# VERIFICATION REPORT OF

# FUJIAN YONG'AN IMPROVED FOREST MANAGEMENT PROJECT

Document Prepared By China Environmental United Certification Center Co., Ltd.

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| **Report Title** | Verification Report of Fujian Yong'an Improved Forest Management Project |
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**Summary:**

China Environmental United Certification Center Co., Ltd ( hereafter refers to 'CEC') has conducted the verification of Fujian Yong'an Improved Forest Management Project, owned by Yong'an Forestry Bureau of Fujian province, P.R.China, which is located in Yong'an City, Fujian Province, P.R.C, and applying the VCS methodology VM0010 version 1.2, on the basis of VCS Standard Version 3.5, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification scope is defined as an independent and objective review and ex-post determination of the monitored GHG emission reductions, and consisted of the following three phases: i) desk review of the project design, the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using CEC internal procedures.

In summary, CEC confirms that the project is implemented as planned and described in the validated VCS project description. The forestry management conversion includes 7,186 ha logged to Protected Forest (LtPF) spreading in 14 towns in Yong'an City. The monitoring system is in place and reduces the GHG emissions as anthropogenic GHG removals by sinks. The GHG emission removals by sinks verified totalize 263,328 $tCO_2e$ for the monitoring period.

Our opinion relates to the projects' GHG emissions and resulting GHG emission reductions reported and related to the valid project baseline, monitoring plan and its associated documents.

Our opinion relates to the projects' actual net GHG removals by sinks and resulting net anthropogenic GHG removals by sinks is reported and related to the valid and registered project baseline, monitoring plan and its associated documents.

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|---|---|
| Reporting period | 01/07/2011 to 30/06/2016 |
| Baseline net GHG removals by sinks | 53,089 $tCO_2e$ |
| Actual net GHG removals by sinks | -298,015 $tCO_2e$ |
| GHG emissions due to leakage | 0 $tCO_2e$ |
| Total number of credits withheld in VCS buffer account | 87,776 $tCO_2e$ |
| Net anthropogenic GHG removals by sinks | 263,328 $tCO_2e$ |

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# 1 INTRODUCTION

## 1.1 Objective

Yong'an Forestry Bureau of Fujian province, P.R.China (hereafter referred to as "the PP") has commissioned China Environmental United Certification Center Co., Ltd (CEC) to verify the emission removals of Fujian Yong'an Improved Forest Management Project (hereafter referred to as "the Project") owned by Yong'an Forestry Bureau of Fujian province, P.R.China, which is located in Yong'an City, Fujian Province, P.R.C for the period from 01/07/2011 to 30/06/2016.

CEC as the validation/verification body (VVB) of the Project has been accredited as a DOE by UNFCCC and also meets the competence requirements as set out in ISO 14065:2007.

The objective of verification is to verify the reported emission removals generated by the Project for the period from 01/07/2011 to 30/06/2016 and to confirm that actual monitoring systems and procedures are in compliance with that described in the monitoring plan and the additional requirements stated by the VCS Association (VCSA).

## 1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of the VCS project description (VCS-PD), the project's baseline study and monitoring plan, VCS monitoring report (VCS-MR) and other relevant documents. The information in these documents is reviewed against VCS requirements, UNFCCC rules and associated interpretations.

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

The verification is carried out on the basis of the following requirements, applicable for this project activity:

- VCS Program Guide, version 3.5, dated 08/10/2013
- VCS Standard, version 3.5, dated 25/03/2015
- Registration & Issuance Process, version 3.6, dated 25/03/2015
- VCS Validation and Verification Manual, version 3.1, dated 08/10/2013
- Other rules and requirements

## 1.3 Level of Assurance

CEC has undertaken a reasonable assurance engagement in accordance with VCS requirements. It requires a reasonable level of assurance in verification that GHG assertions are free of material errors, omissions and misrepresentations. The verification conclusion is based on the VCS-PD,

VCS-MR, supporting evidences made available to the verifier and information collected through performing interviews and during the on-site inspection.

### 1.4 Summary Description of the Project

The Project is located in Yong'an City, Fujian Province, P.R.C, with the geo-coordinate range of 116°56′E~117°47′E and 25°33′N~26°12′N. The annual estimated emission removals are 52,666 $tCO_2e$.

The Project involves 7,186 ha logged to Protected Forest (LtPF) project which belongs to the improvement forestry management (IMF). It applies methodology VM0010 version 1.2 "Methodology for Improved Forest Management: Conversion of Logged to Protected Forest". The protected species are Chinese Fir, Masson pine and Broad-leaf trees.

The Project Start Date is 01/07/2011, which is indicated in the project development agreement signed between the representative Project Proponent of Yong'an Forest Bureau and other PPs.

## 2 VERIFICATION PROCESS

### 2.1 Method and Criteria

The overall verification, from Contract Review to Verification Report & Opinion, was conducted using CEC internal procedures.

CEC verified the project against the VCS requirements.

### 2.2 Document Review

The assessment of the project documentation provided by the project participant is based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the VCS monitoring report (MR) version 01 and emission reduction calculation spreadsheet. Qualitative information comprises information on internal management controls, calculation procedures, procedures for transfer of data, frequency of emissions reports, and review and internal audit of calculations.

In addition to the monitoring documentation provided by the project proponents, the VVB reviews:

(a) The VCS-PD and the monitoring plan;

(b) The validation report

(c) The applied monitoring methodology;

(d) Other information and references relevant to the project activity's resulting emission reductions (e.g. IPCC reports, 3rd party measurement reports or national regulations).

## 2.3 Interviews

On 04/02/2015, verification team performed a site visit and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Yong'an Forestry Bureau of Fujian province, P.R.China and CITIC Environment Protection Co., Ltd were interviewed (see References). The main topics of the interviews are listed as below.

| ***Interview topics*** | ***Organization*** | ***Name*** |
|---|---|---|
| Project background information.<br>Project technology, operation and maintenance.<br>Project approval and right of use<br>Project implementation status.<br>Project management and monitoring plan.<br>Stakeholder consultation process | Yong'an Forestry Bureau of Fujian Province<br>Fujian Yong'an Forestry (Group) Co., Ltd.<br>Fujian Yonghui Foresty Co., Ltd.<br>Yong'an Senfa Technology and Trade Co., Ltd.<br>CITIC Environment Protection Co., Ltd | Zheng Lingfeng<br>Rong Guohua<br>Luo Shande<br>Chen Jianwen<br>Zhang Yapeng |
| Applicability of selected methodology.<br>Baseline determination.<br>Emission reductions calculation.<br>Emission reduction monitoring plan. | Yong'an Forestry Bureau of Fujian Province<br>CITIC Environment Protection Co., Ltd | Zheng Lingfeng<br>Zhang Yapeng |

## 2.4 Site Inspections

On 04/02/2015-05/02/2015, the validation team performed the site inspection with the project proponent of the project activity. During this site inspection interviews with the representatives of the project owner, the consultant and project stakeholders were carried out to confirm selected information and to resolve issues identified in the document review.

## 2.5 Resolution of Findings

The objective of this phase of the verification is to resolve issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the project activity to achieve emission removals or influence the monitoring and reporting of emission removals prior to CEC's positive conclusion on the GHG emission removals calculation.

Findings established during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

A Corrective Action Request (CAR) is raised, if one of the following situations occurs:

(a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;

(b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;

(c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;

(d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

A Clarification Request (CL) is raised, if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

A Forward Action Request (FAR) is raised, for actions if the monitoring and reporting require attention and/or adjustment for the next verification period.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in Appendix A.

### 2.5.1 Forward Action Requests

No Forward Action Request is raised during this monitoring period.

## 2.6 Eligibility for Validation Activities

Not applicable, CEC as the validation/verification body (VVB) of the Project has been accredited as a DOE by UNFCCC and also meets the competence requirements as set out in ISO 14065:2007.

# 3 VALIDATION FINDINGS

## 3.1 Participation under Other GHG Programs

Not applicable, the project has not been registered, or is seeking registration under any other GHG programs.

## 3.2 Methodology Deviations

Not applicable, no deviation from methodology.

## 3.3 Project Description Deviations

Not applicable, no deviation from project description in the VCS PD version 02 dated 05/06/2016.

### 3.4 Grouped Project

Not applicable, the project is not a grouped project.

## 4 VERIFICATION FINDINGS

### 4.1 Project Implementation Status

CEC has performed a site visit and found that the Project has been implemented since 01/07/2011, which is indicated in the project development agreement signed between the representative Project Proponent of Yong'an Forest Bureau and other PPs. On the basis of this site visit and the reviewed project description it can be confirmed that, the improved forestry management, such as conversion of logged to protection forest (Protected species are: Chinese Fir, Masson pine and Broad-leaf trees) are implemented.

The forestry management conversion includes 7,186 ha logged to Protected Forest (LtPF). The different forest types, as well as the monitoring system, metering equipment and the monitoring procedure have been implemented and managed as described in the VCS PD.

CEC has onsite checked the boundary of the Project and confirmed they are consistent with those stated in the VCS PD.

No changes to the project design have been identified during this verification. The implementation and operation of the project activity have been conducted in accordance with the description contained in the VCS PD.

### 4.2 Accuracy of GHG Emission Reduction and Removal Calculations

Monitoring has been carried out in accordance with the monitoring plan contained in the VCS PD.

The parameters required by the monitoring plan and how CEC has verified the information flow (from data generation, aggregation, to recording, calculation and reporting) and appropriateness of the applied measurement / determination method, the correctness of the values applied for emission removals calculation, the accuracy, and applied QA/QC measures for all relevant monitoring parameters including the values in the monitoring report are described below:

1) Illegal Logging PRA Results;

The value is zero since there is clear infrastructure, hiring and policies are in place to prevent illegal logging. CEC has checked the documents provided by the local Forest Public Security Bureau and confirmed there is no illegal logging happened during the period from year 2011 to year 2016. Hence, the value applied is consistent with the methodology.

2) Result of Limited Illegal Logging Survey;

The value is zero since there is clear infrastructure, hiring and policies are in place to prevent illegal logging.

3) $A_{burn,i,t}$ Area burnt in stratum *i* at time *t*

N/A, no forest of the Project burnt during this monitoring period.

4) $A_{dist,i,t}$, Area disturbed in stratum *i* at time *t*

N/A, no forest of the Project disturbed during this monitoring period.

5) $A_{DIST\_IL,i}$: Area potentially impacted by illegal logging in stratum *i*

N/A, no forest of the Project will be disturbed during this monitoring period.

6) $C_{DIST\_IL,i,t|PRJ}$: biomass carbon of trees cut and removed through illegal logging in stratum *i* at time *t*

N/A, no illegal logging was recorded during this monitoring period.

7) $A_{Pi}$: Total area of illegal logging sample plots in stratum *i*

N/A, no illegal logging was recorded during this monitoring period.

8) $PMP_i$: Merchantable biomass as a proportion of total aboveground tree biomass for stratum *i* within the project boundaries

N/A, no merchantable volume of timber in the forest during this monitoring period.

9) $A_i$: Area covered by stratum *i*

The value is from the national second class forest investigation, which is updated every 10 years.

The data and parameters available in the validation are listed below:

1) $V_{l,j,i,sp}$, Merchantable volume for tree *l* of species *j* in sample plot spin stratum *i*

This value is from the local second forest inventory issued by the qualified investigation institute. CEC checked the inventory and certification of the investigation institute and confirmed the appropriateness.

2) $CF_j$ , Carbon fraction of dry matter for species *j*

This value applied is 0.5 $tc \cdot tdm^{-1}$, which is from the default value of the methodology.

3) $D_j$ , Basic wood density of species *j* in t d.m. $m^{-3}$

Three methods have been recommended by the methodology, for the project activity, method a) National species-specific or group of species-specific values, with the highest preference is adopted. The value from the GHG inventory of land use change and Forestry from the “the second national information notice on China’s climate change” is applied to the project activity. CEC checked the Chapter "Land Use Change and Forestry GHG Inventory (2013)" and

confirmed the application value of 0.307, 0.38 and 0.482 with Chinese Fir, Masson Pine and Broad-leaf Tree is correct.

4) $f_j(X,Y…)$, Allometric equation(s) for species j linking measured tree variable(s) to aboveground biomass of living trees

As for the project tree species, there are no allometric equation applied in the project area, the average annual growth is adopted for the estimated calculation of carbon stock change.

The average annual growth is adopted from the statement by the local forest authority.

During the monitoring period, the average annual growth will be monitored by the total growth divided by the length of the monitoring period.

5) Fraction of wood products that will be emitted to the atmosphere between 3 and 100 years after production (OF)

Fraction of wood products that will be emitted to the atmosphere within 3 years of production (SLF)

Fraction of extracted biomass effectively emitted to the atmosphere during production (WW)

These values applied is listed as followed, which is from the default value of the methodology.

WW:24%; SLF: 0.12; OF: 0.62

CEC checked the methodology and confirmed the appropriateness.

6) $BCEF_R$ , Biomass conversion and expansion factor applicable to wood removals in the project area

Three methods have been recommended by the methodology, for the project activity, method b) National species-specific or group of species-specific values, is adopted. The value from the GHG inventory of land use change and Forestry from the “the second national information notice on China’s climate change” is applied to the project activity. CEC checked the Chapter "Land Use Change and Forestry GHG Inventory (2013)" and confirmed the application value of 0.502, 0.559 and 0.730 with Chinese Fir, Masson Pine and Broad-leaf Tree is correct.

7) $G_{gi}$ , Emission factor for stratum *i* for gas *g*

As no fire occurs during the monitoring period, This parameter is not applicable to the project activity.

8) $RGR_i$ , Forest re-growth rate post timber harvest for stratum *i*

Three methods have been recommended by the methodology, for the project activity. Method b is applied. The average annual regrowth is confirmed by the local forest authority based on their expertise.

And the RGRi can therefore be calculated by the biomass expansion factor, density and carbon fraction of the separate species.

9) $V_{EX,j,i|BSL}$ , Mean volume of extracted timber per unit area for species *j* in stratum *i*

The timber harvest and management plan sets the allowable mean extracted volume from the merchantable volume of timber in the forest second class investigation (Vj,i|BSL), based on legal limits. CEC checked the timber harvest and management plan and confirmed the appropriateness.

10) $A_{i,p}$ , Area covered by stratum *i* over land parcel *p*

This value is calculated from the forest second class investigation issued by the qualified investigation institute. CEC checked the investigation and confirmed the appropriateness.

A complete set of data for the specified monitoring period is available.

The critical parameter used for the determination of the Emission Removals is the area of forest, number of plant, diameter at breast height of a tree and other parameters relate to the forest inventory. The data pertaining to the above parameters are maintained in the identified records. All the data are in compliance with that stated in the Monitoring Report version 01.

According to the methodology and the VCS PD, the net change in carbon stock from wood products and logging slash across all parcels within the first year of harvest in the baseline is calculated as:

$$\Delta C_{NET,BSL(1)} = \sum_{i=1}^{M}\sum_{p=1}^{p} A_{1,i,p} * \left(\left(\frac{\Delta C_{DWSLASH,i,p,BSL}}{10}\right) + \Delta C_{WP0,i,p,BSL} + (\Delta C_{WP100,i,p,BSL}/20)\right) \quad (1)$$

The net change in carbon stock from wood products and logging slash across all parcels in the years 2-10 since harvest in the baseline are calculated as:

$$\Delta C_{NET,BSL(2-10)} = \sum_{i=1}^{M}\sum_{p=1}^{p} A_{2-10,i,p} * \left(\left(\frac{\Delta C_{DWSLASH,i,p,BSL}}{10}\right) + (\Delta C_{WP100,i,p,BSL}/20)\right) \quad (2)$$

The net change in carbon stock from wood products across all parcels in the years 11-20 since harvest in the baseline are calculated as:

$$\Delta C_{NET,BSL(11-20)} = \sum_{i=1}^{M}\sum_{p=1}^{p} A_{11-20,i,p} * (\Delta C_{WP100,i,p,BSL}/20) \quad (3)$$

The net change (sequestration) in carbon stock due to forest regrowth across all parcels in all years since harvest in the baseline scenario are calculated as:

$$\Delta C_{NET,BSL(1+)} = \sum_{i=1}^{M}\sum_{p=1}^{p} A_{i,p,t^*} * (-\Delta C_{RG,i,p,BSL}) \quad (4)$$

Therefore, the net change in carbon stock across all parcels harvested over each year of the project crediting period in the baseline scenario since the start of the project activity is calculated as:

$$\Delta C_{NET,BSL,t^*} = \Delta C_{NET,BSL(1)} + \Delta C_{NET,BSL(2-10)} + \Delta C_{NET,BSL(11-20)} + \Delta C_{NET,BSL(1+)} \quad (5)$$

The net carbon stock change in the baseline scenario must be converted to net greenhouse gas emissions and is calculated as:

$$GHG_{NET,BSL,t^*} = \Delta C_{NET,BSL,t^*} * \frac{44}{12} \quad (6)$$

CEC has checked the Emission Removals calculation sheet and found the calculation is correct.

According to the methodology and the VCS PD, net greenhouse gas emissions in the project scenario in year t, equal to emissions resulting from forest disturbance (both illegal logging and natural disturbances) minus carbon sequestration through ongoing forest growth.

$$\Delta C_{AB,t,PRJ} = \left(\sum_{i=1}^{M}\left(A_i * \frac{C_{AB,i,t2,PRJ} - C_{AB,i,t1,PRJ}}{T}\right)\right) * \frac{44}{12} \quad (7)$$

For the calculation result of annual carbon stock change in aboveground biomass of trees, since the total carbon stock change is calculated based on the monitoring data of five years (2010-2014), and the annual carbon stock change cannot be separately monitored, the average growth method is adapted to calculate the annual carbon stock change. The validation team checked the "forest resource operation and management" published by Chinese Forest Press in 2001, and confirmed that the average growth method is acceptable and reasonable based on the expertise and experience.

Based on the IPCC 2006 Inventory Guidelines, estimation of greenhouse gas emissions from biomass burning must be calculated as:

$$\Delta C_{DIST-FR,t,PRJ} = \sum_{i=1}^{M} A_{burn,i,t} * B_{i,t,PRJ} * COMF_i * G_{g,i} * 10^{-3} * GWP_{CH4} \quad (8)$$

As there is no fire occurred during the monitoring period, $\Delta C_{DIST-FR,t,PRJ}$ is equal to 0.

It is conservatively assumed that the natural disturbance is a stand-replacing disturbance, and that the biomass change as a result of the natural disturbance ($\Delta C_{DIST,t,PRJ}$) is emitted in the year of disturbance.

$$\Delta C_{DIST,t,PRJ} = \sum_{i=1}^{M}\left(A_{dist,i,t} * \sum_{j=1}^{J}\{C_{AB,j,i,BSL}\}\right) * \frac{44}{12} \quad (9)$$

As indicates by the relevant statement issued by the local authority, no natural disasters occurred during the monitoring period, $\Delta C_{DIST,t,PRJ}$ is equal to zero.

CEC has checked the Emission Removals calculation sheet and found the calculation is correct.

**Activity shifting leakage**

According to VM0010 version 1.2, there may be no leakage due to activity shifting. This was demonstrated through:

In China, the forest timber harvest is strictly controlled by the authority. Any logging activities without approval would be deemed as illegal logging and punishment for the illegal logging is pretty heavy according to China Forest Law. The verification team reviewed the 'Statistic on the extracted volume in Yong'an City from 2010 to 2015' issued by local forestry bureau and interviewed with local forestry bureau, confirmed that after the implementation of the project activity, the extracted volume in Yong'an City keeps decreasing. Considering that other lands owned by the project proponent are all located in Yong'an City, conclusion can be made that the total extracted volume is decreasing instead of increasing, not affected by the reducing of the project activity. Therefore, the project activity did not lead to reductions in carbon stock or increase in GHG emissions.

Extracted volume in Yong'an City from 2010 to 2015 is listed below:

| Year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|
| Extracted volume ($m^3$) | 723,871 | 406,187 | 405,037 | 330,792 | 262,974 | 207,646 |
| variation compared to last year | -43.89% | -0.28% | -18.33% | -20.50% | -21.04% | -43.89% |

Therefore, the activity shifting leakage is zero.

**Market leakage**

According to the Validation Report version 01.0, the leakage factor for market-effects calculations ($LF_{ME}$) is 0.

CEC has verified the following documents:

- According to the National Forestry Law of P.R. China, the forest concessions must be strictly implemented;
- According to the Forestry Law of P.R. China, Illegal logging in China will be faced punished by replanting, penalty, or criminal responsibilities.
- In recent years, the illegal logging is absent in China.
- According to the 11$^{th}$ Five-year plan issued by State Forest Bureau (Guofa[2005]No.41), the annual extracted volume from 2006 to 2009 is 24,815.5*$10^4$ $m^3$, and the extracted volume of the project is 30.05*$10^4$ $m^3$, which is 0.12% of the national extracted volume, which will not result in the significant national concession and illegal logging.

CEC can confirm that the logging is impossible increased as a result of the decreased supply of the timber caused by the project in this monitoring period.

Therefore, $LF_{ME} = 0$.

According to VM0010 version 1.2, the Net Project Greenhouse Gas Emission removals in the monitoring crediting period are calculated as:

$$GHG_{CREDITS,LTPF,t*} = GHG_{NET,BSL,t*} - GHG_{NET,PRJ,t*} - GHG_{LK,LtPF,t*} \quad (10)$$

Where:

$GHG_{CREDITS|LtPF}$ project greenhouse gas credits associated with the implementation of improved forest management (IFM) activities in the project scenario, $tCO_2e$

$GHG_{NET|BSL}$ net greenhouse gas emissions in the baseline scenario in the year t* since the start of the project activity, $tCO_2e$

$GHG_{NET|PRJ}$ net greenhouse gas emissions in the project scenario in the year t* sincethe start of the project activity, $tCO_2e$

$GHG_{LK|LtPF}$ total greenhouse gas emissions due to leakage arising outside the projectboundary as a result of the implementation of improved forest management(IFM) activities in the year t* since the start of the project activity, in theproject scenario, $tCO_2e$

According to the VCS PD, if the uncertainty propagation $U_{total|LtPF} \leq 0.15$ then no deduction will result for uncertainty; If $U_{total|LtPF} > 0.15$ then the amount of greenhouse gas emission credits associated with IFM activities will be deducted as follows:

$$Credits_{total|LtPF} = GHG_{credits|LtPF} * (1 - U_{total|LtPF}) \quad (11)$$

The uncertainty propagation $U_{total|LtPF} = 12.669\% \leq 0.15$ in this monitoring period; therefore,

$$Credits_{total|LtPF} = GHG_{credits|LtPF}$$

As per the methodology VM0010 version 1.2 and the VCS PD, the amount of VCU's that can be issued at time t=t2 (the date of verification) for monitoring period $T=t_2-t_1$, is calculated as:

$$VCU_{net|LtPF} = (Credits_{total,t2|LtPF} - Credits_{total,t1|LtPF}) - Bu_{|IFM-VCS} \quad (12)$$

Where:

$VCU_{net|LtPF}$ number of verified carbon units; dimensionless;

$Credits_{total.t1|LtPF}$ net anthropogenic greenhouse gas removals by sinks, as estimated for t*=t1 in $tCO_2e$;

$Credits_{total.t2|LtPF}$ net anthropogenic greenhouse gas removals by sinks, as estimated for t*=t2 in $tCO_2e$; and

$Bu_{|IFM-VCS}$ total number of credits withheld in VCS buffer account.

According to the Non-permanence Risk Report and VCS MR, the overall risk rating in this monitoring period is 25; hence, 25% of the total emission reductions were deducted.

## 4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

All necessary documentation is collected, referenced and is easily accessible in hard-copy or electronic format. The data pertaining to the monitored parameters are maintained in the identified internal records and consistent with the values stated in the Monitoring Report version 01.

Key data have been cross-checked via external sources.

For the data and parameters available at validation, the related evidence has been validated at validation stage and the reliability of the evidence, and the source and nature of the evidence has been confirmed and correctly applied at verification stage.

For the data and parameters monitored, the data and parameters related to forest disturbance in the project scenario, such as fire and non-fire disturbance, illegal logging was verified through reviewing the statement issued by local forestry authority, the statement was sourced from local authority and the reliability is confirmed. For the parameter $A_i$ and DBH, the data was sourced from second class forest investigation conducted by a certificated third-party, Yunnan Institute of forest Inventory and Planning, based on the National Forest Resource Continuous Investigation Technical Regulation issued by the State Forestry Bureau. Hence, the reliability is confirmed.

## 4.4 Non-Permanence Risk Analysis

The non-permanence risk is analyzed as below:

Step 1.Risk Analysis

Sub-step 1.1: Internal Risks

According to the AFOLU Non-Permanence Risk Tool (version 3.2), project management (PM), financial viability (FV), opportunity cost (OC), project longevity (PL) shall be assessed using the specified table. Every risk factor has been identified and the relevant risk rating has been presented in the non-permanence risk report as bellows:

| Project Management | | |
|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating |
| a) | Species planted (where applicable) associated with more than 25% of the stocks on which GHG credits have previously been issued are not native or proven to be adapted to the same or similar agro-ecological zone(s) in which the project is located. | Not Applicable |
| b) | Ongoing enforcement to prevent encroachment by outside actors is required to protect more than 50% of stocks on which GHG credits have previously been issued. | Not Applicable |
| c) | Management team does not include individuals with significant experience in all skills necessary to successfully undertake all project activities (ie, any area of required | Not Applicable |

| | | |
|---|---|---|
| | experience is not covered by at least one individual with at least 5 years experience in the area). | |
| d) | Management team does not maintain a presence in the country or is located more than a day of travel from the project site, considering all parcels or polygons in the project area. | Not Applicable |
| e) | **Mitigation:** Management team includes individuals with significant experience in AFOLU project design and implementation, carbon accounting and reporting (eg, individuals who have successfully managed projects through validation, verification and issuance of GHG credits) under the VCS Program or other approved GHG programs. | Not Applicable |
| f) | **Mitigation:** Adaptive management plan in place. | -2[1] |
| **Total Project Management (PM) [as applicable, (a + b + c + d + e + f)]**<br>Total may be less than zero. | | **-2** |

| Financial Viability | | |
|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating |
| a) | Project cash flow breakeven point is greater than 10 years from the current risk assessment | 3 |
| b) | Project cash flow breakeven point is greater than 7 and up to 10 years from the current risk assessment | Not Applicable |
| c) | Project cash flow breakeven point greater than 4 and up to 7 years from the current risk assessment | Not Applicable |
| d) | Project cash flow breakeven point is 4 years or less from the current risk assessment | Not Applicable |
| e) | Project has secured less than 15% of funding needed to cover the total cash out before the project reaches breakeven | Not Applicable |
| f) | Project has secured 15% to less than 40% of funding needed to cover the total cash out required before the project reaches breakeven | Not Applicable |
| g) | Project has secured 40% to less than 80% of funding needed to cover the total cash out required before the project reaches breakeven | Not Applicable |
| h) | Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven | Not Applicable |
| i) | **Mitigation**: Project has available as callable financial resources at least 50% of total cash out before project reaches breakeven. | -2[2] |
| **Total Financial Viability (FV) [as applicable, ((a, b, c or d) + (e, f, g or h) + i)]** | | **1** |

[1] Through reviewing the management regulations, CEC confirmed that the project proponent has established a complete set of management regulation in the operation & maintenance, disturbance prevention and the related contingency plan.

[2] Through reviewing the business license and interviewing the stakeholders, CEC confirmed that in order to protect the ecological system, the local government has tried to reduce the annual forest timber volume within the project area, and set aside part of protection funding for the project maintenance..

| | |
|---|---|
| Total may not be less than zero. | |

| Opportunity Cost | | |
|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating |
| a) | NPV from the most profitable alternative land use activity is expected to be at least 100% more than that associated with project activities; or where baseline activities are subsistence-driven, net positive community impacts are not demonstrated. | 8 |
| b) | NPV from the most profitable alternative land use activity is expected to be between 50% and up to100% more than from project activities | Not Applicable |
| c) | NPV from the most profitable alternative land use activity is expected to be between 20% and up to 50% more than from project activities | Not Applicable |
| d) | NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities; or where baseline activities are subsistence-driven, net positive community impacts are demonstrated | Not Applicable |
| e) | NPV from project activities is expected to be between 20% and up to 50% more profitable than the most profitable alternative land use activity | Not Applicable |
| f) | NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity | Not Applicable |
| g) | **Mitigation**: Project proponent is a non-profit organization | Not Applicable |
| h) | **Mitigation**: Project is protected by legally binding commitment (see Section 2.2.4) to continue management practices that protect the credited carbon stocks over the length of the project crediting period. | -2[3] |
| i) | **Mitigation**: Project is protected by legally binding commitment (see Section 2.2.4) to continue management practices that protect the credited carbon stocks over at least 100 years | Not Applicable |
| **Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g + h or i)]**<br>Total may not be less than 0. | | **6** |

| Project Longevity | | |
|---|---|---|
| a) | Without legal agreement or requirement to continue the management practice | = 24 - (project longevity/5) |
| b) | With legal agreement or requirement to continue the management practice [4] | = 30 - (project longevity/2) =30-20/2=20 |
| **Total Project Longevity (PL)** | | **20** |

[3] CEC reviewed the VCS development agreement signed between PP and companies and farmers and confirmed that project is protected by legal binding commitment with at least 20 years over the length of the project crediting period. .

[4] CEC reviewed the VCS development agreement signed between PP and the companies and the farmers and confirmed that the project period will be at least 20 years stipulated in their cooperation agreement..

| | |
|---|---|
| May not be less than zero | |

| Internal Risk | |
|---|---|
| **Total Internal Risk (PM + FV + OC + PL)**<br>Total may not be less than zero. | **=−2+1+6+20=25** |

Sub-step 1.2: External Risks

According to the AFOLU Non-Permanence Risk Tool (version 3.2), land and resource tenure (LT), community engagement (CE), political risk (PC), project longevity shall be assessed using the specified table. Every risk factor has been identified and the relevant risk rating has been presented in the non-permanence risk report as bellows:

| Land Tenure and Resource Access/Impacts | | |
|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating |
| a) | Ownership and resource access/use rights are held by same entity(s) | 0 |
| b) | Ownership and resource access/use rights are held by different entity(s) (eg, land is government owned and the project proponent holds a lease or concession) | Not Applicable |
| c) | In more than 5% of the project area, there exist disputes over land tenure or ownership | Not Applicable |
| d) | There exist disputes over access/use rights (or overlapping rights) | Not Applicable |
| e) | WRC projects unable to demonstrate that potential upstream and sea impacts that could undermine issued credits in the next 10 years are irrelevant or expected to be insignificant, or that there is a plan in place for effectively mitigating such impacts. | Not Applicable |
| f) | **Mitigation**: Project area is protected by legally binding commitment (eg, a conservation easement or protected area) to continue management practices that protect carbon stocks over the length of the project crediting period. | -2[5] |
| g) | **Mitigation**: Where disputes over land tenure, ownership or access/use rights exist, documented evidence is provided that projects have implemented activities to resolve the disputes or clarify overlapping claims | Not Applicable |
| **Total Land Tenure (LT) [as applicable, ((a or b) + c + d + e + f + g)]**<br>Total may not be less than zero. | | **0** |

| Community Engagement | | |
|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating |

[5] CEC reviewed the VCS development agreement signed between PP and companies and the farmers and confirmed that project is protected by legal binding commitment with at least 20 years over the length of the project crediting period.

| | | |
|---|---|---|
| a) | Less than 50 percent of households living within the project area who are reliant on the project area, have been consulted | Not Applicable |
| b) | Less than 20 percent of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted | Not Applicable |
| c) | **Mitigation**: The project generates net positive impacts on the social and economic well-being of the local communities who derive livelihoods from the project area | -5[6] |
| **Total Community Engagement (CE) [where applicable, (a + b + c)]**<br>Total may be less than zero. | | **-5** |

| Political Risk | | |
|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating |
| a) | Governance score of less than -0.79 | Not Applicable |
| b) | Governance score of -0.79 to less than -0.32 | 4[7] |
| c) | Governance score of -0.32 to less than 0.19 | Not Applicable |
| d) | Governance score of 0.19 to less than 0.82 | Not Applicable |
| e) | Governance score of 0.82 or higher | Not Applicable |
| f) | **Mitigation**: Country is implementing REDD+ Readiness or other activities, as set out in this Section 2.3.3. | -2[8] |
| **Total Political (PC) [as applicable ((a, b, c, d or e) + f)]**<br>Total may not be less than zero. | | **2** |

| External Risk | |
|---|---|
| **Total External Risk (LT + CE + PC)**<br>Total may not be less than zero. | =0 |

Sub-step 1.3: Natural Risks

[6] Based on the on-site inspection and interviewing with stakeholder, the stakeholders have positive attitude towards the implementation of the project, they agree that the project generates net positive impacts on the social and economic well-being of the local communities.

[7] http://info.worldbank.org/governance/wgi/index.aspx#home

[8] China has an established Designed National Authority under the CDM and has at least one registered CDM Afforestation/Reforestation project. Thus, the mitigation discount can be applied.

According to the AFOLU Non-Permanence Risk Tool (version 3.2), natural Risks shall be assessed using the specified table. Every risk factor has been identified and the relevant risk rating has been presented in the non-permanence risk report as bellows:

| Natural Risks | | | | | |
|---|---|---|---|---|---|
| | Likelihood | | | | |
| Significance | Less than every 10 years | Every 10 to less than 25 years | Every 25 to less than 50 years | Every 50 to less than 100 years | Once every 100 years or more, or risk is not applicable to the project area |
| Catastrophic(70% or more loss of carbon stocks) | Not applicable | Not applicable | Not applicable | Not applicable | 0 |
| Devastating (50% to less than 70% loss of carbon stocks) | Not applicable | Not applicable | Not applicable | Not applicable | 0 |
| Major(25% to less than 50% loss of carbon stocks) | Not applicable | Not applicable | Not applicable | Not applicable | 0 |
| Minor (5% to less than 25% loss of carbon stocks) | Not applicable | Not applicable | Not applicable | Not applicable | 0 |
| Insignificant(less than 5% loss of carbon stocks) or transient (full recovery of lost carbon stocks expected within 10 years of any event) | Not applicable | Not applicable | Not applicable | Not applicable | 0 |
| No Loss | Not applicable | Not applicable | Not applicable | Not applicable | 0 |
| LS Score | | | | | |
| Mitigation | | | | | |
| Prevention measures applicable to the risk factor are implemented | | | | | 0.5 |
| Project proponent has proven history of effectively containing natural risk | | | | | 0.5 |
| Both of the above | | | | | 0.25 |
| None of the above | | | | | Not applicable |

| Score for each natural risk applicable to the project (Determined by (LS × M) | |
|---|---|
| Fire (F) | 0 |
| Pest and Disease Outbreaks (PD) | 0 |
| Extreme Weather (W) | 0 |
| Geological Risk (G) | 0 |
| Other natural risk (ON) | 0 |
| **Total Natural Risk (as applicable, F + PD + W + G + ON)** | **0** |

Step 2: Overall non-permanence risk rating and buffer determination

According to the above step, the overall non-permanence risk rating is as bellows:

| Risk Category | Rating |
|---|---|
| a) Internal Risk | 25 |
| b) External Risk | 0 |
| c) Natural Risk | 0 |
| **Overall Risk Rating (a + b + c)** | **25** |

CEC has reviewed the Non-Permanence Risk Report (version 02, dated 12/04/2016) and the related evidences, include the documents provided by PP (business license, development agreement, financial analysis calculation and Timber Management Plan), and other public available information (WGI published by World Bank, etc.), and interviewed with stakeholders, CEC has evaluated the risk assessment undertaken by the project proponent and assess all data, rationales, assumptions, justifications and documentation provided by the project proponent to support the non-permanence risk rating, then CEC confirms that the evidences are substantial, and the overall risk rating is 25% based on the provided evidences, AFOLU Non-Permanence Risk Tool and VCS Standard.

## 5 VERIFICATION CONCLUSION

China Environmental United Certification Center Co., Ltd has conducted the verification of Fujian Yong'an Improved Forest Management Project, owned by Yong'an Forestry Bureau of Fujian province, P.R.China, which is located in Yong'an City, Fujian Province, P.R.C, and applying the VCS methodology VM0010 version 1.2, on the basis of VCS Standard Version 3.5, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The verification scope is defined as an independent and objective review and ex-post determination of the monitored GHG emission reductions, and consisted of the following three phases: i) desk review of the project design, the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using CEC internal procedures.

In summary, CEC confirms that the project is implemented as planned and described in the validated VCS project description. The forestry management conversion includes 7,186 ha logged to Protected Forest (LtPF) spreading in 14 towns in Yong'an City. The monitoring system is in place and reduces the GHG emissions as anthropogenic GHG removals by sinks. The GHG emission removals by sinks verified totalize 263,328 $tCO_2e$ for the monitoring period.

Our opinion relates to the projects' actual net GHG removals by sinks and resulting net anthropogenic GHG removals by sinks is reported and related to the valid and registered project baseline, monitoring plan and its associated documents.

Verification period: From 01/07/2011 to 30/06/2016

Verified GHG emission reductions and removals in the above verification period:

| Year | $GHG_{NET,BSL,t}$ | $GHG_{NET,PRJ,t}$ | $GHG_{LK,LtPF,t}$ | $GHG_{CREDITS,LtPF,t}$ | $U_{total,LtPF}$ | $Credits_{total,LtPF}$ | Risk scroe | $BU_{IFM,VCS}$ | $VCU_{net,IFM}$ |
|---|---|---|---|---|---|---|---|---|---|
| 01/07/2011-31/12/2011 | 4,941 | -29,964 | - | 34,906 | 12.67% | 34,906 | 25 | 8,726 | 26,180 |
| 01/01/2012-31/12/2012 | 10,027 | -59,603 | - | 69,630 | 12.67% | 69,630 | 25 | 17,408 | 52,222 |
| 01/01/2013-31/12/2013 | 10,422 | -59,603 | - | 70,025 | 12.67% | 70,025 | 25 | 17,506 | 52,519 |
| 01/01/2014-31/12/2014 | 10,816 | -59,603 | - | 70,419 | 12.67% | 70,419 | 25 | 17,605 | 52,814 |
| 01/01/2015-31/12/2015 | 11,211 | -59,603 | - | 70,814 | 12.67% | 70,814 | 25 | 17,703 | 53,111 |
| 01/01/2016-30/06/2016 | 5,672 | -29,639 | - | 35,311 | 12.67% | 35,311 | 25 | 8,828 | 26,483 |
| Total | 53,089 | -298,015 | - | 351,104 | | 351,104 | | 87,776 | 263,328 |
| Average | | | | | | | | | 52,666 |

Reference

/1/ VCS-PD version 02 dated 05/06/2016

/2/ VCS-MR version 01 dated 02/07/2016

/3/ ER calculation spreadsheet

/4/ Uncertainty Analysis spreadsheet

/5/ Validation Report version 2.0 dated 12/06/2016

/6/ VM0010 version 1.2 dated 27/03/2013

/7/ VCS Standard version 3.5 dated 25/03/2015

/8/ Agriculture, Forestry and Other Land Use (AFOLU) Requirements Version 3.4

/9/ Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities" (VT0001 VCS AFOLU Additionality Tool v3.0) dated 01/02/2012

/10/ AFOLU Non-Permanence Risk Tool, VCS version 3

/11/ Tool for the "Calculation of the number of sample plots for measurements within A/R CDM project activities" (version 02.1.0) approved by the CDM Executive Board.

/12/ VCS Validation and Verification Manual, version 3.1, dated 08/10/2013

/13/ Timber harvest and management plan of the project

/14/ Business license of the project proponent

/15/ Forest second class investigation data by East China Institute of forest Inventory and Planning

/16/ The certificate of East China Institute of forest Inventory and Planning (Certificate number: Jia A 002)

/17/ Forestry Right Certificates of the Project

/18/ Maps of the Project

/19/ Certification issued by local Forest Public Security Bureau on illegal logging

/20/ Document on no logging activities during the period from 2011 to 2016

/21/ Non-Permanence Risk Report (version 02, dated 12/04/2016)

/22/ http://v-c-s.org

/23/ The national forestry inventory (II) in 2005

/24/ National Forestry Law of China

/25/ Notice of the review opinion approved by the State Council which about the year's forest harvest limit in the 11th Five-year in all regions reported by State Forest Bureau (Guofa[2005]No.41)

/26/ Tool for calculation of the number of sample plots for measurements within A/R CDM project activity

/27/ Technical guidelines for national forest inventory. SFA 2004 No.25

/28/ IPCC Guidelines for National Greenhouse Gas Inventories (2006), Table 4.9.

/29/ "Economic Evaluation Method and Parameters for Project Construction" (version 3)

## APPENDIX A: RESOLUTION OF CORRECTIVE ACTION /CLARIFICATION / FORWARD ACTION REQUESTS

No findings were raised during this verification stage.