Verification and certification report form for CDM project activities (Version 02.1)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION	
Title and UNFCCC reference number of the project activity	Reforestation on Degraded Lands in Northwest Guangxi Reference number: 3561
Version number of the verification and certification report	Version 1.1Aa
Completion date of the verification and certification report	20/04/2018
Monitoring period number and duration of this monitoring period	2nd monitoring period 01/07/2012 to 12/11/2017 (both days included)
Version number of the monitoring report to which this report applies	Version 02
Crediting period of the project activity corresponding to this monitoring period	Renewable crediting period 01/01/2008 to 31/12/2027
Project participants	• Guangxi Longlin Forestry Development Company Ltd.; • The International Bank for Reconstruction and Development (IBRD) as Trustee of the BioCarbon Fund; • Kingdom of Spain - Ministry of Agriculture, Food and Environment and Ministry of Economy and Competitives; • Government of Ireland-Department of the Environment, Community and Local Government; • Zeroemissions Carbon Trust, S.A.; • Syngenta Foundation for Sustainable Agriculture
Host Party	China
Applied methodologies and standardized baselines	AR-ACM0001 version 03: Afforestation and reforestation of degraded land (applied in the registered PDD) AR-ACM0003 version 02.0: Afforestation and reforestation of lands except wetlands (applied in the 2nd monitoring period)
Mandatory sectoral scopes linked to the applied methodologies	14: Afforestation and reforestation
Conditional sectoral scope(s) linked to the applied methodologies	N/A
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	506,442 tCO_2e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	428,666 tCO_2e
Name and UNFCCC reference number of the DOE	RINA Services S.p.A. (RINA) – E0037
Name, position and signature of the approver of the verification and certification report	Laura SEVERINO (Authorized officer signing for the DOE) Sustainability & Food Certification Compliance Head

SECTION A. Executive summary

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Purpose and general description of the project activity

The purpose of the project activity is to achieve multiple objectives of restoring the degraded areas, including soil, water and biodiversity conservation and poverty alleviation. The specific objectives of the project are:

(1) To control soil and water erosion and land degradation in the selected project areas;
(2) To enhance biodiversity conservation by increasing forest cover and nature habitat connectivity;
(3) To generate income for the local farmers and promote the local community development.

To achieve the objectives, the 6,592.6 ha of multiple-use forests have been established on degraded lands in Longlin County, Tianlin County and Lingyun County of Guangxi Province, compared to 8,671.3 ha planned in registered PDD. The major species covered in the forestation models are: Masson pine (*Pinus massoniana*) 3,018.3 ha, Chinese Fir (*Cunninghamialanceolata*) 2,299.7 ha, Eucalypus (*Eucalyptus* sp.) 404.0 ha, Birch (*Betula luminifera*) 744.8 ha, and Choerospondias (*Choerospondias axillaries*) 125.8 ha.

The project activity is located in 41 villages of 13 townships and 2 sub-farms of Jinzhongshan Forestry Farms in Longlin County, 22 villages of 11 townships in Tianlin County, and 3 villages of 2 townships and 4 sub-farms of Jiujiang Forestry Farm in Linyun County in the northwest of Guangxi Zhuang Autonomous Region, R. R. China.

Scope of verification

The objective of the verification is to have an independent review ex post determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined monitoring period. Certification is the written assurance by the DOE that, during a specific time period, a proposed CDM project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified.

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence.

Verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable UNFCCC criteria for CDM in order to be certified.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board.
Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

Verification process

Verification was conducted using RINA procedures in line with the requirements specified in the CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The verification consisted of the following three phases:

- Desk review;
- On-site assessment:
- The resolution of outstanding issues and the issuance of the final verification report and certification.

Conclusion

The International Bank for Reconstruction and Development (IBRD) as Trustee of the BioCarbon Fund has commissioned RINA to carry out the verification and certification of emission reductions reported for the registered “Reforestation on Degraded Lands in Northwest Guangxi” project in China, CDM Registration Reference N° 3561, for the period 01/07/2012 to 12/11/2017.

The project activity is an A/R CDM project activity, since temporary CERs (tCERs) were issued based on the previous verification and certification, RINA confirms that the current verification and certification is for the

first time in the current commitment period, and all net anthropogenic GHG removals achieved since the start of the project activity are allocated to the commitment period which the monitoring period ends.

In conclusion, it is RINA's opinion that the project activity "Reforestation on Degraded Lands in Northwest Guangxi", in "China", as described in the Monitoring Report version 02 of 25/02/2018, meets all relevant requirements for CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology "AR-ACM0003", "Afforestation and reforestation of lands except wetlands", version 02.0 of 04/10/2013. In our opinion the GHG emission reductions reported for the project in the monitoring report version 02 are fairly stated.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader/Verifier	IR	Liu	Huifeng	RINA China	√	√	√	√
2.	Verifier/Technical expert in TA14.1	IR	Menon	Rekha	RINA India	√	√	√	√

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Buragohain	Champok	RINA India
2.	Technical expert in TA14.1 supporting ITR	EI	Maso	Daria	RINA Central Office
3.	Approver	IR	Severino	Laura	RINA Central Office

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human error in the quantification of emissions	Low	The project owner has established the CDM monitoring and management manual and appointed staff and CDM manager who were trained to responsible for meter reading and recording, auditing of these monitored data. The installation and calibration of the	Depending on the monitoring period being verified, conduct increased verifying during the months when there is a greater likelihood of errors and issues with data quality control due to project participants' leave schedules.
2.	Undue reliance on a poorly designed information system, which may have few effective quality controls	Low		Depending on how data is generated, processed, and reported, place greater emphasis on verifying data captured and

			monitoring equipment was also stipulated in the manual. The CDM monitoring and management manual has also established the QA/QC procedure to ensure the veracity and validity of the monitoring procedure and monitoring records. So the risk levels are low.	processed manually and/or in spreadsheets versus those that generated from an automated system.
3.	Manual adjustment of otherwise automatically recorded activity levels	Low		Depending on how data is generated, processed, and reported, place greater emphasis on verifying data capture and processed manually and/or in spreadsheets versus those that are generated from an automated system.

C.2. Consideration of materiality in conducting the verification

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(1) As per the "Guideline of application of materiality in verifications" version 02.0, the project activity is a large-scale CDM project activity achieving total emission reductions of <300,000 tons of CO_2e per year; as such, a 2 percent materiality threshold is applied.

(2) At the beginning of the verification the verification team has assessed the nature, scale and complexity of the verification tasks by carrying out a strategic analysis of all activities relevant to the project activity. The verification team has collected and reviewed the information relevant to assess that the designated verification team is sufficiently competent to carry out the verification and to ensure that it is able to conduct the necessary risk analysis.

(3) The verification was basically carried out as per the verification plan. However, based on the actual situation on-site and the errors, omissions and misstatements identified during the verification minor deviations from the original plan occurred. However, due to the insignificance no major revision of the overall plan was required, especially there was no need for additional/less locations to be visited during the on-site.

SECTION D. Means of verification

D.1. Desk/document review

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The monitoring report version 01 of 19/12/2017 and version 02 of 25/02/2018/2/, the emission reductions calculation provided in the form of a spreadsheet were assessed as part of the verification. In addition the PDD in particular the baseline estimations, the previous verification report and the validation report for the project were reviewed.

The monitoring report version 01 of 19/12/2017/2/ was made publicly available on the CDM UNFCCC website on 28/12/2017.

Please refer to appendix 3 of this report for the list of documents that are reviewed during this verification.

D.2. On-site inspection

Duration of on-site inspection: 26/01/2018 to 01/02/2018				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	An assessment of the implementation and operation of the project activity as per the registered PDD	Project site	26/01/2018 to 01/02/2018	Huifeng Liu Rekha Menon
2.	A review of information flows for generating, aggregating and reporting the monitoring parameters	Project site		
3.	Interviews with key personnel to confirm the operational and data collection procedure	Project site		
4.	A cross-check between information provided in the MR and other sources such as meter records and electricity transaction notes	Project site		
5.	Check of the maintenance and calibration of monitoring equipment	Project site		
6.	Review of calculations and assumptions made in in determining GHG data and emission reductions	Project site		
7.	An assessment of the implementation of quality control and quality assurance procedures	Project site		

D.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Wang	Ke	Guangxi Forest Inventory & Planning Institute	26/01/2018 to 01/02/2018	Preparation of the Monitoring Report (MR), calculation of the ERs, documentation. Project implementation and operation Technical equipment, calibration and monitoring observation Management of the electricity meter and data collection Monitoring plan and monitoring parameters Information flows for generating, aggregating and reporting the monitoring parameters Cross-check of information in the monitoring report and data source.	Huifeng Liu Rekha Menon
2.	Mi	Xinyu				
3.	Han	Feiyang				
4.	Zeng	Chunyang				
5.	Zhang	Wei				
6.	He	Yanran	Guangxi Forestry Department			
7.	Ye	Chunsheng				
8.	Huang	Jin				
9.	Mo	Zuping	Guangxi Forestry Ecological Monitoring Centre			

D.4. Sampling approach

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According to the A/R methodological tool “Calculation of the number of sample plots for measurements within A/R CDM project activities” version 02.1.0, the 90% confidence level and a default value equal to 10% of the mean biomass stock was used as the acceptable margin of error, set the sample plots as 50 ha based on expert judgement, the number of sampling plots is calculated as below:

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

$$n_i = n \cdot \frac{w_i \cdot s_i}{\sum_i w_i \cdot s_i}$$

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 each stratum (s_i) was conservatively determined as 30%. 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 was estimated based on preliminary measurement.

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 minimum area represented by each sample plots was set as 50 ha for some strata based on expert judgement, and additional sampling plots are added for strata with relative high variation based on pre-assessment. The sample plots were allocated to each stratum based on size of each stratum relative to the total project area. The number of sampling plots used for monitoring and measurement are listed in table below.

number of sampling plots

Stratum ID	Area (ha)	Number of sampling plots
S-1	489.6	14
S-2	197.4	7
S-3	231.3	5
S-4	747.8	15
S-5	1,352.2	30
S-6	592.5	15
S-7	170.6	5
S-8	119.0	3
S-9	595.4	12
S-10	822.2	22
S-11	312.4	12
S-12	91.6	3
S-13	545.2	17
S-14	199.6	5
S-15	125.8	6
total	**6,592.6**	171

The total numbers of sample plots for the 6,592.6 ha are 171. 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 verification team conducted a randomly re-yield measurement of the sample plot in each strata (15 strata).

D.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	0	0	0
Compliance of the project implementation and operation with the registered PDD	2	0	0
Post-registration changes	0	0	0
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	0	0	0
Compliance of monitoring activities with the registered monitoring plan	3	0	0
Compliance with the calibration frequency requirements for measuring instruments	0	0	0
Assessment of data and calculation of emission reductions or net removals	0	1	0
Assessment of reported sustainable development co-benefits	0	0	0
Global stakeholder consultation	0	0	0
Others (please specify)	0	0	0
Total	5	1	0

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	The verification team has cross checked the monitoring report against the latest and valid version of Monitoring report form (CDM-MR-FORM) version 06.0. The verification team confirmed that the CDM-MR-FORM version 06.0 is correctly adopted.
Findings	N/A
Conclusion	RINA confirms that the MR version 02 is based on the currently valid MR template and is completed in accordance with the applicable instruction in appendix of the MR template.

E.2. Remaining forward action requests from validation and/or previous verifications

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Based on the review of validation report and previous verification report, no FARs were raised during the validation and previous periodic verification.

E.3. Compliance of the project implementation and operation with the registered project design document

Means of verification	RINA has performed a site visit and found that the project activity has been implemented since 2008. On the basis of the documents review and site visit, it can be confirmed that the plantation set up, the multiple-use forests, as well as the monitoring system, metering equipment and the monitoring procedure have been implemented as per the registered PDD. As outlined in the PDD, 8,671.3 ha were proposed to be planted from 2008 to 2010. However, the actual planted area in the project is 6,592.6 ha. Compared to the first monitoring period (6,849.1 ha including 4,670.8 ha planted and 2,178.3 ha to be planted), the planted area reduced by 256.5 ha including: a) 450.6 ha of land planned to be planted in Longlin County in 2012 was excluded due to land tenure conflicts (387.7 ha) and poor site condition (62.9

	ha); b) land use changed on 114.0 ha of land in Tianlin; c) 308.1 ha of additional lands was planted (excluded in the first monitoring due to land tenure conflicts that was resolved in the second monitoring period) As specified in the first monitoring report, the adverse climate events such as snow/ice storms and droughts damaged significant area of the project, resulted in a significant replanting even repeatedly. Since the first monitoring, 249.2 ha of planted lands have been suffered from additional severe drought. The replanting and gaping filling on planted lands, with low survival rate or after suffering from climate disasters, were conducted throughout the second monitoring period from 2012 to 2017, with a total area of 903.2 ha. In many case different species have to be selected. For example, 25.2 ha of eucalyptus land was replanted with Masson pine or Chinese fir. 145.2 ha of birch land was replanted with Chinese fir, Masson pine and Choerospondia. 265.8 ha of Masson pine was replanted with other species. This resulted in changes of species composition compared to the first monitoring period. During this monitoring period, there are totally 2,078.7 ha out of 8,671.3 ha estimated planting area in the registered PDD that were not planted or will not be planted, the GHG removals by sinks of these areas will not be claimed. RINA has checked the comparison of the boundary of the project activity and confirmed the conservativeness of this approach. The planting was done as described in the PDD. Masson pine (3,018.3 ha), Chinese fir (2,299.7 ha), Shiny-bark birch (744.8 ha), Choerospondia saxillaris (125.8 ha), and Eucalyptus (404 ha). (Masson pine + Schima), (Masson pine + Maple) and Flous are not planted due to poor soils and hard growth conditions.
Findings	The verification team found that it is stated in the MR version 01 that 148.3 ha of eucalyptus has been harvested and regenerated during this monitoring period, while the records were not available during the onsite visit. **CL1** was raised for this issue. The records for the harvest of the 148.3 ha of eucalyptus have been provided by the PP. Hence, **CL1** is closed. The verification team found that it is not clear in the MR version 01 that how the total planted area (6,952.6 ha) was determined and the original records of the total area was not available during the onsite visit, either. **CL2** was raised for this issue. The PP claimed that firstly the project boundary was measured and confirmed using GPS, then the boundary information was input into GIS from with area of each parcel of land and total area were calculated. The records for determining the project boundary were also provided by the PP. hence, **CL2** is closed.
Conclusion	In conclusion, RINA is able to confirm that: • The implementation status and equipments installation of the project activity are consistent with the PDD; • The actual operation of the CDM project activity is in line with the PDD by the PP; • Information (data and variables) provided in the monitoring report is in accordance with that stated in the PDD.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies or applied standardized baselines

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N/A

E.4.2. Corrections

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N/A

E.4.3. Change to the start date of the crediting period of the project activity

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N/A

E.4.4. Inclusion of a monitoring plan

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N/A

E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other applied standards or tools

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N/A

E.4.6. Changes to the project design

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N/A

E.4.7. Changes specific to afforestation and reforestation project activities

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As per 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), the types of changes from the project description of the A/R CDM project activity in the PDD as listed below are identified as minor in nature, therefore shall be addressed through the verification stage by the designated operational entity without prior approval by the board.

	Types of changes from the project description in the PDD of an A/R CDM project activity	Applicability to the project	Assessment from Verification Team
a)	Changes in year-wise areas planted, possibly resulting in a part of the project area not being planted;	Yes, as a result of changes in year-wise area planted relative to the schedule of planting proposed in the PDD, about 6,592.6 ha out of 8,671.3 ha was planted. Therefore, 2,078.7 ha of the project area was not planted or will not be planted.	The 2,078.7 ha which was not planted or will not be planted of the project activity will be considered as 0 ER and excluded of the ER calculation. Additionality is not affected in an adverse manner by this change as planting has been carried out and re-planting would produce extra costs and less cash inflow.
b)	Changes in species composition, if the changes are demonstrated at verification to be consistent with the baseline identification and additionality demonstration made at the validation stage;	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 most species were not as projected in the PDD (see table B-1 above). In addition, small changes to the stand models needed to be made as per the project implementation requirements, the changes in species and composition of the project are consistent with the baseline identification and additionality demonstration made at the validation stage. **For the baseline identification:** As the changes in project area do not affect the baseline information, the baseline net removals by sinks remain same as PDD, which is conservative. **For the additionality**: - In the project design the revenue from the project activity was expected from the short rotation	Additionality is not affected in an adverse manner by this change as initial planting has been carried out and re-planting would produce extra costs and less cash inflow.

		eucalyptus (6 years). The area of eucalyptus actually planted is 6.0% of total area planted, compared to 16.2% designed in PDD. The revenue will reduce relative to PDD; - Price level (for labours and seedlings) in China has been increasing year after year, while the unit costs in PDD were based on 2007 price level. Data from project stakeholders and county forestry bureau indicates that the actual cost was much higher than those used in PDD; - The adverse climate events damaged significant area of the project. All these damaged plantations had to be replanted. The repeated planting has significantly increased the project cost - In summary, the reduction of project revenue and increase of the project cost would reduce the project internal return rate relative to that estimated in the PDD. Therefore, the change in the project area will not affect the additionality.	
c)	Changes in stocking density, if the changes are demonstrated at verification to be consistent with the baseline identification and additionality demonstration made at the validation stage;	No changes in stocking density	N/A
d)	Changes in timing and choice of silvicultural operations;	Yes, changes in species composition and stand models resulted in the changes to timing and choice of silvicultural operation.	Additionality is not affected in an adverse manner by this change as initial planting has been carried out and re-planting would produce extra costs and less cash inflow.
e)	Changes in timing of harvest occurring before the third verification;	Yes, changes in species composition and stand models resulted in changes to potential timing of harvest before the third verification (harvesting of eucalyptus and thinning for other species).	Additionality is not affected in an adverse manner by this change as initial planting has been carried out and re-planting would produce extra costs and less cash inflow.
f)	Changes related to collection of non-timber forest products;	Yes, changes in species composition and stand models resulted in the changes to the collection of non-timber forest products.	Additionality is not affected in an adverse manner by this change as initial planting has been carried out and re-planting would produce extra costs and less cash inflow.
g)	Changes in tree/shrubs propagation method;	No	N/A
h)	Changes in post-harvest re-planting/regeneration methods;	148.3 ha of eucalyptus has been harvested and regenerated during the monitoring period	Additionality is not affected in an adverse manner by this change as in the project design the revenue from the project activity was expected from the short rotation eucalyptus (6 years). The area of eucalyptus actually planted is 6.0% of total area planted, compared to 16.2% designed in PDD. The revenue will reduce relative to PDD.
i)	Changes in technology employed;	No	N/A

j)	Changes in inputs (e.g. fertilizers, certified seeds, watering);	No	N/A
k)	Changes in stratification for sampling;	Yes, *ex post* stratification has been implemented taking into account of the changes to *ex ante* strata due to factors related to changes in planting time, growth rates of species, impacts of site conditions, and other location specific factors.	Additionality is not affected in an adverse manner by re-stratification of the area as it has no monetary value influencing.
l)	Changes in type of sample plots (e.g. temporary, permanent, point-sampling);	No	N/A
m)	Changes in number of sample plots and their allocation to strata;	Yes, as a follow up to ex post stratification, the calculation of number sample plots and their allocation to the project strata has been revised.	The type of sample plots keeps the same with the baseline scenario as permanent, additionality is not affected in an adverse manner by re-stratification and change of number and allocation of sample plots of the area as it has no monetary value influencing the financial analysis.
n)	Changes in the project boundary (limited to reduction in project area), if the changes are demonstrated at verification to be consistent with the baseline identification and additionality demonstration made at the validation stage;	Yes, Changes in project boundary occurred as a consequence of the reduction in project area by 2,078.7 ha (all actual project boundary fall within the project boundary designed in registered PDD). The changes to project boundary as a consequence of reduction in project area are consistent with the baseline identification and additionality demonstration at the validation stage.	The changes to project boundary as a consequence of reduction in project area are consistent with the baseline identification and additionality demonstration at the validation stage.
o)	Changes in quality assurance/quality control (QA/QC) procedures, where it can be demonstrated that the changed QA/QC procedures are used by the National Forest Inventory or were applied in another registered A/R CDM project activity;	Yes, Changes in quality assurance/quality control procedures are consistent with procedures used by the national forest inventory.	Additionality is not affected in an adverse manner by changing QA/QC procedures as it has no monetary value influencing the financial analysis.
p)	Changes in parameters, equations, or methods used in tree biomass estimation, if the applicability of the changed parameters, equations, or methods is project activities" when available, or if the changed parameters, equations, or applicability of allometric equations and volume equations in A/R CDM demonstrated at verification using the "Tool for demonstration of methods do not result in a decrease in precision of the estimate of tree biomass;	No changes in the parameters. The equations used in tree biomass estimation are consistent with the A/R Methodological Tool - "Demonstrating appropriateness of volume equations for estimation of aboveground tree biomass in A/R CDM project activities" (Annex 29, EB 65)	N/A

q)	Changes from provisions regarding shifting of pre-project activities, if the related emissions are estimated at verification using the tool "Estimation of the of pre-project agricultural activities in A/R CDM project activity" and areincrease in greenhouse gas (GHG) emissions attributable to displacement accounted for as leakage;	Not Applicable	N/A
r)	Changes in use of fire in site preparation, if the related emissions are estimated at verification using the tool "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" and are accounted for as project emissions;	Not Applicable	N/A
s)	Changes in extent of soil disturbance in site preparation, if the related emissions are estimated at verification using Equation (2) of the "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities" and are accounted for as project emissions;	Not Applicable	N/A
t)	Changes in methods of estimation of changes in any carbon pool, if the method applied at verification uses the latest version of the relevant approved tool and the applicability conditions of the methodology applied are consistent with the applicability conditions of the tool.	Yes. AR-ACM0001 ver.03 used in PDD was updated to AR-ACM0001 ver.05.2.0 which was used for the 1st monitoring and adopted in 1st verification and certification. The AR-ACM0003 (version 02.0) applied in this monitoring report has a broader scope of application, e.g., allowing to choose to exclude or include accounting of any of the three carbon pools of dead wood, litter, and soil organic carbon. The project adopts the latest versions of A/R methodological tool(s) and the applicability conditions of the methodology are consistent with the applicability conditions of the tool(s).	Additionality is not affected and the ER calculation of the project activity is estimated conservatively according to latest methodology and tools.

All the above mentioned changes do not affect adversely the additionality justification of the project activity. All issues that could have an effect on the financial analysis would lead to a decrease of the IRR as they have to be accounted on the cost side rather than on the revenue side.

As per the "Guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities" (Version 01.1), several early versions of methodologies applied in registered A/R CDM project activities contain requirements that were withdrawn during revisions/improvements of these methodologies as part of the improvement process of the standards, and the guidelines allow a registered A/R CDM project activity to apply, at the time of verification, the improvements in the methodology that occurred after the date of registration of the project activity. The applicability of these guidelines to the implemented project are listed in the table below:

Requirement	Methodology	Guidelines	Applicability to the project

Monitoring of data and parameters	AR-AM0003 v.03, et al	(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)	Not applicable to the methodology applied
Sampling design, sample plot lay-out, and marking of permanent sample plots	AR-ACM0001 v.03 et al	(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 above ground tree biomass, of ± 10% at 90%confidence level shall be allowed.	Yes, 90% confidence level was applied
Accounting for uncertainty	AR-ACM0001 v.03 et al	Requirements related to uncertainty assessment, uncertainty analysis, methods of combining uncertainties, and uncertainty inexpert judgement is superfluous and compliance with these requirements shall not been forced.	Yes, uncertainty analysis was conducted following the latest version of methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"
Field measurement of soil organic carbon	AR-AM001 v.02 et al	(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 to the methodology applied
Clearance or burning of herbaceous vegetation	AR-AM001 v.02 et al	(i) Changes in carbon stocks resulting from clearance of herbaceous vegetation shall beset 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.	Not applicable to the methodology applied
Estimation of emissions of nitrous oxide from use of fertilizers	AR-AM001 v.02 et al	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.	Not applicable to the methodology applied
Burning of fossil fuel	AR-AM001 v.02 et al	Estimation and accounting of emissions from burning of fossil fuel, both within and outside the project boundary, shall not be required.	Not applicable to the methodology applied

		Consequently, monitoring of data and parameters related to the above mentioned emissions shall not be required.	

E.5. Compliance of the registered monitoring plan with the methodology including applicable tools and standardized baselines

Means of verification	The verification team has verified the registered monitoring plan against the applied monitoring methodology AR-ACM0003 version 02.0 to confirm the compliance. During this monitoring period, the registered monitoring plan was found to be in accordance with the applied methodology, AR-ACM0003 version 02.0. All the monitoring parameters, monitoring and calibration procedures follow the methodology requirements. No recommendation was made during this verification.
Findings	N/A
Conclusion	RINA confirms that the registered monitoring plan complies with the applied monitoring methodology AR-ACM0003 version 02.0.

E.6. Compliance of monitoring activities with the registered monitoring plan

The monitoring has been carried out in accordance with the registered monitoring plan. The following tables describe for each parameter which is to be measured according to the monitoring plan and how RINA has verified that the actual monitoring complies with the monitoring plan and that data have been assessed to correctly support the emission reductions being claimed.

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification

The verification team has verified the data and parameters fixed ex ante in the MR against the registered PDD and the validation report.

DATA/PARAMETER Unit	Source of data	Reported value for the project period	Assessment/Observation
$BEF_{2,j}$	GHG inventory in LULUCF sector for national communication on GHG inventory	Tree species: $BEF_{2,j}$ Pinus massoniana: 1.54 Cunninghamia lanceolataand: 1.74 Eucalyptus sp.: 1.43 Betula luminifera: 1.37 Choerospondias axillaris: 1.59	The value is derived from GHG inventory in LULUCF sector for national communication on GHG inventory.

DATA/PARAMETER Unit	Source of data	Reported value for the project period	Assessment/Observation
D_j t d.m.m^{-3}	GHG inventory in LULUCF sector for national communication on GHG inventory	Tree species: D_j Pinus massoniana: 0.380 Cunninghamia lanceolataand: 0.307 Eucalyptus sp.: 0.578 Betula luminifera: 0.541 Choerospondias axillaris: 0.443	The value is derived from GHG inventory in LULUCF sector for national communication on GHG inventory.

DATA/PARAMETER Unit	Source of data	Reported value for the project period	Assessment/Observation
R_j	GHG inventory in LULUCF sector for national communication on GHG inventory	<table><tr><th>Tree species</th><th>R_j</th></tr><tr><td>Pinus massoniana</td><td>0.200</td></tr><tr><td>Cunninghamia lanceolataand</td><td>0.219</td></tr><tr><td>Eucalyptus sp.</td><td>0.218</td></tr><tr><td>Betula luminifera</td><td>0.231</td></tr><tr><td>Choerospondias axillaris</td><td>0.289</td></tr></table>	The value is derived from GHG inventory in LULUCF sector for national communication on GHG inventory.

DATA/PARAMETER Unit	Source of data	Reported value for the project period	Assessment/Observation
$V_{TREE,j,p,i,t}$ m^3/tree	Guangxi forest inventory manual or yield table, which are appropriate based on A/R Methodological Tool "Demonstrating appropriateness of allometric equations for estimation of aboveground tree biomass in A/R CDM project activities" (Version 01.0.0).	Pinus massoniana: $V = 0.0000714265437 \cdot DBH^{1.867010} \cdot H^{0.9014632}$ Cunninghamia lanceolataand: $V = 0.000065671 \cdot DBH^{1.769412} \cdot H^{1.069769}$ Other broad leaves: $V = 0.0000667054 \cdot DBH^{1.8479545} \cdot H^{0.96657509}$ Eucalyptus sp.: $V = 0.000109154145 \cdot DBH^{(C_1 - C_2(DBH+H))} \cdot H^{(C_3 + C_4(DBH+H))}$ C_1=1.8789237; C_2=0.00569185503 C_3=0.65259805; C_4=0.00784753507	The value is determined based on the methodological tool issued by EB.

DATA/PARAMETER Unit	Source of data	Reported value for the project period	Assessment/Observation
CF_j	Registered PDD and IPCC default value	0.5	The value is derived registered PDD and IPCC, which is already approved by EB.

DATA/PARAMETER Unit	Source of data	Reported value for the project period	Assessment/Observation
$A_{p,i}$ ha	Registered PDD	0.04	The value is derived registered PDD, which is already approved by EB.

Findings	N/A
Conclusion	RINA confirms that the data and parameters fixed ex-ante have been correctly listed. Parameters fixed ex-ante for required parameters have been verified by checking the information flow and in compliance with the monitoring plan of the PDD.

E.6.2. Data and parameters monitored

Means of verification	The verification team has performed the document review and on-site assessment to: - Review of information flows for generating, aggregating and reporting the monitoring parameters; - Determining whether the operational and data collection procedures are implemented in compliance with the approved monitoring plan; - Cross check the information provided in the MR against other data sources such as monitoring records, etc.; - Identifying that quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters. **Parameters monitored:** 1. DBH: the diameter at breast height of the tree (1.3m); Field measurement by the vinyl tape, wooden staked; measured every 5 years since the year of initial verification. 2. H: height of tree; Field measurement by the HypsometerCGQ-1 and metric tape; measured every 5 years since the year of initial verification. All the field measured data are measured at the sample plot according to the sampling plan, recorded by the forestry technician of the Guangxi Forestry Designing Institute and PP for a hard copy, and then the data are collected and recorded for an electronic copy with the combination of the maps for the ERs calculation. All the measured data and calculation process are provided and verified. During the onsite visit, the verification team conducted randomly re-measurement in each stratum of the project activity, and verified the initial yield measurement records provided by the PP, cross checked with the yield measurement results and found they are consistent with the data presented in the MR and the ER calculation spreadsheet.
Findings	The verification team found that during the onsite visit for plot TL12 of strata 11, one tree fell down while the ER for this tree was included in the calculation. **CL3** was raised to ask the PP for the clarification. The PP claimed that the tree did not “fall down”, instead the main stem was broken at about 4m above the ground, followed by new gib sprouting up to 9.7m. The tree is still alive. Based on the Specification for the 9th Forest Inventory in Guangxi (Chapter 4.33.9), broken-stem trees should be measured as long as they are alive. The verification team reviewed the specification and found this approach to include a tree with broken-stem for the ER calculation is in accordance with the specification. Hence, **CL3** is closed. The verification team found that during the onsite visit for plot TL21 of strata 12, there was no record for the number of the trees nor the DBH and height of the trees. **CL4** was raised to ask the PP for clarification. The PP claimed that according to the “Carbon Accounting and Monitoring Techniqual Regulation for Afforestation and Reforestation Project” (DB45/T 1108-2014, Paragraph 5.3.3.2), if DBH of 1/3 of trees within a sampling plot are equal or above 2.0cm, trees in the sampling plot would be measured, otherwise measurement would not be undertaken. At the time of the monitoring on Oct 18th 2017, the number of trees with DBH equal or larger the 2.0 cm in the plot TL21 was less than 1/3, therefore tree measurement was not undertaken. Indeed, as the eucalyptus growth is fast, at time of on-site verification (Jan 19 2018) the number of trees with DBH equal or larger the 2.0 cm in the plot TL21 was more than 1/3. The verification team found that this clarification is in line with the regulation DB45/T 1108-2014. Furthermore, the ERs from this sample plot are not taken into consideration, which is conservative. Hence, **CL4** is closed.

	The verification team found that during the onsite visit for plot LL74 of strata 13, the number of the trees reduced compared to the first monitoring period, while there was no record for this reduction during the onsite visit. **CL5** was raised for this issue. The PP claimed that during the interval of the two monitorings, 2 trees (No.14 and No.36 in the first monitoring) died followed by natural resprouting of two new trees (No.27 and No.39 in the second monitoring). Therefore the number of trees is same in the two monitoring. The verification team checked the monitoring cards and confirmed that 2 trees compared to the first monitoring period died while 2 new trees are planted during the second monitoring period. Hence, **CL5** is closed.
Conclusion	RINA confirms: - That all the parameters stated in the registered monitoring plan have been monitored; - The responsibilities and authorities for monitoring and reporting are in accordance with those stated in the registered monitoring plan; - The monitoring results are consistently recorded as per the approved frequency; - Quality assurance and quality control procedure have been applied in accordance with the registered monitoring plan.

E.6.3. Implementation of sampling plan

Means of verification	Please refer to section D.4 above of this report.
Findings	Please refer to section D.4 above of this report.
Conclusion	Please refer to section D.4 above of this report.

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	As the monitoring equipments are special for the forestry project, the registered monitoring plan didn't require calibration of the measuring instruments in details, but the monitoring implemented in compliance with the calibration frequency requirements according to QA/QC procedures contained in the registered PDD and the national requirement and/or the manual of the instruments. The HypsometerCGQ-1 with the accuracy of 1% was calibrated before the field measurement on 09/11/2017 and has been operated well for the monitoring.
Findings	N/A
Conclusion	RINA confirms that the calibrations of the monitoring equipment have been conducted in compliance with the applied methodology AR-ACM0003 version 02.0 and also the registered monitoring plan.

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification

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 01/07/2012 to 12/11/2017) were 3,752 tCO_2e.

Year No.	Years	Baseline net GHG removals by sinks (t CO_2)	Cumulative Baseline net GHG removals by sinks (t CO_2)
1	July 1st–Dec 30th 2012	293	293
2	2013	631	924
3	2014	675	1,599
4	2015	716	2,315
5	2016	754	3,069
6	Jan 1st–Nov 12th 2017	684	3,752
Total of the 2nd monitoring period		3,752	

The values are calculated based on the registered PDD, which are reasonable and

	conservative since the planted area are much less than the estimated area in the registered PDD.
Findings	N/A
Conclusion	RINA confirms that the calculation of baseline net GHG removals by sinks have been carried out in accordance with the formulae and methods described in the registered PDD and the applied methodology.

E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

Means of verification	The actual net GHG removals by sinks were estimated as the change in the carbon stocks in project occurring in the selected carbon pool, minus the increase in non-CO_2 GHG emissions within the project boundary as a result of the implementation of the A/R CDM project activity (Equation (2) in the applied methodology). The change in the carbon stocks in project was estimated as the change in carbon stock in tree biomass following methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"(Version 04.2), as described below. 1. ***Estimation of carbon stock in trees biomass*** (1) Volume equations were used to convert measured DBH and height to stem volume of trees for each tree with sampling plot. (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. Thus, biomass of trees of species *j* in sample plot *p* is estimated as (Equation (3) and (5) in Appendix 1 Methods of plot biomass measurement in methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"(Version 04.2): $$B_{TREE,j,p,i,t} = \sum_{l}^{L} V_{TREE,l,j,p,i,t} \times D_j \times BEF_{2,j} \times (1+R_j)$$ where: $B_{TREE,j,p,i,t}$ — Biomass of trees of species *j* in sample plot *p* of stratum *i* at a given point of time in year *t*; t d.m. $V_{TREE,l,j,p,i,t}$ — Stem volume of trees *l* of species *j* in sample plot *p* of stratum *i* at a given 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*; 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*; dimensionless R_j — Root-shoot ratio for tree species *j*; dimensionless *l* — *1, 2, 3, …* trees *l* of species *j* in sample plot *p* *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 (3) Tree biomass in sample plot *p* of stratum *i* was estimated as follows (Equation (2) in Appendix 1 Methods of plot biomass measurement in methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs

in A/R CDM project activities"(Version 04.2):

$$B_{TREE,p,i,t} = \sum_j B_{TREE,j,p,i,t}$$

where:

$B_{TREE,p,i,t}$	Tree biomass in sample plot *p* in stratum *i* at a given point of time in year *t*; t d. m.
$B_{TREE,j,p,i,t}$	Biomass of trees of species *j* in sample plot *p* of stratum *i* at a given point of time in year *t*; t d.m.
j	*1, 2, 3,* … species in plot *p*
p	*1, 2, 3*, … sample plots in stratum *i*
i	*1, 2, 3,* … strata used for tree biomass estimation within the project boundary
t	*1, 2, 3,* … years counted from the start of the A/R CDM project activity

(4) Tree biomass per hectare in plot *p* in stratum *i* was estimated as follows (Equation (1) in Appendix 1 Methods of plot biomass measurement in methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"(Version 04.2):

$$b_{TREE,p,i,t} = \frac{B_{TREE,p,i,t}}{A_{p,i}}$$

where:

$b_{TREE,p,i,t}$	Tree biomass per hectare in sample plot *p* in stratum *i* at a given point of time in year *t*; t d.m. ha^{-1}
$B_{TREE,p,i,t}$	Tree biomass in sample plot *p*in stratum *i* at a given point of time in year *t*; t d.m.
$A_{p,i}$	Area of sample plot *p* in stratum *i*; ha
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

(5) Mean tree biomass per hectare in stratum *i* and the variance of tree biomass per hectare in the stratum were estimated as follows (Equation (16) and (17) in methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"(Version 04.2):

$$b_{TREE,i,t} = \frac{\sum_{p=1}^{n_i} b_{TREE,p,i,t}}{n_i}$$

$$s_i^2 = \frac{n_i * \sum_{p=1}^{n_i} b_{TREE,p,i,t}^2 - \left(\sum_{p=1}^{n_i} b_{TREE,p,i,t}\right)^2}{n_i * (n_i - 1)}$$

where:

$b_{TREE,i,t}$	Mean tree biomass per hectare in stratum *i* at a given point of time in year *t*; t d. m. ha^{-1}
$b_{TREE,p,i,t}$	Tree biomass per hectare in sample plot *p* in stratum *i* at a given point of time in year *t*; t d.m. ha^{-1}
n_i	Number of sample plots in stratum *i*
s_i^2	Variance of tree biomass per hectare in stratum *i* at a given point of time in year *t*; $(t\ d.m.\ ha^{-1})^2$

(6) Mean tree biomass per hectare within the project boundary and its variance were estimated as follows (Equation (14) in methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"(Version 04.2):

$$b_{TREE,t} = \sum_{i=1}^{M} w_i * b_{TREE,i,t}$$

$$s_{b_{TREE}}^2 = \sum_{i=1}^{M} w_i^2 * \frac{s_i^2}{n_i}$$

where:

$b_{TREE,t}$	Mean tree biomass per hectare within the project boundary at a given point of time in year *t*; t d. m. ha^{-1}
w_i	Ratio of the area of stratum *i* to the sum of areas of biomass estimation strata; dimensionless
$b_{TREE,i,t}$	Mean tree biomass per hectare in stratum *i* at a given point of time in year *t*; t d. m. ha^{-1}
$s_{b_{TREE}}^2$	Variance of mean tree biomass per hectare within the project boundary at a given point of time in year *t*; $(t\ d.\ m.\ ha^{-1})^2$
s_i^2	Variance of tree biomass per hectare in stratum *i* at a given point of time in year *t*; $(t\ d.\ m.\ ha^{-1})^2$
n_i	Number of sample plots in stratum *i*
M	Number of tree biomass estimation strata within the project boundary

(7) uncertainty of the mean tree biomass per hectare within the project boundary was estimated as (Equation (15) in methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"(Version 04.2):

$$U_C = \frac{t_{VAL} \times S_{b_{TREE}}}{b_{TREE}}$$

where:

U_C	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 140degrees of freedom can be obtained in Excel spreadsheet as

"=TINV(0.10,155)" which returns a value of 1.65474.

$s_{b_{TREE}}$ 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}

(8) Total tree biomass within the project boundary at a given point of time in year *t* was estimated as follows (Equation (13) in methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"(Version 04.2):

$$B_{TREE,t} = A * b_{TREE,t}$$

where:

$B_{TREE,t}$ Total tree biomass within the project boundary at a given point of time in year *t*; t d. m.

A Sum of areas of the biomass estimation strata within the project boundary; ha

$b_{TREE,t}$ Mean tree biomass per hectare within the project boundary at a given point of time in year *t*; t d. m. ha^{-1}

(9) Carbon stock in tree biomass within the project boundary at a given point of time in year *t* was estimated as follows (Equation (12) in methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"(Version 04.2):

$$C_{TREE,t} = \frac{44}{12} * B_{TREE,t} * CF_{TREE}$$

where:

$C_{TREE,t}$ Carbon stock in tree biomass within the project boundary at a given point of time in year *t*; t CO_2-e

$B_{TREE,t}$ Total tree biomass within the project boundary at a given point of time in year *t*; t d. m.

CF_{TREE} Carbon fraction of tree biomass; t C t $d.m.^{-1}$

A default value of 0.50 is used unless transparent and verifiable information can be provided to justify a different value

Strata	mean tree biomass $b_{TREE,i,t}$ (t d.m./ha)	Strata area (ha)	Variance of tree biomass (t d. m. $ha^{-1})^2$	Carbon stock in tree biomass and the margin of error
S－1	104.37	489.6	2,528.6	$b_{TREE,t}$ =31.7330 t d.m.ha^{-1} $B_{TREE,t}$ =209,202.8 t d.m. $C_{TREE,t}$ =383,538.6 tCO_2-e $s_{b_{TREE}}$ =1.8236 t d.m.ha^{-1} t_{VAL} =1.6547 U_C=9.51%
S－2	43.39	197.4	126.6	
S－3	19.78	231.3	22.3	
S－4	6.98	747.8	111.9	
S－5	0.00	1,352.2	-	
S－6	87.28	592.5	1,135.0	
S－7	77.21	170.6	2,280.0	
S－8	40.36	119.0	337.3	
S－9	6.25	595.4	40.4	
S－10	0.00	822.2	-	
S－11	70.15	312.4	4,687.5	
S－12	0.00	91.6	-	

S－13	65.34	545.2	618.6	
S－14	20.11	199.6	176.8	
S－15	37.99	125.8	1,170.1	
TOTAL		**6,592.6**	2,528.6	

2. ***Carbon stock changes in living biomass of planted trees in the project***

Change in carbon stock in tree biomass within the project boundary in year *t* is calculated as follows (Equation (11) in methodological tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"(Version 04.2):

$$\Delta C_{TREE,t} = \frac{C_{TREE,t_2} - C_{TREE,t_1}}{T} \times 1\ year$$

where:

$\Delta C_{TREE,t}$	change in carbon stock in trees within the project boundary in year *t*; t CO_2e[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_2e
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

Carbon stock in biomass of planted trees for 6,592.6 ha within the project boundary on November 12th 2017 for the second monitoring and verification was 383,538.6 tCO_2e. It was measured and estimated in the first monitoring and verification that C_{TREE,t_1} =39,177.8 tCO_2e. Therefore,

$\Delta C_{TREE,t}$ **=(383,538.6 - 39,177.8)/5.36575 = 64,177.5 t CO_2e**

3. ***Carbon stock changes in biomass of pre-project trees and shrubs***

In the first verification, 977.1 tCO_2e and 26,973.3 t CO_2e carbon stock in pre-project trees and shrubs on 6,849.1 ha of lands was assumed to be died out. The recalculated carbon stock in pre-project trees and shrubs for the second monitoring are smaller than the first monitoring and verification, therefore for the second monitoring and verification it was conservative to set carbon stock changes in biomass of both pre-project trees and shrubs as zero**.**

4. ***Carbon stock changes in soil organic matter***

Carbon stock changes in soil organic matter is estimated using the "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities". The project activities comply with applicability conditions set in the tool and in the approved methodology applied as follows:

(a) The areas of land to which this tool applied:

(i) Do not fall into wetland category as defined in Annex A: Glossary of IPCC, Good Practice Guidance for Land Use, Land-use Change and Forestry (IPCC, GPG-LULUCF);

(ii) Are not subject to any of the land management practices and application of inputs as listed in the Tables 1 and 2 of the tool;

(b) In the implementation of the A/R CDM project activity:

(i) Litter remained on site and was not collected;

(ii) Soil disturbance attributable to the A/R CDM project activity, if any, is in accordance with appropriate soil conservation practices, e.g.

- The holes dug during site preparation was made following land contour;
- Limited to soil disturbance for site preparation before planting and such disturbance is not repeated in less than twenty years.

Using the Column L of spreadsheet calculation tool developed by the Executive Board following the "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities", the estimated carbon stock changes in soil organic matter is presented in the table below.

Year	Carbon stock changes ($tC.yr^{-1}$)	Carbon stock changes ($tCO_2.yr^{-1}$)	Cumulative carbon stock changes (tCO_2)
July 1st–Dec. 31st 2012	1,469.4	5,387.8	5,387.8
2013	4,599.8	16,866.1	22,253.9
2014	4,627.0	16,965.6	39,219.5
2015	4,647.8	17,041.9	56,261.4
2016	4,647.8	17,041.9	73,303.2
Jan 1st–Nov 12th 2017	4,023.8	14,754.1	88,057.3
Total	24,015.6	88,057.3	

Change in carbon stock in soil organic carbon within the project boundary in year *t* ($t_1 \le t \le t_2$) was calculated as follows:

$$\Delta SOC_t = dSOC_{(t_1,t_2)} * 1year \quad \text{for } t_1 \le t \le t_2$$

= 88,057.3/5.36575 =16,411 t CO_2e

where:

ΔSOC_t	Change in carbon stock in soil organic matter within the project boundary in year *t*; t CO_2-e
$dSOC_{(t_1,t_2)}$	Rate of change in carbon stock in soil organic matter 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}

5. ***Project emissions***

There has been no biomass burning during site preparation and no forest fire during the verification period. Therefore, the project GHG emissions were set as zero.

6. ***Actual net GHG removals by sinks***

(1) **The actual net GHG removals by sinks were calculated as**:

$$\Delta C_{ACTUAL} = \Delta C_P - GHG_E$$

where:

ΔC_{ACTUAL}	Actual net GHG removals by sinks; t CO_2-e
ΔC_P	Sum of the changes the carbon stock in the selected carbon pools within the project boundary; t CO_2-e

	GHG_E Increase in non-CO_2 GHG emissions within the project boundary as a result of the implementation of the A/R CDM project activity; t CO_2-e (2) **The verifiable changes in the carbon stock in the selected carbon pools within the project boundary are estimated using the following equation:** $$\Delta C_P = \sum_{t=1}^{t*} \Delta C_t$$ where: ΔC_P Sum of the changes in carbon stock in all selected carbon pools, since the start of the project; t CO_2-e ΔC_t Change in carbon stock in all selected carbon pools, in year *t*; t CO_2-e *t* *1, 2, 3, … t** years elapsed since the start of the A/R project activity; yr Change in carbon stock in all selected carbon pools, in year *t*, is calculated as: $$\Delta C_t = \Delta C_{TREE,t} + \Delta C_{SHRUB,t} + \Delta SOC_t$$ **= 64,177.5 + 0.0 + 16,411.0 = 80,588.5** tCO_2e where: ΔC_t Change in carbon stock in all selected carbon pools in the project scenario, in year *t*; t CO_2-e $\Delta C_{TREE,t}$ Change in carbon stock in tree biomass in project, in year *t*; t CO_2-e $\Delta C_{SHRUB,t}$ Change in carbon stock in shrub biomass in project, in year; t CO_2-e ΔSOC_t Change in carbon stock in soil organic matter in project, in year *t*; t CO_2-e *t* *1, 2, 3, … t** years elapsed since the start of the A/R CDM project activity ΔC_P =80,588.5 * 5.36575 = 432,418 tCO_2e
Findings	N/A
Conclusion	RINA confirms that the calculation of actual net GHG removals by sinks have been carried out in accordance with the formulae and methods described in the registered PDD and the applied methodology.

E.8.3. Calculation of leakage GHG emissions

Means of verification	In accordance with the registered PDD, the potential leakage due to the implementation of the registered A/R CDM project activity is GHG emissions due to displacement of pre-project grazing activity. However, based on PDD section D-2 the leakage from the displacement of the pre-project grazing is nil, hence set as zero.
Findings	N/A
Conclusion	RINA confirms that the leakage is zero.

E.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification	The net anthropogenic GHG removals by sinks shall be calculated as follows (equation (3) in applied methodology:

	$$\Delta C_{AR-CDM,t} = \Delta C_{ACTUAL,t} - \Delta C_{BSL,t} - LK_t$$ Where: $\Delta C_{AR-CDM,t}$ = Net anthropogenic GHG removals by sinks, in year *t*; t CO_2-e $\Delta C_{ACTUAL,t}$ = Actual net GHG removals by sinks, in year *t*; t CO_2-e $\Delta C_{BSL,t}$ = Baseline net GHG removals by sinks, in year *t*; t CO_2-e LK_t = GHG emissions due to leakage, in year *t*; t CO_2-e The net anthropogenic GHG removals by sinks is then calculated as: 432,418 tCO_2e - 3,752 tCO_2e – 0 = 428,666 tCO_2e
Findings	The verification team found that the values of the net GHG removals in the MR version 01 are inconsistent between each other. **CAR1** was raised for this issue. The PP claimed it is an error and has corrected the values in the MR version 02 and now they are consistent among each other. Hence, **CAR1** is closed.
Conclusion	RINA confirms: - All the data and parameters were monitored in accordance with the registered monitoring plan; - The calculation of emission reductions have been carried out in accordance with the formulae and methods described in the registered PDD and applied methodology; - Default values have been applied in the calculation in accordance to the registered PDD and applied methodology.

E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	The comparison of actual net anthropogenic GHG removals by sinks with estimates in registered PDD has been checked and re-calculated by the verification team. The actual net anthropogenic GHG removals by sinks from the project for the monitoring period as reported in the monitoring report version 02 are equivalent to 428,666tCO_2e, which is less than the estimates as per the registered PDD of 506,442tCO_2e.
Findings	N/A
Conclusion	RINA verified the input data for calculating actual net anthropogenic GHG removals by sinks and the estimates and confirms that the calculation results are complete, transparent and accurate.

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	N/A
Findings	N/A
Conclusion	N/A

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	This monitoring period starts from 01/07/2012 and the actual net anthropogenic GHG removals by sinks during the first commitment period (from 01/07/2012 to 31/12/2012) are calculated to be 39,945tCO_2e and the period from 1 January 2013 are 388,721tCO_2e.
Findings	N/A
Conclusion	RINA confirms that the actual net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 can be clearly separated and are calculated correctly.

E.9. Assessment of reported sustainable development co-benefits

Means of verification	N/A
Findings	N/A
Conclusion	N/A

E.10. Global stakeholder consultation

Means of verification	N/A
Findings	N/A
Conclusion	N/A

SECTION F. Internal quality control

>>

The draft final verification report before to be submitted to UNFCCC for request of issuance was subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent RINA instructions.
The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM validation and verification.

SECTION G. Verification opinion

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RINA Service Spa (RINA) has performed verification of the emission reductions reported for the project activity "Reforestation on Degraded Lands in Northwest Guangxi" in China, CDM Registration Reference N° 3561, for the period 01/07/2012 to 12/11/2017, with regard to the relevant requirements for CDM activities.

The project participants of the "Reforestation on Degraded Lands in Northwest Guangxi" project are responsible for:

- the preparation of greenhouses gas emissions data and the reported greenhouse gas removals by sinks from the project on the basis set out in the registered monitoring plan and the registered project design document version 7.0 of 09/03/2010
- the development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas removals by sinks of the project

It is the responsibility of RINA to express an independent verification opinion about the project's conformity with the requirements of paragraph 62 of the CDM modalities and procedures and on the reported greenhouse gas removals by sinks from the project.

Based on documented evidence and corroborated by an on-site assessment RINA can confirm that:

- the project has been implemented and operated as per the registered PDD;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable CDM requirements;
- the monitoring is in place as per the applied baseline and monitoring methodology;
- the monitoring complies with the registered monitoring plan;
- the registered monitoring plan is as per the applied baseline and monitoring methodology.

SECTION H. Certification statement

>>

It is RINA's opinion that the GHG emission reduction stated in the monitoring report version 02 of 25/02/2018 for the "Reforestation on Degraded Lands in Northwest Guangxi" project in China for the period 01/07/2012 to 12/11/2017 are fairly stated. The GHG removals by sinks were calculated correctly on the basis of the approved monitoring methodology "AR-ACM0003", "Afforestation and reforestation of lands except wetlands", version 02.0 and the registered monitoring plan.
Hence RINA is able to certify that the emission reductions from the project during the monitoring period 01/07/2012 to 12/11/2017 amount to 428,666 tCO_2e.

Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CH_4	Methane
CL	Clarification Request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

RINA

CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra: **Hui Feng Liu**
We declare that Mr/Mrs/Ms:

è qualificato come[1]: **CDM –TEC, -VAL,- VER, -TL ITRP**
is qualified as:

per le seguenti aree tecniche: **1.1, 1.2, 8.1, 9.2, 13.1**
for the following technical areas:

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA *TECHNICAL AREA DESCRIPTION*	SCOPO SETTORIALE *SECTORAL SCOPE*
1.1	Thermal energy generation	1
1.2	Renewables	1
8.1	Mining and mineral processes	8
9.2	Iron, steel and ferro-alloy production	9
13.1	Solid waste and wastewater	13

in accordo alle istruzioni dell'unita Sostenibilità & Cambiamenti Climatici.
in accordance with the instructions of the Sustainability & Climate Change Unit.

REVISIONE *REVISION*	DATA *DATE*	MOTIVAZIONI PER LA REVISIONE *REASON FOR THE REVISION*
0	10/09/2010	-
11	31/03/2017	Updating qualification as ITRP

Il Resp. QPT
Head of QPT

[1] Legend:

VAL:	Validator	CDM: Clean Development Mechanism
VER:	Verifier	VCS : Verified Carbon Standard:
TEC:	Technical Expert	GS: Gold Standard
TL:	Team Leader	SCS: SocialCarbon Standard
FIN-EXP:	Financial Expert	JI: Joint Implementation
DET:	Determiner	

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. Is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

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RINA

CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra: *We declare that Mr/Mrs/Ms:*	**Rekha Menon**
è qualificato come[1]: *is qualified as:*	**CDM–TEC, –VAL, -VER, -TL ITRP**
per le seguenti aree tecniche: for the following technical areas:	**1.2, 2.1, 13.1, 13.2, 14.1**

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA *TECHNICAL AREA DESCRIPTION*	SCOPO SETTORIALE *SECTORAL SCOPE*
1.2	Renewables	1
2.1	Energy Demand	2
13.1	Solid Waste and wastewater	13
13.2	Manure	13
14.1	Afforestation and reforestation	14

in accordo alle istruzioni dell'unita Sostenibilità & Cambiamenti Climatici.
in accordance with the instructions of the Sustainability & Climate Change Unit.

REVISIONE *REVISION*	DATA *DATE*	MOTIVAZIONI PER LA REVISIONE *REASON FOR THE REVISION*
0	06-03-2008	-
11	31/03/2017	Update qualification as ITRP

Il Resp. QPT
Head of QPT

[1] Legend:

VAL:	Validator	CDM: Clean Development Mechanism
VER:	Verifier	VCS : Verified Carbon Standard:
TEC:	Technical Expert	GS: Gold Standard
TL:	Team Leader	SCS: SocialCarbon Standard
FIN-EXP:	Financial Expert	JI: Joint Implementation
DET:	Determiner	

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

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RINA

CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra: / *We declare that Mr/Mrs/Ms:* **Champok Buragohain**

è qualificato come[1]: / *is qualified as:* **CDM –TEC, -VAL, -VER, -TL ITRP**

per le seguenti aree tecniche: / for the following technical areas: **1.2, 2.1, 13.1, 13.2**

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA *TECHNICAL AREA DESCRIPTION*	SCOPO SETTORIALE *SECTORAL SCOPE*
1.2	Renewables	1
2.1	Electricity distribution	2
13.1	Solid waste and wastewater	13
13.2	Manure	13

in accordo alle istruzioni dell'unita Sostenibilità & Cambiamenti Climatici.
in accordance with the instructions of the Sustainability & Climate Change Unit.

REVISIONE *REVISION*	DATA *DATE*	MOTIVAZIONI PER LA REVISIONE *REASON FOR THE REVISION*
0	19-01-2011	-
11	31/03/2017	Update qualification as ITRP

Il Resp. QPT
Head of QPT

[1] Legend:

VAL:	Validator	CDM: Clean Development Mechanism
VER:	Verifier	VCS : Verified Carbon Standard:
TEC:	Technical Expert	GS: Gold Standard
TL:	Team Leader	SCS: SocialCarbon Standard
FIN-EXP:	Financial Expert	JI: Joint Implementation
DET:	Determiner	

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. Is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

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RINA

CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra: *We declare that Mr/Mrs/Ms:*	**Daria Maso**
è qualificato come[1]: *is qualified as:*	**CDM-TEC**
per le seguenti aree tecniche: for the following technical areas:	**14.1**

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA *TECHNICAL AREA DESCRIPTION*	SCOPO SETTORIALE *SECTORAL SCOPE*
14.1	Afforestation and reforestation	14

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE *REVISION*	DATA *DATE*	MOTIVAZIONI PER LA REVISIONE *REASON FOR THE REVISION*
0	29/09/2017	First issue

Il Resp. QPT
Head of QPT

[1] Legend:

VAL:	Validator	CDM: Clean Development Mechanism
VER:	Verifier	VCS : Verified Carbon Standard:
TEC:	Technical Expert	GS: Gold Standard
TL:	Team Leader	SCS: SocialCarbon Standard
FIN-EXP:	Financial Expert	JI: Joint Implementation
DET:	Determiner	

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	Guangxi Forest Inventory & Planning Institute	CDM-PDD for project activity "Reforestation on Degraded Lands in Northwest Guangxi" in China	Version 7.0 of 09/03/2010	PP
2	Guangxi Forest Inventory & Planning Institute	Monitoring report for project activity "Reforestation on Degraded Lands in Northwest Guangxi" in China	Version 01 of 19/12/2017 and version 02 of 25/02/2018	PP
3	CDM Executive Board	CDM project cycle procedure for project activities	Version 01.0 of 03/03/2017	others
4	CDM Executive Board	CDM project standard for project activities	Version 01.0 of 03/03/2017	others
5	CDM Executive Board	CDM validation and verification Standard for project activities	Version 01.0 of 03/03/2017	others
6	CDM Executive Board	Approved consolidated afforestation and reforestation baseline and monitoring methodology "AR-ACM0001", "Afforestation and reforestation of degraded land"	Version 03 of 25/03/2009	others
7	CDM Executive Board	A/R Large-scale Consolidated Methodology "AR-ACM0003", "Afforestation and reforestation of lands except wetlands"	Version 02.0 of 04/10/2013	others
8	CDM Executive Board	Monitoring report form for CDM project activity (CDM-MR-FORM)	Version 06.0 of 07/06/2017	others
9	CDM Executive Board	Guideline of application of materiality in verifications	Version 02.0 of 20/02/2015	others
10	CDM Executive Board	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 of 02/03/2012	others
11	CDM Executive Board	Guidelines on application of specified versions of A/R CDM methodologies in verification of registered A/R CDM project activities	Version 01.1 of 20/07/2012	others
12	CDM Executive Board	A/R Methodological Tool "Calculation of the number of sample plots for measurements within A/R CDM project activities"	Version 02.1.0 of 26/11/2010	others
13	CDM Executive Board	A/R Methodological Tool "Estimation of non-CO_2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity"	Version 04.0.0 of 25/11/2011	others
14	CDM Executive Board	A/R Methodological tool "Estimation of carbon stocks and change in carbon stocks in dead	Version 03.1 of 24/07/2015	others

		wood and litter in A/R CDM project activities”		
15	CDM Executive Board	Methodological tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”	Version 04.2 of 24/07/2015	others
16	CDM Executive Board	A/R Methodological tool “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity”	Version 02.0 of 04/10/2013	others
17	CDM Executive Board	A/R Methodological Tool “Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities”	Version 01.1.0 of 15/04/2011	others
18	CDM Executive Board	A/R Methodological Tool “Demonstrating appropriateness of allometric equations for estimation of aboveground tree biomass in A/R CDM project activities”	Version 01.0.0 of 25/11/2011	others
19	CDM Executive Board	A/R Methodological Tool “Demonstrating appropriateness of volume equations for estimation of aboveground tree biomass in A/R CDM project activities”	Version 01.0.1 of 11/05/2012	others
20	TUV SUD Industries Service GmbH	Validation report for project activity “Reforestation on Degraded Lands in Northwest Guangxi” in China	Revision 7 of 17/03/2010	PP
21	Bureau Veritas Certification	Verification report for project activity “Reforestation on Degraded Lands in Northwest Guangxi” for the first monitoring period	Revision 01 of 08/02/2013	PP
22	Guangxi Forest Inventory & Planning Institute	ER calculation spreadsheet	Dated 19/12/2017	PP
23	Guangxi Forest Inventory & Planning Institute	Boundary comparison of the baseline scenario and project scenario	N/A	PP
24	Guangxi Forest Inventory & Planning Institute	Inventory report of the project activity	N/A	PP
25	Guangxi Forest Inventory & Planning Institute	Initial yield measurement records	N/A	PP
26	State Forestry Administration	Technical guideline for forest resource planning and design	Dated 04/2003	PP
27	Guangxi Forestry Department	Technical guideline for forest resource planning and design	Dated 02/2009	PP
28	Guangxi Forestry Department	Standard Operation Procedures for 8th forest inventory in Guangxi	Dated 04/2010	PP
29	Guangxi Forest Inventory & Planning Institute	CDM Monitoring & Management Manual	N/A	PP
30	Local Forestry Bureau (Tianlin County, Longlin County, Lingyun County)	Training records	Dated 09/2017	PP
31	Guangxi Forestry Department	Technical regulations for Chinese fir plantation in Guangxi	N/A	PP

32	Guangxi Forestry Department	Technical regulations for masson pine plantation in Guangxi	N/A	PP
33	Guangxi Forestry Department	Technical regulations for birch plantation in Guangxi	N/A	PP
34	Guangxi Forest Inventory & Planning Institute	Forestry Inventory Manual	Dated 06/1986	PP
35	Guangxi government	Carbon Accounting and Monitoring Techniqual Regulation for Afforestation and Reforestation Project	Dated 12/2014	PP

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verifications

FAR ID	N/A	**Section no.**	N/A	**Date:** N/A
Description of FAR				
N/A				
Project participant response				**Date:** N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				**Date:** N/A
N/A				

Table 2. CL from this verification

CL ID	1	**Section no.**	A.1	**Date:** 12/02/2018
Description of CL				
It is stated in the MR that 148.3 ha of eucalyptus has been harvested and regenerated during this monitoring period, while the records were not available during the onsite visit.				
Project participant response				**Date:** 25/02/2018
All activities, including site preparation, planting, harvesting and regeneration etc, were recorded on sub-compartment monitoring card. Attached pls find the scanned monitoring cards for the 148.3 ha of eucalyptus plantation as well as the shp file of harvested eucalyptus.				
Documentation provided by project participant				
CL 01-1 monitoring cards for the 148.3 ha of eucalyptus plantation *CL 01-2 shp file of harvested eucalyptus*				
DOE assessment				**Date:** 02/04/2018
The records for the harvest of the 148.3 ha of eucalyptus have been provided by the PP. Hence, CL1 is closed.				

CL ID	2	**Section no.**	B.1	**Date:** 12/02/2018
Description of CL				
It is not clear in the MR that how the total planted area (6,952.6 ha) was determined and the original records of the total area was not available during the onsite visit, either.				
Project participant response				**Date:** 25/02/2018
Firstly the project boundary was measured and confirmed using GPS as described in section D.3.2 of Monitoring report, then the boundary information was input into GIS from with area of each parcel of land and total area were calculated. Pls find attached CL 02 shp file for the project boundary.				
Documentation provided by project participant				
CL 02 shp file for the project boundary				
DOE assessment				**Date:** 02/04/2018
The process for the determination and calculation of the planted area is now clear and the records have also been provided by the PP. Hence, CL2 is closed.				

CL ID	3	Section no.	D.3	Date: 12/02/2018
Description of CL				
During the onsite visit for plot TL12 of strata 11, it is found that one tree fell down while the ER for this tree was included in the calculation. Please clarify the reason.				
Project participant response				**Date:** 25/02/2018
The tree did not "fall down", instead the main stem was broken at about 4m above the ground, followed by new gib sprouting up to 9.7m. The tree is still alive. Based on the Specification for the 9th Forest Inventory in Guangxi (Chapter 4.33.9), broken-stem trees should be measured as long as they are alive.				
Documentation provided by project participant				
CL 03-1 Specification for the 9th Forest Inventory in Guangxi *CL 03-2 Picture of the broken-stem tree*				
DOE assessment				**Date:** 02/04/2018
The verification team reviewed the specification for the 9th Forest Inventory in Guangxi, and found that a tree with broken-stem should be included for the calculation of ER. Hence, CL3 is closed.				

CL ID	4	Section no.	D.3	Date: 12/02/2018
Description of CL				
During the onsite visit for plot TL21 of strata 12, it is found that there was no record for the number of the trees nor the DBH and height of the trees. Please clarify the reason.				
Project participant response				**Date:** 25/02/2018
According to the "Carbon Accounting and Monitoring Techniqual Regulation for Afforestation and Reforestation Project" (DB45/T 1108-2014, Paragraph 5.3.3.2), if DBH of 1/3 of trees within a sampling plot are equal or above 2.0cm, trees in the sampling plot would be measured, otherwise measurement would not be undertaken. At the time of the monitoring on Oct 18th 2017, the number of trees with DBH equal or larger the 2.0 cm in the plot TL21 was less than 1/3, therefore tree measurement was not undertaken. Indeed, as the eucalyptus growth is fast, at time of on-site verification (Jan 19 2018) the number of trees with DBH equal or larger the 2.0 cm in the plot TL21 was more than 1/3.				
Documentation provided by project participant				
CL 04 Carbon Accounting and Monitoring Techniqual Regulation for Afforestation and Reforestation Project" (DB45/T 1108-2014)				
DOE assessment				**Date:** 02/04/2018
The verification team reviewed *DB45/T 1108-2014* and found that the clarification from PP is in line with this technical regulation. Furthermore, the ERs were not taken into consideration for this sample plot, which is conservative. Hence, CL4 is closed.				

CL ID	5	Section no.	D.3	Date: 12/02/2018
Description of CL				
During the onsite visit for plot LL74 of strata 13, it is found that the number of the trees reduced compared to the first monitoring period, while there was no record for this reduction during the onsite visit.				
Project participant response				**Date:** 25/02/2018
During the interval of the two monitorings, 2 trees (No.14 and No.36 in the first monitoring) died followed by natural resprouting of two new trees (No.27 and No.39 in the second monitoring). Therefore the number of trees is same in the two monitoring				
Documentation provided by project participant				
DOE assessment				**Date:** 02/04/2018
The verification team checked the monitoring cards and confirmed that 2 trees compared to the first monitoring period died while 2 new trees are planted during the second monitoring period. Hence, CL5 is closed.				

Table 3. CAR from this verification

CAR ID	1	Section no.	E	Date: 12/02/2018
Description of CAR				
The values of the net GHG removals in the MR are inconsistent between each other.				
Project participant response				**Date:** 25/02/2018
There was a mistake in the calculation which has been corrected				
Documentation provided by project participant				

MR version 02	
DOE assessment	**Date:** 02/04/2018
The values of the net GHG removals in the MR version 02 have been corrected to be consistent among each other. Hence, CAR1 is closed.	

Table 4. FAR from this verification

FAR ID	xx	**Section No.**		**Date:** DD/MM/YYYY
Description of FAR				
Project participant response				**Date:** DD/MM/YYYY
Documentation provided by project participant				
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Document information

Version	*Date*	*Description*
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.

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