and soil preparation is done in the same manner as stated in the registered PDD A.4.8. (no burning, no overall tillage) (/8/) (**CL 5 (1)**) (4), (5): The verification team confirmed by the sub-compartment monitoring cards (25 randomly sampled cards) and interviews with PMO staffs that survival checking has been conducted based on the description of the reggistered PDD and recorded (checking timing and suvival rate > 90%). Also, it was confirmed weeding are conducted manually as stated in the PDD and recorded in the sub-compartment monitoring card. (/8/) (**CL 5 (2)**) (6) Year wise planted area is described in the monitoring report Table B.1 in comparison with the original proposal in the PDD. The monitored project area is 3,008.8 ha and less than the original plan of 4000 ha (Huanjiang County: 2000ha and Cangwu county: 2000ha) described in the PDD. The reason of this reduction is explained in the monitoring report E.6. (Poor site conditions, Contract with households could not be implemented, Land tenure conflicts, Other reasons such as natural regeneration, washed gally, etc.) The species composition is changed and also indicated in the monitoring report Table B.1.(**CL 5 (3)**) (7),(8): To be confirmed. (**CL 5 (4)**) **CL 5:** (1) Please provide the evidence indicating that the site preparation is conducted as planned in the PDD. Please provide the actual plantation activity record up to 2011 as the evidence of Table B.1. (2): Please explain with evidence that the survival checking and weeding have been done as planned.	**CL 5**

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
		(3) Please provide with the information of actual planted area in Table B.1. (4) Please provide special events during the monitoring period, if any. (such as fire or unexpected climate change which affect the project activity.)	
B.2. Project boundaries (1) Are the project activities confirmed that the control over A/R project activity has been established by the project participants for all the project areas? (VVM142, EB44 Annex 16) (2) Check whether the project boundaries are still in compliance with the ones indicated by the PDD. (VVM196)	/1/ /9/ /44/- /61/ /73/- /77/	The control over all A/R project area was confirmed by the interviews with PPMO, CPMO and randomly selected contract documents between the project owner and farmers communities. (/9/) (**CL 6**) **CL 6**: Please explain about the control of all the project area during the monitoring period with evidences.	**CL 6**
B.3. On-site visit Was on-site visit conducted? If not, justify the rational of decision. (VVM197)	-	The on-site visit is conducted during 6 - 14 of April, 2012..	OK
B.4. Change in operation Does the implementation or operation of CDM project activity conform to the description contained in the registered PDD? (VVM197)	/1/ /2/ /3/ /27/	Table B.2 of the monitoring report shows the types of changes from the description in the registered PDD as outlined in the guidelines (Annex 24, EB66) and their applicability to the implemented project.	

No.	Types of changes	Applicability to the project	DOE Comment
a	Changes in year-wise areas planted	Yes, 3008.8ha was planted out of planned 4000ha, i.e., 991.2 ha was not planted.	OK (Comply with EB 66 Annex 24)
b	Changes in species composition (to be consistent with the baseline identification and additionality at the validation)	Yes, changes in species composition and stand models occurred during the project implementation. It was found that due to poor site conditions and location specific factors, survival and growth rates of some species were not as projected in the PDD. In addition, small changes to the stand models needed to be made as per the requirements of field implementation. The species planted are relevant to the project area and the changes in species composition of the project are consistent with the baseline identification and additionality demonstration made at the validation stage	OK Changes in species composition and stand models occurred during the project implementation. Consistency was demonstrated with the baseline identification and additionality demonstration made at the validation stage.
c	Changes in stocking density	No change in stocking density	—

OBJECTIVE		Ref.	COMMENTS	Concl.(incl. FARs/CARs)
d	Changes in timing and choice of silvicultural operations		Yes, changes of silvicultural operation due to changes in species composition.	OK
e	Changes in timing of harvest occurring before the 3rd verification		Yes, changes of potential harvesting before 3rd verification.	OK
f	Changes related to collection of non-timber forest products		Yes, changes such as resin collection of pine.	OK
g	Changes in tree/shrubs propagation method		No change	—
h	Changes in post-harvest re-planting/regeneration methods;		Not applicable	—
i	Changes in technology employed;		No change	—
j	Changes in inputs (e.g. fertilizers, certified seeds, watering);		No change	—
k	Changes in stratification for sampling;		Yes, ex post stratification has been implemented.	OK
l	Changes in type of sample plots (e.g. temporary, permanent, point-sampling);		No change (Permanent sample plots)	—
m	Changes in number of sample plots and their allocation to strata;		Yes, due to ex-post stratification.	OK
n	Changes in the project boundary (limited to reduction in project area)		Yes, Changes in project boundary occurred as a consequence of the reduction in project area by 991.2 ha.	OK
o	Changes in quality assurance/quality control (QA/QC) procedures		Yes, QA/QC procedures consistent with procedures used by the national forest inventory are implemented.	OK
p	Changes in parameters, equations, or methods used in tree biomass estimation		No change	—
q	Changes from provisions regarding shifting of pre-project activities,		Not applicable.	—
r	Changes in use of fire in site preparation,		Not applicable	—
s	Changes in extent of soil disturbance in site preparation,		Not applicable	—
t	Changes in methods of estimation of changes in any carbon pool		Yes, the latest methodological tool for trees and shrubs will be used. (EB60 Annex 13)	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
		CL 7: The each item of changes in Table B.2 is to be confirmed with evidences along with explanation about their impacts to the project. - year-wise areas planted, - Species composition, - stocking density, - timing and choice of silvicultural operations - timing of harvesting (before 3rd verification) - collection of non-timber forest products - stratification for sampling - number of sample plots and allocation to starata - project boundary (limited to reduction in project area)	**CL7**
B.5. Impacts by changes What is the potential impact due to the change, according to the relevant guidelines established by the EB? (VVM197)	/1/ /2/	**Ditto**	**Ditto**
B.6. Notification or approval of changes Was a notification or request for approval of changes from the project activity as described in the registered PDD submitted prior to the conclusion of the verification/certification for the corresponding monitoring period? (VVM197)	/1/ /2/ /27/	All the changes do not affect the additionality and considered as minor in nature, therefore submitting a notification of changes or a request for approval is not required in accordance with the "Guidelines on accounting of specified types of changes in A/R CDM project activities from the description in registered project design documents" (EB66 Annex 24).	**Ditto**
Section C. Monitoring System			
C.1 Compliance of the Monitoring Plan with the monitoring methodology Verification of the monitoring plan of the project complies with the applied monitoring methodology.			
C.1.1. Monitoring Plan Check whether the monitoring plan of the project in accordance with the approved methodology applied by the proposed CDM project activity. (VVM200)	/1/ /26/ /28/	The monitoring plan of the project is based on the approved monitoring methodology AR-AM0001/ version 02 applied by the proposed project activity. In addition to above, "Guidelines on application of specified version of A/R CDM methodologies in verification of registered A/R CDM project activities" (EB 63 Annex 26) is applied.	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
		The requirements of above guidelines applicable to the methodology AR-AM 0001/version 02 and applicability to the project are explained in the monitoring report. These are as below.	

Applicability of EB 60 Annex 13 to the project activity

Requirements	Guidelines (EB 60 Annex 13)	Applicability to the project
(1) Monitoring of data and parameters	(i) Only data and parameters obtained from field measurement are required to be monitored; (ii) Monitoring is not required for data, parameters, or variables appearing as intermediate values in calculation steps and those taken from existing sources (e.g. published literature)	Yes, data and parameters required to be monitored in the methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities" were measured
(2) Sampling design, sample plot lay-out, and marking of permanent sample plots	(i) Use of temporary sample plots; (ii) Random lay-out of sample plots; (iii) A maximum allowable relative margin of error of the mean, for estimation of aboveground tree biomass, of ± 10% at 90% confidence level shall be allowed.	Yes, 90% confidence level was applied
(3) Accounting for uncertainty	Requirements related to uncertainty assessment, uncertainty analysis, methods of combining uncertainties, and uncertainty in expert judgement are superfluous and compliance with these requirements shall not be enforced.	Yes, uncertainty analysis was conducted following the methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"
(4) Field measurement of soil organic carbon	(i) Instead of field measurement of soil organic carbon, the "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities" shall be used for areas which meet the applicability conditions of the tool; or (ii) The value of change in soil organic carbon shall be set to zero. Consequently, monitoring of data and parameters related to estimation of changes in soil organic carbon shall not be required.	Not applicable

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
		(5) Clearance or burning of herbaceous vegetation: (i) Changes in carbon stocks resulting from clearance of herbaceous vegetation shall be set to zero; (ii) Emissions resulting from clearance or burning of herbaceous vegetation shall be set to zero. Consequently, monitoring of data and parameters related to (i) and (ii) above shall not be required. — Yes, loss of carbon in living herbaceous vegetation was not accounted for	
		(6) Estimation of emissions of nitrous oxide from use of fertilizers: Estimation and accounting of emissions of nitrous oxide from use of fertilizers shall not be required. Consequently, monitoring of data and parameters related to the above-mentioned emissions shall not be required. — Yes, emissions of nitrous oxide from use of fertilizers were not monitored and accounted for.	
		(7) Burning of fossil fuel: Estimation and accounting of emissions from burning of fossil fuel, both within and outside the project boundary, shall not be required. Consequently, monitoring of data and parameters related to the above mentioned emissions shall not be required. — Yes, emissions from burning of fossil fuel, both within and outside the project boundary were not monitored and accounted for.	
C.1.2. Request for revision of Monitoring Plan In case if the monitoring plans of the project is not in accordance with the monitoring methodology, was the request for revision of the monitoring plan done? (VVM201)	/1/	Not applicable.	—
C.1.3 Monitoring Aspect Are there any monitoring aspects of the project activity that are not specified in the methodology (e.g. additional monitoring parameters, monitoring frequency and calibration frequency)? (VVM202)	/1/	Not applicable. There are no aspects of the project activity that are not specified in the methodology.	OK
C.2 Compliance of the monitoring with the monitoring plan Verification of the monitoring of the project in accordance with the registered PDD.			
C.2.1. Monitoring activity and methodology	/1/	(1) The PP implemented and followed the approved monitoring plan and	OK

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
(1) Check whether the PP implemented and followed the approved monitoring plan and applied monitoring methodology.(VVM205) (2) Does the PP avoided a systematic coincidence of verification and peaks in carbon stocks (VVM 156)		applied monitoring methodology. (2) In this monitoring period (01 April, 2006 – 31 December, 2011), there was no harvesting activity. **CL 8**: It is to be confirmed by the on-site visit that there was no harvesting activity in the monitoring period.	**CL 8**
C.2.2. Monitoring of baseline	/1/ /26/	The monitoring of baseline is not necessary as per the methodology AR-AM0001/version 02.	OK
C.2.3. Monitoring of Boundaries	/1/	If the actual boundary falls outside of the boundary referred in section A of the PDD, the part of lands that are outside the designed boundary would not be accounted as a part of the implemented A/R CDM project activity. **CL 9** It should be confirmed that all the project area is within the project boundary of the planned registered project.	**CL 9**
C.2.4. Monitoring of project implementation	/1/	(Ref: **CL 5 (1)** of B.1)	(**CL 5-1**)
C.2.5. Stratification	/1/ /5/ /6/	A revision to the ex-ante stratification have been conducted taking into account the changes in the area, species/stand models included in the project, the schedule of planting adopted during project implementation, and growth rates of species relevant to site conditions. The stratification map was created on a GIS platform. The project area was stratified into 22 strata (see table C.1 for the detailed ex post stratification). The boundary of strata was determined using PDA and GPS by going along the demarcation line of two connected strata. **CL 10**: (1) Please explain the stratification map of GIS for Table C.1. (calculation of area of each stratum, stratum of compartment/sub-compartment indicated in Annex 1) (2) Please demonstrate the procedures of determining boundaries using PDA and GPS during the on-site assessment. Please explain about the QA/QC procedures of determining boundaries and measurements of areas. (3) Stratification is to be checked at on-site assessment based on table C.1 and Annex I information by sampling.	**CL 10**

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
		- Location (coordinates) - Species - Condition of planted trees (4) Stratum information is to be added to Annex 1. (5) Please provide the examples of planting year evidence.	
C.2.6. Sampling scheme	/1/ /3/ /30/	• Sample size Permanent sampling plots were used for sampling over time to measure and monitor changes in carbon stocks of the relevant carbon pools. The plots were located with GPS and are invisible so as to be treated in the same way as other lands within the project boundary, e.g., during fertilization, tending, thinning, harvesting, etc. A/R Methodological Tool "Calculation of the number of sample plots for measurements within A/R CDM project activities" (Version 02.1.0) was applied to re-calculate the number of sample plots for each stratum outlined in the PDD. **CL 11**: (1) Please provide the excel sheet for the calculation of sampling plots. (2) Please provide the standard deviation of preliminary measurement in 2010 indicated in the monitoring report P13 is to be provided. (Table C.3 is to be corrected. X: Longitude, Y: Latitude) • Location of sample plots To avoid subjective choice of plot locations (plot centres, plot reference points, movement of plot centres to more "convenient" positions) and to ensure that the sampling plots evenly spread in each stratum as much as possible, the permanent sample plots were laid out systematically with a random start. The size of sample plots is 400 m^2 (20m × 20m). However, if the shortest distance between sampling plot boundary and project boundary is less than 10 m, or if the plot is across the project or stratum boundary, the sample plot shall be moved toward the center of the parcel of land. The geographical coordinates of all sample plots were listed in table C.3 below. As per the monitoring procedures, if after the field measurement, the precision level is over 10%, the number of sample plots would need to be recalculated using above mentioned method, based on measured standard deviation of biomass stock to layout the additional sampling plots. **CL 12**: (1) Please demonstrate the location of sampling plots during on-site	**CL 11** **CL 12**

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
		assessment. ("evenly spread with random start") (2) The size (20m x 20m) and location of sample plots are to be checked by on-site assessment. - Sample plot boundary is not less than 10m from project boundary - The plot is not across the project the project or stratum boundary. (3) Please provide the precision level of field measurements for each sample plots. (4) Please inform, if applicable, the case that the number of sample plots are recalculated after the field measurement due to excessive precision level of 10%.	
C.2.7 Measurement of pre-project shrub biomass	/1/ /4b/	Destructive method has been used to measure the pre-project shrub biomass in the summer 2006. 110 random sampling plots were measured. **CL 13**: Please provide the measured data of shrub biomass of 2006.	**CL 13**
C.3 Management and Operational System In order to ensure a successful operation of a Client project and the credibility and verifiability of the ERs achieved, the project must have a well defined management and operational system. (VVM205 (b))			
C.3.1. Organization structure Check how reports with relevance for the later determination of emission reductions will be generated	/1/ /42/- /63/ /73/- /77/	The organization outline for monitoring of project implementation and field measurement of sampling plots & data entry/analysis are explained in the monitoring report. **CL 14** (1) The actual reporting procedures, including field data monitoring, aggregation of the data of Huanjiang & Cangwu County data and GHG removals calculation are to be explained. (2) Please explain about approximate number of persons of monitoring, checking and analysis.	**CL 14**
C.3.2. Documented instructions Check whether the personnel performing tasks with sensitivity for the monitoring of emission reductions have access and knowledge of	/1/ /10/ /15/	**CL 15:** (1) Please provide the Manual of monitoring indicated in the monitoring report Section C, § 7.	**CL 15**

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
documented instructions, forming a part of the project's management system.			
C.3.3. Documentation The system should be documented by manuals and instructions for all procedures and routines with relevance to the quality of emission reductions. The accessibility of such documentations to persons working on the project has to be secured.	/1/ /10/ /42/- /63/ /73/- /77/	**CL 15:** (2) The accessibility to project documents: Please explain during on-site assessment.	**CL 15**
C.3.4. Data transfer Where data is transferred between or within systems/spreadsheets, the method of transfer (automatic/manual) is highlighted - automatic links/updates are implemented where possible. All assumptions and the references to original data sources are documented.	ditto	Flow chart for monitoring of project implementation is illustrated in Section C § 8. **CL 15:** (3) Data transfer: It is to be confirmed at the on-site assessment.	**CL 15**
C.3.5. Trainings The system should describe the requirements on qualification and the need of training programs for all persons working on the emission reduction project. Performed training programs and certificates should be archived by the system.	ditto	**CL 15:** (4) Please provide the example of training material and record.	**CL 15**
C.3.6. Allocation of responsibilities The allocation of responsibilities should be documented in written manner.	ditto	The roles and responsibilities are indicated in the monitoring report Section C § 7 and Monitoring and operation Guideline. (/1/, /10/)	OK
C.3.7. Emergency procedures The system should contain procedures which provide emergency concepts in case of unexpected problems with data access and/or data quality.	ditto	**CL15:** (5) Please explain provisions for emergency.	**CL 15**
C.3.8. Monitoring report The system includes procedures for the calculation of emission reductions and the preparation of the	ditto	**CL 15** (6) Please demonstrate the actual activity of field measurement of sample plots and data entry.	**CL 15**

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
monitoring report.			
C.3.9. Internal QA/QC The system includes internal control procedures, which allow the identification and solution of problems at an early stage	ditto	The following QA/QC procedures are explained in the monitoring report Section C § 10. (1) Quality check on field measurements (2) Quality checks of field data collected (3) Quality checks of data entry and analysis (4) Data maintenance and archival **CL 15:** (7) The record of QA/QC activity is to be explained. Please provide examples of cross checking, if applicable. (8) Data maintenance and archival are to be observed at on-site assessment.	**CL 15**
C.3.10. Data protection measures Data protection measures for databases/spreadsheets should be in place (access restrictions and editor rights).	ditto	**CL 15:** (9) Data protection measures are to be demonstrated at on-site visit.	**CL 15**
C.3.11 IT systems IT systems used for GHG monitoring and reporting should be tested and documented	/1/ /54/-/61/ /74/-/77/	**CL 15:** (10) IT system is to be demonstrated at on-site visit.	**CL 15**
Section D. Monitoring data and parameters (VVM205(b))			
D.1 Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors			
D.1.1. Consistency of the data and parameters with the monitoring plan Are the data and parameters are consistent with the monitoring plan of the registered PDD?	/1/ /24/	It was confirmed that BEF2,j, Dj and Rj values are identical with the values of the monitoring plan of the registered PDD. **CL 16**: (1) The value in the volume equation of *P. massoniana* is slightly different from that of registered PDD. It is to be clarified. (2) Please justify each volume equation ($V_{TREE,j,p,i,t}$) as per the A/R	**CL 16**

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
		methodological tool "Demonstrating appropriateness of volume equation for estimation of aboveground tree biomass in A/R CDM project activities" (EB 65 Annex 29)	
D.2. Data and parameters monitored For each of data and parameter monitored, following information is to be provided.			
[Data and Parameter: A_i]	/1/	Sum of planted areas of the biomass estimation strata [ha]	
(a) Measurement method & instruments	/1/ /5//6/ /10/ /28/ /42/ /50/-/53/	Coordinates of each project area (sub-compartments) are measured by GPS and recorded in PDA. A_i is calculated by GIS using thesecoordinates data. **CAR 1**: (1) The area of strata and sub-strata in the monitoring plan of the registered PDD is removed from the monitoring parameters. Please explain. (2) Other items which are indicated to be monitored in the monitoring plan of registered PDD should be confirmed and revised. (Plot location, Age of plantation, Number of trees, Area of stratum and sub-stratum)	**CAR 1**
(b) Correctness	ditto	The measurements using GPS and area calculation using PDA/GIS are limited to well experienced persons of GFIPI with double check. Measument and data treatment procedures are based on the A/R CDM project's SOP by the World Bank. The data is considered correct and reliable.	OK
(c) QA/QC procedures, calibration	ditto	Manual/guidelines for national and local forest inventory and Manual for Monitoring of CDM Afforestation and Reforestation Projects: Part I - Standard Operational Procedures by World Bank are applied.	OK
(d) Accuracy	ditto	The measurment technology is established and commonly applied to the area measurments. The measurement accuracy is maintained by SOP.	OK
(e) Verification	ditto	The verification team assessed the monitoring procedures of Ai measurements which is carried out by the well experienced persons from GFIPI following the SOP of the World Bank and the procedures are reliable. The verification team checked by sampling the data in the area calculation spread sheet (/6/) with the sub-compartment area data recorded in GIS file. These data are identical and the area data in the area calculation spread sheet is correct.	OK
[Data and Parameter: $A_{p,i}$]		Area of sample p in stratum i	

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
(a) Measurement method & instruments	/1/ /5//6/ /10/ /28/ /42/ /50/-/53/	**CL.17**: Please explain the purpose of the monitoring of this parameter $A_{p,j}$.	**CL 17**
(b) Correctness	ditto	The setting of smple plots were demonstrated. The procedures are correctly follows the Monitoring operation guidance (/10a).	OK
(c) QA/QC procedures, calibration	/1/ /5//6/ /10/ /28/ /42/-/63/ /73/-/77/	Manual/guidelines for national and local forest inventory and Manual for Monitoring of CDM Afforestation and Reforestation Projects: Part I - Standard Operational Procedures by World Bank are applied.	OK
(d) Accuracy	ditto	The setting method of the sample plots applys the strict method. The method is applicable even in steep slopes and suitable for the project.	OK
(e) Verification	ditto	The verification team assessed the monitoring procedures of Ai measurements which is carried out by the well experienced persons from GFIPI following the SOP of the World Bank and the procedures are reliable.	OK
[Data and Parameter: DBH]		[Diameter at breast height of living trees]	
(a) Measurement method & instruments	/1/ /2//3/ /10/ /28/ /42/ /50/-/53/	DBH data was provided in sample plot measurment data (spread sheet and field data) (/3a/,/3b/) The measurment is done for all trees with diameter ≧ 2cm in the sample plots using Vinyl tape or wooden stake at 1.3m height.	OK
(b) Correctness	ditto	**CL 18**: (1) The procedures are to be explained and demonstrated at on-site visit. (Hanjiang & Cangwu site) (2) Actual field data is to be checked with the imput data for removals calculation by sampling.	**CL 18**

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
(c) QA/QC procedures, calibration	/1/ /2//3/ /10/ /28/ /42/- /63/ /73/- /77/	Manual/guidelines for national and local forest inventory and Manual for Monitoring of CDM Afforestation and Reforestation Projects: Part I - Standard Operational Procedures by World Bank are applied.	OK
(d) Accuracy	ditto	The method is simple and suitable.	OK
(e) Verification	ditto	The verification team assessed the monitoring procedures of Ai measurements which is carried out by the well experienced persons from GFIPI following the SOP of the World Bank and the procedures are reliable.	OK
[Data and Parameter: H]		[Height of trees]	
(a) Measurement method & instruments	/1/ /2//3/ /10/ /28/ /42/ /50/- /53/	Tree height is measured by Hypsometer for all trees with DBH greater than 2 cm in the sample plots. Recording frequency is 5 years. **CL 19**: (1) The procedures are to be explained and demonstrated at site.	**CL 19**
(b) Correctness	ditto	ditto	
(c) QA/QC procedures, calibration	/1/ /2//3/ /10/ /28/ /42/- /63/ /73/- /77/	(2) Please explain about the calibration of the hypsometer.	**CL 19**
(d) Accuracy	Ditto	(3) Please explain about the meter accuracy.	**CL 19**
(e) Verification	ditto	(4) Actual field data is to be checked with the input data for removals calculation by sampling.	**CL 19**
Section E. Assessment of data and calculation			

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
GHG emission reductions achieved by/resulting from the proposed CDM project activity shall be calculated applying the selected methodology.			
E.1. Complete set of data Check whether the complete set of data for the specified monitoring period available. If not, was the most conservative assumption taken, or a request of deviation raised? (VVM208 (a))	/1/ /3/ /10 /42/- /63/ /73/- /77/	**CL 20:** The availability of the complete set of data for the monitoring period is to be confirmed at he on-site assessment. (Huanjiang County and Cangwu County)	**CL 20**
E.2. Cross-check Information provided in the monitoring report is to be cross-checked with other sources such as plant log books, inventories, purchase records, laboratory analysis (VVM208 (b))	Ditto	The QA/QC procedures are explained in the monitoring report Section C § 10. **(Ref CL 15 (8) of C.3.9 above.)**	**(CL 15)**
E.3. Emission reduction Calculation Check whether the calculations of baseline emissions, proposed CDM project activity emissions and leakage, as appropriate, have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document (VVM208 (c))	/1/ /2/ /3/ /4/ /21/ /23/ /24/ /26/ /29/	1. <u>Baseline</u> It was confirmed that the changes in project area do not affect the baseline information. The 35 ha with growing trees in stratum II (ex-ante stratum) remains unchanged, hence the baseline net removals by sinks remains same as the registered PDD. (ref. Table D-2 of the registered PDD) Therefore, the baseline net removals by sinks were fixed as the ex ante estimation. The total of the baseline net removals by sinks during the monitoring period (from the project start to the end of 2011) were 58.9 tCO_2 (Table E-1). 2. <u>Project emission calculation</u>: <u>2-1: Carbonstock change in living biomass of the project:</u> The actual net GHG removals by sinks were estimated using the BEF method contained in the approved methodological tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities” (Version 02.1.0, EB 60 Annex 13). Stock change method in the tool is applied. The procedures are as below. (1) Volume equation (D.1 of monitoring report, (C.3.1.3.1 of PDD)) (2) Stem volume of each tree in sample plot was converted to above-ground tree biomass using basic wood density and biomass	

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
		expansion factors, and the above-ground tree biomass was expanded to total tree biomass using root-shoot ratios. (3) Tree biomass in sample plot p of stratum i (4) Tree biomass per ha in plot p in stratum i (5) Mean tree biomass per ha in stratum i and variance of tree biomass per ha in the stratum (6) Mean tree biomass per ha within the project boundary and its variane (7) Margin of error of the tree biomass per ha within the project boundary (8) Total tree biomass within the project boundary (9) Carbon stock in tree biomass within the project boundary Carbon stock $C_{TREE,t}$ is calculated as 139,010.8tCO_{2-e}.for the monitoring period. Margin of error=9.85% 2-2: Carbon stock change in shrub biomass Carbon stock change in shrub biomass is estimated using the pre-project shrub biomass measurement in the summer of 2006. (Ref. CL 13 of C.2.7 above) In the calculation, it is assumed that all the pre-project shrub biomass was died out adn emitted at the time of planting. This assumption is considered conservative. **CL 21:** Please explain how the shrub biomass is counted in the registered PDD? 3. Leakage calculation: The potential leakage due to the implementation of the registered A/R CDM project activity is GHG emissions due to fossil fuel combustion from vehicles using for transporting seedling, labors, fertilizer, harvest products, etc., to and/or from project sites. However based on the guidance provided in para 35, EB 42 meeting report regarding accounting of GHG emissions in A/R CDM project activities, and the guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities (Version 01.0) (Annex 26, EB63), such emissions by sources were set as zero.	**CL 21**
E.4. Assumptions in emission	ditto	Ref E.3	

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
calculation Justify any assumptions used in emission calculations. (VVM208 (d))			
E.5. Appropriate emission factor and default data Check whether appropriate emission factors, IPCC default values and other reference values have been correctly applied. (VVM208 (e)) These data are to be validated and periodically evaluated to ensure their ongoing appropriateness and accuracy, particularly following changes to circumstances, equipment etc. The validation and periodic evaluation of this is documented.	ditto	BEF, WD and R are consistent with the registered PDD values.	OK
E.6. Completeness of calculation Assess whether the provided calculations are complete and reflect all requirements of the monitoring plan. Is a spread sheet containing the emission reductions calculations provided? (EB 48 Annex 68)	Ditto	Ref E.3	
E.7. Guidance on checks and Reviews Guidance is to be provided on when, where and how checks and reviews are to be carried out, and what evidence needs to be documented. This includes spot checks by a second person not performing the calculations over manual data transfers, changes in assumptions and the overall reliability of the calculation processes.	Ditto	The check and review procedures are indicated in the monitoring report. Checks and reviews are explained in Section C § 9 and 10 of the monitoring report. **CL 22:** (1) Actual checks and reviews activity are to be confirmed at site visit. (2) Please provide the SOP made by Guagnxi Forestry Planning and Inventory Institute.	**CL 22**

OBJECTIVE	Ref.	COMMENTS	Concl.(incl. FARs/CARs)
E.8. Comparison of actual emission reductions with estimates in the registered-PDD Have differences between the monitored ER and the ex-ante ER been reported and appropriately justified? Potential impacts on baseline and additionality are to be assessed.	/1/ /2/ /3/ /21/ /23/	The cumulative actual GHG removals in the monitoring period are reported as 131,964.1 ton CO2e. The difference is explained in the monitoring report as below. (1) Reduction of planted area (2) Delayed planting schedule (3) Lower growth rate	OK
Section G. Environmental and Social Indicators A Monitoring Plan may comprise environmental and/or social indicators which could be necessary to monitor for the success of the project activity			
F.1. Implementation of measures A project activity may demand for the installation of measures (e.g. filtering systems or compensation areas), which are exceeding the local legal requirements. A check of the implementation or realization of such measures should be part of the initial verification.	/1/ /13/ /21/ /42/- /86/	**CL 23**: The environmental and social aspect by the implementation of the project is to be confirmed at site visit. (1) Contribution to the Biodiversity and ecosystem integrity (2) Controlling soil erosion (3) Improving environmental services (4) Building incentives to people to invest in sustainable land use (5) Improving watershed management and contributing outside of the project boundary	**CL 23**
F.2. Monitoring equipment Check where necessary whether the required metering systems have been installed. The meters have to comply with appropriate quality standards applicable for the used technology.	/1/ /13/	**CL 24** Please inform environment monitoring activity, if applicable. Chinese version of initial report will be provided.	**CL 24**

Table 2. Compilation and resolutions of CARs, CLs and FARs[3]

Draft report clarifications and forward action request by audit team	Ref. to checklist Table 1	Summary of project owner response	Audit team conclusion
CAR 1: (1) The area of stratum and sub-stratum in the monitoring plan of the registered PDD is removed from the monitoring parameters. Please explain. (2) Other items which are indicated to be monitored in the monitoring plan of registered PDD should be confirmed and revised. (Plot location, Age of plantation, Number of trees, Area of stratum and sub-stratum)	D.2	(1) The monitoring report is revised. (2) As per the "Guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities" (Version 01.0, EB 63 Annex 26, table 1, 1st column), "monitoring is not required for data, parameters, or variables appearing as intermediate values in calculation steps and those taken from existing sources (e.g. published literature)". Area of stratum and sub-stratum are added to the list of monitoring parameters.	(1) OK It was confirmed that the stratum and sub stratum are monitored. The monitoring report was revised. (2) OK Following parameters are not used in the calculation of CERs and considered intermediate values in calculation steps, thus can be removed from the list of monitoring parameters in accordance with the guideline of EB 63 Annex 26. - plot location: this is monitored along with area measurment - age of plantation: this is monitored for ex-post stratification - number of trees: this is monitored along with the sample plot measurement
CL1: Please inform about the changes in production arrangements and management models, if any. (Ref. PDD A.2)	A.1	There is no change in production arrangements and management models.	OK The verification team confimed through the interviwes with PPMO that there is no change in production arrangements and management models.

[3] VVM 01.2 §194: The DOE shall report on all CARs, CLs and FARs in its verification report. This reporting shall be undertaken in a transparent and unambiguous manner that allows the reader to understand the nature of the issue raised, the nature of the responses provided by the project participants, the means of verification of such responses and clear reference to any resulting changes in the PDD or supporting annexes.

CL 2: Please provide the detail information of the project coordinates and changes from the coordinates of the registered PDD.	A.3	Actual project area data is provided as GIS shp file along with the area calculation spread sheet. The boundary measurement is conducted by PDA and recorded in GIS shp files. The procedures of actual boundary measurements using GPS and PDA was demonstrated in the on-site assessment. Examples of maps of the project are provided.	The GIS shp files for Huanjiang County and Cangwu County along with the area calculation spread sheet and examples of maps were provided. (/5/, /6/) The verification team checked the area calculation spread sheet and GIS shp file by sampling and confirmed that area data are consistent.
CL 3: (1) Please provide the evidence of fertilizer application. (2) Please justify the description of monitoring report "On poor soils, small quantities of nitrogenous fertilizer with 10% nitrogen content was applied to eucalyptus at the rate of : 750g per tree at planting, 300g per tree in the second year and 400g per tree in the third year."	A.4	(1) The sub-compartment monitoring cards were provided for the evidences of fertilizer application. (2) It is recorded in the sub-compartment monitoring card.	(1) OK The sub-compartment monitoring cards for Eucaliptus plantation were provided. (2) OK It was confirmed by the sub-compartment monitoring card that the fertilizer was applied in accordance with the plan described in the PDD.
CL 4: Please provide the CER calculation spread sheet.	A.5	2 types of calculations are provided. One is based on the UNFCCC A/R tool "Estimation of carbon stocks and change in carbonstocks of trees and shrubs in A/R CDM project activities" (EB60, Annex 13). The other one is based on the World bank's practice. Both calculation methods give the same results.	OK 2 methods of CER calculations were provided. One method is based on the UNFCCC tool and the other is based on the World Bank method. The calculated CER results are identical.
CL 5: (1) Please provide the evidence indicating that the site preparation is conducted as planned in the PDD. Please provide the actual plantation activity record up to 2011 as the evidence of Table B.1. (2): Please explain with evidence that the	B.1	(5-1), (5-2): Example of sub-compartment monitor cards are provided. (for Huanjiang: 10, Cangwu: 15, total 25) (5-3) Actual measured area in Table B-1 is based on GIS, indicated in area calculation spread	OK (5-1), (5-2): It was confirmed by the sub-compartment monitor cards that the site preparation is conducted as planned in the PDD. (5-3) Actual planted area in table B.1 was confirmed by the area calculation excel sheet and it was confirmed the

survival checking and weeding have been done as planned. (3) Please provide with the information of actual planted area in Table B.1. (4) Please explain special events during the monitoring period, if any. (such as fire or unexpected climate change which affect the project activity.)		sheet (/6/) and the results are shown in Annex 1 of the monitoring report. (5-4) The special events such as cold weather, drought, etc were explained.	area data is consistent between following information; (a) monitoring report: Table B.1, Table C.1, Table C.2, Annex I (/1b/) (b) Sub-compartment monitoring card (/8/) (c) Calculation sheet of project area (/6/) (d) GIS shp file (/5/) (5-4) OK
CL 6: Please explain about the control of all the project area during the monitoring period with evidences.	B.2	All the contracts were signed. The owner ship of the actual project area is confirmed by the contract documents. Samples of contract are provided. (Huanjiang: 5, Cangwu: 10)	OK The examples of the signed contract documents were provided. (total 15) The verification team confirmed the control of the project is appropriate based on these signed contract documents. (Samples of documents for control are necessary for more than 10. (VVM §142))
CL 7: The each item of changes in Table B.2 is to be confirmed with evidences along with explanation about their impacts to the project. - year-wise areas planted, - Species composition, - stocking density, - timing and choice of silvicultural operations - timing of harvesting (before 3rd verification) - collection of non-timber forest products - stratification for sampling - number of sample plots and allocation to strata - project boundary (limited to reduction in project area)	B.4	- Species composition, stocking density, timing – these information can be confirmed by sub-compartment monitor cards: Samples will be provided. - The spacing of major species is the same as noted in the PDD. However, the actual stocking density is different from the planting density noted in the PDD due to several reasons such as changes in species composition, stand models, poor growth and damages to the seedlings planted. - Stratification for sampling is based on species and planting year. - Number of sample plots are based on the sampling plots calculation tool (EB58, Annex 15). - Project boundary is changed due to the reasons described in the monitoring report E.6.	OK The types of the changes in the Project activity are listed in the monitoring report. The verification team assessed based on “Guidelines on accounting of specified types of changes in A/R CDM project activities from the description in registered project design documents” (Version 02.0) (EB 66 Annex 24) and confirmed that the description in the revised monitoring report is appropriate as DOE’s comments in the table 2 of this verification report.
CL 8: It is to be confirmed that there was no	C.2.1	It can be confirmed by the site visit and the	OK

harvesting activity in the monitoring period.		record of the sub-compartment monitoring card that there was no harvesting activity in the monitoring period.	It was confirmed by the on-site visit and the record of the sub-compartment monitoring card that there was no harvesting activity in the monitoring period. (/8/)
CL 9 It should be confirmed that all the project area is within the project boundary of the planned registered project.	C.2.3	The GIS demonstration was conducted for ex-ante area and ex-post area during on-site assessment. It is demonstrated that the actual project area is within the boundary of the planned registered project.	OK It was confirmed by GIS demonstration that actual planted area is within the original areas of PDD.
CL 10: (1) Please explain the stratification map of GIS for Table C.1. (calculation of area of each stratum, stratum of compartment/sub-compartment indicated in Annex 1) Please provide the calculation excel sheet of plantation areas (total 3008.8ha) (2) Please demonstrate the procedures of determining boundaries using PDA and GPS during the on-site assessment. Please explain about the QA/QC procedures of determining boundaries and measurements of areas. (3) Stratification is to be checked at on-site assessment based on table C.1 and Annex I information by sampling. - Location (compartment, sub-compartment) - Species - Planted year - Condition of planted trees (4) Stratum information is to be added to Annex 1. (5) Please provide the examples of planting year evidence.	C.2.5	(1) The stratification map of GIS for Table C.1 along with the area calculation spread sheet is provided. (2) The procedures of determining boundaries were demonstrated at on-site assessment. QA/QC procedures involved sample cross-checking of boundaries and monitored area. (3)(4) Stratum information was added to Annex 1 of the monitoring report. Also, sub-compartment monitoring cards indicating location (compartment and sub-compartment, species, conditions of planted trees) are provided. The stratum of each sub-compartment can be checked by Annex 1 of the moitoring report and sub-compartment monitoring card at on-site visit. (5) The information is indicated in the sub-compartment monitoring card. The examples of the monitoring cards are provided.	OK (1) GIS shp files which were based on the actual measurement of coordinates of each project area were provided. (/5/) Also, the area calculation excel sheet was provided. (/6/) Data are consistent: Refer to CL (5-3) above. (2) It was confirmed by the on-site assessment that the boundaries are determined using PDA and GPS properly. (3)(4) It was confirmed that stratum information was added in the Annex 1 of the revised monitoring report. (/1b/) The verification team confirmed that Information about statum is consistent among the Table C.1, sub-compartment monitoring cards and actual conditions. (5) The verification team checked sub-compartment monitoring cards by sampling (25 cards) and confirmed that the planting years in the monitoring report in Table B.1, Table C.1 and Annex 1 are consistent with the

			information of the sub-compartment monitoring cards. (/1/, /8/)
CL 11: (1) Please provide the spread sheet for the calculation of sampling plots. (2) Please provide the standard deviation of preliminary measurement in 2010 indicated in the monitoring report P13 is to be provided.	C.2.6	(1) Sample plots calculation sheet which is a part of the spread sheet of "Sample plot measurement data" is provided. The spread sheet includes (i) Each sample measurment data, (ii) tree biomass calculation summary (iii) Number of sample plots calculation (2) Spread sheet was provided. This is also a part of above spread sheet. (/3a/)	OK (1) The verification team was provided with the excel sheet (/3a/) which includes; (i) Each sample measurment data, (ii) tree biomass calculation summary (iii) Number of sample plots calculation (2) The spread sheet (above /3a/ (iii)) indicating the standard deviation by preliminary measurement in 2010 was provided.
CL 12: (1) Please demonstrate the location of sampling plots during on-site assessment. (evenly spread with random start) (2) The size (20m x 20m) and location of sample plots are to be checked by on-site assessment. - Sample plot boundary is not less than 10m from project boundary - The plot is not across the project or stratum boundary. (3) Please provide the precision level of field measurements for sample plots. (4) Please inform, if applicable, the case that the number of sample plots are recalculated after the field measurement due to excessive precision level of 10%.	C.2.6	(1) Location of the sampling plots was demonstrated and it is based on the monitoring manual of the project. (2) It was confirmed at on-site assessment. (3) Calculation sheet of precision level of field measurements was provided. (9.85%) (4) At the first monitoring with 101 plots the precision level was exceeding 10% and 1 sample plot was added to meet the requirement and final sample plots are 102.	OK (1) Location of sampling plots was demonstrated in Huanjian County and Cangwu County. The sample plot locatoin work is accurate and correctly implemented applying the monitoring manual. (/10/) (2) The size of the sample plots are confirmed as correct for all the visited sample plots. The location of the sample plots listed in Table C.3 are checked by GPS and it was confirmed that the coordinates of each sample plots are suitably described. (3)(4) It was confirmed that the precision level of field measurements is 9.85% and less than 10% (at 90% confidence level) which is a maximum allowable relative margin of error of the mean, for estimation of above-ground tree biomass in accordance with the Guideline on application of specified version of A/R CDM methodologies in verification of registered A/R CDM project activities. (/26/)

CL 13: Please provide the measured data of shrub biomass of 2006.	C.2.7	The report, spread sheet and actual field data samples of pre-project shrub biomass are provided.	OK The report, spreadsheet and actual field data samples of pre-project shrub biomass were provided. (/4/) The verification team confirmed based on the report, spread sheet and actual field data samples that the pre-project shrub biomass is 6,962 tCO2.
CL 14 (1) The actual reporting procedures, including field data monitoring, aggregating the data of Huanjiang & Cangwu County data and GHG removals calculation are to be explained. (2) Please explain about approximate number of persons engaged in the project such as management, planting & monitoring.	C.3.1	(1) The procedures are explained. GHG removals calculation was provided. (2) Approximate number of persons engaged are as below. PPMO: 18 CPMO: 4 in Huanjiang, 5 In Cangwu Expert Group: 8 Daily Monitoring Activity: approx. 20 (Huanjiang), 6 Cangwu Silvi-cultural activities (site preparation , planting, weeding, tending, etc.: Approx. 1200 (Huanjiang), 860 (Cangwu)	OK (1) The verification team confirmed bsaed on the monitoring and operation guideline (/10/) and interviews with project participants, PPMO, CPMO and GFIPI that the monitoring activities have been conducted as indicated in the monitoring report section C §7-9. (/41/-/63/, /73/-/77/) (2) The verification team confirmed that the monitoring activities have been carried out by sufficient number of experienced people including GFIPI and TNC.
CL 15: (1) Please provide the Manual of monitoring indicated in the monitoring report Section C, §7. (2) The accessibility to project documents: Please explain during on-site assessment. (3) Data transfer: It is to be confirmed at the on-site assessment. (4) Please provide the example of training material and record. (5) Please explain provisions for emergency. (6) Please demonstrate the actual activity of	C.3.2 – C.3.11	(1) The Monitoring and Operating Guidelines made by PPMO and design institute dated September, 2011 was provided. (2) The documents of the project is properly stored in the project office (Huanjiang CPMO, Cangwu CPMO) (3) The data transfer is explained during the on-site visit. (Huanjiang & Cangwu) (4) Example of training material was provided. (5) Provisions of emergency were explained. (6) Field measurement and data entry were demonstrated at site.	OK (1) Contents of the ”Monitoring and Operating Guidelines are as below. These are consistent with the monitoring report. - Purpose of monitoring - Rules - Organization, roles and responsibilities - Project boundary monitoring - Project implementation monitoring - GHG Removal monitoring using sample plots - GHG removals calculation, flow - QA/QC

field measurement of sample plots and data entry. (7) The record of QA/QC activity is to be explained. Please provide examples of cross checking, if applicable. (8) Data maintenance and archival are to be observed at on-site assessment. (9) Data protection measures are to be demonstrated at on-site visit. (10) IT system is to be demonstrated at on-site visit.		(7) QA/QC Field measurement: Cross check by design institute. Data Input: Cross check Calculation: prepared by Institute and cross-checked by Expert group Monitoring report: Expert group (8)(9) It was confirmed that data maintenance, archival and protection was confirmed at CPMO. (Huanjinag, Cangwu) (10) IT system was demonstrated at CPMO.	- sub-compartment monitoring card - field monitoring sheet (H, DBH/ sample plot) (2) The verification team confirmed that the project documents are properly stored in the project offices of 2 counties. (3) the verification team confirmed based on the interviews with PMO and GFIPI that the datatransfer is in accordance with the monitoring plan and Monitoring & Operating Guidelines. (4) The verification team confirmed that the training materials for management staffs and villagers are prepared and trainings have been conducted. (/12/) (5) Provisions for emergency were explained by PMO as follwing. The PP (Forest company) will report the emergency and record in the sub-compartment monitoring card and inform to PMO. PMO will take necessary action. (6) The verification team confirmed that the field monitoring activities are conducted in accordance with the monitoring & operation guidelines whose summary is described in the monitoring report. (7) The verification team confirmed based on the field record that the QA/QC activity has been conducted in accoradnce with the monitoring & operation guidelines such as (i) cross-checking of field measurements by other monitoring team (ii) data entry check by several persons. (8), (9):The verification team confirmed that data maintenance and archiving are properly conducted in CPMOs' offices (Huanjiang County and Cangwu County).

			(10) The verification team confirmed that the IT system is properly introduced and controled in CPMOs' offices. (Huanjiang County and Cangwu County)
CL 16: (1) The value in the volume equation of *P. massoniana* is slightly different from that of registered PDD. It is to be clarified. (2) Please justify each volume equation ($V_{TREE,j,p,i,t}$) as per the A/R methodological tool "Demonstrating appropriateness of volume equation for estimation of aboveground tree biomass in A/R CDM project activities" (EB 65 Annex 29)	D.1.1.	(1) There is an typo error in PDD. In the monitoring report, the error is corrected and it is conservative. (2) The volume eqution for P.massoniana, C.lanceolata and others of the monitoring report p24 are indicated in the "Forestry Inventry Manual 1986" made by Guangxi Institute of Forestry Inventory and Design. (/16/) The volume equation of Eucalyptus is indicated in the " Yield table of Eucalyptus" made by Guangxi Institute of Forestry Inventory and Design,(March, 2006) (/17/) These documents have been used for National forestry inventory in Guangxi, therefore paragraph 5(a) of EB 65 Annex 29 is applied.	OK (1) The verification team confirmed that the error is corrected properly in the revised monitoring report and consistent with the CER calculation spread sheet. (2) The verification team was provided with the Forestry Inventry Manual 1986 and Yield tabel of Eucalyptus both are made by Guangxi Institute of Forestry Inventory and Design and confirmed that the volume equations in the monitoring report are identical with those of these documents. (/16/,/17/) The verification team also confirmed from the interviews with the consultant that volume equations in these documents are used for National forestry inventory in Guangxi. (/42/) The verification team concluded that the paragraph 5(a) of EB 65 Annex 29 is applied and the volume equations are appropriate. .
CL.17: Please explain the purpose of the monitoring of this parameter $A_{p,j}$.	D.2.	Sample plot area ($A_{p,j}$) is monitored to identify the trees for their number, DBH & H measurement.	OK The verification team confirmed that the monitoring of Apj is a necessary step for the monitoring of number of trees, DBH and H of trees in the monitoring plot area.
CL 18: DBH (1) The monitoring procedures are to be	D.2.	(1) Procedures are based on the SOP of the	OK (1) The verification team observed the monitoring activities and confirmed that

explained and demonstrated at on-site visit. (Hanjiang & Cangwu site) (2) Actual field data is to be checked with the input data for removals calculation by sampling.		World Bank.and demonstrated. (Huanjiang, Cangwu) (2) Field data was checked by sampling.(Huanjiang, Cangwu)	the monitoring procedures of height measurement are in accordance with the monitoring report and the Monitoring & Operating Guidelines. It was also confirmed that cross checking of DBH and tree height measurement is done by sampling. (2) The verification team checked actual field data for the sample plots (for 11 sample plots) and confirmed that there is 1 small error among 555 input data was found. (/3a/) It was confirmed that above small error of DBH (2.7 instead of 3.2 cm) does not affect the CER calculation. The DBH data in the CER calculation spread sheet (/2/) and sample plot measurement data (/3a/) were corrected.
CL 19: H (1) The procedures are to be explained and demonstrated at site. (2) Please explain about the calibration of the hypsometer. (3) Please explain about the meter accuracy. (4) Actual field data is to be checked with the input data for removals calculation by sampling.	D.2.	(1) Explained and Demonstarated.(Huanjiang, Cangwu) (2) It is calibrated before starting to the project site measurement. (3) 1% according to the manufacturer's data. (4) Field data was checked by sampling. (Huanjiang, Cangwu)	OK (1),(2) The verification team observed the monitoring activities and confirmed that the monitoring procedures of height measurement are in accordance with the monitoring report and the Monitoring & Operating Guidelines. (3) It was confirmed by the manufacturer's report. (/11/) (4) The verification team checked actual field data for the sample plots (for 11 sample plots) and confirmed that all the 555 input data are correct.
CL 20 The availability of the complete set of data for the monitoring period is to be confirmed at the on-site assessment. (Huanjiang County and Cangwu County)	E.1	The complete set of data for the monitoring period is confirmed in CPMO project office at the on-site assessment.	OK The verification team confirmed by observing each CPMOs' office that the complete set of data for the monitoring period area available.

CL 21 Please explain how the shrub biomass is counted in the registered PDD.	E.3.	PDD D.1, 5t/ha including grass & shrubs is used as default value.	OK It was confirmed that the ex-ante calculation is using IPCC default data (Table 3.4.2 & 3.4.3) as stated in the registered PDD. The ex-post calculation is based on the actual measurements. (/22/, /4/)
CL 22 (1) CER: Actual checks and reviews are to be confirmed at site visit. (2) Please provide the SOP made by Guagnxi Forestry Planning and Inventory Institute.	E.7.	(1) Actual checks and reviews are done by expert group. (2) SOP= Monitoring manual is provided.	OK (1) The verification team confirmed baesd on the interviews with PMO, GFIPI and expert group that the checks and reviews are conducted by expert group. (2) OK
CL 23: The environmental and social aspect by the implementation of the project is to be confirmed at site visit. (1) Contribution to the Biodiversity and ecosystem integrity (2) Controlling soil erosion (3) Improving environmental services (4) Building incentives to people to invest in sustainable land use (5) Improving watershed management and contributing outside of the project boundary	G.1.	The environmental monitoring report to the World bank is provided. (2009)	OK The environmental monitoring report to the World bank was provided. (/13/) (1) It is observed that the project is contributing to the ecosystem conservation. (1) It was confirmed by the interview with the local villagers that the project is contributing to the controlling of soil erosion. (3)(5) It was confirmed by the interview with local villagers that the project is contributing to the improvement of water quality and availability. (4) It was confirmed by the interview with the local villagers that the project is giving incentives to the local villagers to invest in sustainable land use.
CL 24 Please inform environment monitoring activity, if applicable.	G.2.	The environmental monitoring plan has been implemented in compliance of the World Bankprocedures. Chinese version of initial report is provided.	OK The environmental monitoring report to the World bank was provided. (/13/)