HUAINING ADJUSTED WATER MANAGEMENT IN RICE CULTIVATION

Document Prepared By Shenzhen CTI International Certification Co., Ltd

Project Title	Huaining Adjusted Water Management in Rice Cultivation
Version	2.0
Report ID	CTI/NB-2021-0317

Report Title	1st periodical VCS Verification report for Huaining Adjusted Water Management in Rice Cultivation
Client	Shanghai Libra Investment & Management Co., Ltd.
Pages	60
Date of Issue	06-December-2021
Prepared By	Shenzhen CTI International Certification Co., Ltd (CTI)
Contact	Shenzhen CTI International Certification Co., Ltd F8-A CTI Building, No.4 LiuXianSan Road, Xin'an Street Bao'an District, Shen Zhen 518101, P. R. China Phone: +86-10-65580012

	https://www.cti-cert.org/
Approved By	Zhou Lu
Work Carried Out By	Li Ziqi (TL& verifier) Yan Shun (TE) Lin Shunrong (TR)

Summary:

- **A brief description of the verification and the project**

  The project activity developed in Huaining County, Anqing City, Anhui Province, P. R. China, is a Project that change the water regime during the rice cultivation period. It changes continuously flooded to intermittent flooded condition during rice cultivation so that to result in reduced anaerobic decomposition of organic matter in rice cropping soils and thus reduced generation of methane. The Project involves a total acreage of 13,005 ha for double-cropping rice. The project started operation on 02-March-2018 and it was registered as a VCS project activity with the Ref. No. 2476.

- **The purpose and scope of verification**

  The objective of the verification is to have an independent review ex-post determination by a VVB (Validation and Verification Body) of the monitored GHG emission reductions that have occurred as a result of the implementation of the project activity during a defined monitoring period.

- **The monitoring period**

  This is the 1st monitoring period started from 02-March-2018 to 31-December-2020.

- **The method and criteria used for verification**

  Verification is conducted using Shenzhen CTI International Certification Co., Ltd procedures in line with the requirements specified in the latest version of the VCS Validation and Verification Manual and applying auditing techniques. The verification team assessed the project activity's compliance against the VCS Version 4.1, the selected CDM methodology and the project monitoring report. The project is eligible under Project Scope 14 (AFOLU). The verification criteria followed the guidance documents provided by VCS included the following:

  VCS Version 4.1, VCS Program Guide Version 4.0 and the applied CDM methodology "AMS-III.AU. Methane Emission Reduction by Adjusted Water Management Practice in Rice Cultivation" (Version 04.0).

- **The number of findings raised during verification**

  In the course of the verification, 2 Corrective Action Requests (CARs), 2 Clarification Requests (CLs) were raised and successfully closed. The assessment is included in the report.

- **Any uncertainties associated with the verification**

  There are no restrictions of uncertainty.

- **Summary of the verification conclusion**

  Shanghai Libra Investment & Management Co., Ltd. has commissioned the Shenzhen CTI International Certification Co., Ltd to carry out the Verified Carbon Standard (VCS) 1st periodical verification of the project, "Huaining Adjusted Water Management in Rice Cultivation" (PL2476) with regard to the relevant requirements of VCS standard Version 4.1. CTI confirms all verification activities including objectives, scope and criteria, level of assurance, monitoring and monitoring report adhere to VCS Version 4.1 and all associated updated as documented in this report, are complete.

  CTI concludes that the project activity "Huaining Adjusted Water Management in Rice Cultivation" in China, as described in the final version of Monitoring Report, meets all relevant requirements for VCS verification activity and correctly applied the methodology AMS-III.AU. version 04.0. Hence CTI is able to certify that the GHG emission reductions from the project during the monitoring period from 02-March-2018 to 31-December-2020 were generated as 197,236 tCO_2e, by considering the net GHG emission reductions generated during this monitoring period have exceeded the threshold required in the small-scale methodology applied, which is the 60,000 tCO_2e per year, the GHG emission reductions amount to 180,000 tCO_2e can be claimed as VCUs.

1. Introduction 5
1.1 Objective 5
1.2 Scope and Criteria 5
1.3 Level of Assurance 5
1.4 Summary Description of the Project 6
2. Verification Process 7
2.1 Method and Criteria 7
2.2 Document Review 9
2.3 Interviews 10
2.4 Site Inspections 13
2.5 Resolution of Findings 15
2.6 Eligibility for Validation Activities 17
3. Validation Findings 18
3.1 Participation under Other GHG Programs 18
3.2 Methodology Deviations 18
3.3 Project Description Deviations 18
3.4 Grouped Project 18
4. Verification Findings 19
4.1 Project Implementation Status 19
4.2 Safeguards 22
4.3 AFOLU-Specific Safeguards 24
4.4 Accuracy of GHG Emission Reduction and Removal Calculations 26
4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals 47
4.6 Non-Permanence Risk Analysis 47
5. Verification conclusion 48
Appendix 1: Abbreviations 50
Appendix 2: Competence of team members and technical reviewers 51
APPENDIX 3: Documents reviewed or referenced 54
APPENDIX 4: Clarification requests, corrective action requests and forward action requests 58

1. INTRODUCTION

1.1 Objective

Shanghai Libra Investment & Management Co., Ltd. has commissioned the Shenzhen CTI International Certification Co., Ltd to carry out the Verified Carbon Standard (VCS) 1st periodical verification of the project for the monitoring period from 02-March-2018 to 31-December-2020. The objective of verification is to have an independent review ex-post determination by a VVB of the monitored GHG emission reductions that have occurred as a result of the project activity implemented during a defined monitoring period. The evaluation is done against the requirements of the VCS Version 4.1 based on the monitoring report. In order to confirm that the GHG emission reductions sound reasonable and meet the identified criteria, the verification involves the assessment of monitoring plan conformance to VCS rules and applied methodology. Verification is requirement and is seen as necessary to provide assurance on the generation of VCUs.

1.2 Scope and Criteria

The scope of the verification is to verify that: (a) the actual monitoring system and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan; (b) the GHG emission reductions data and express a conclusion with a reasonable level of assurance about whether he reported GHG emission reductions data are free from material misstatement; (c) the reported GHG emissions data is sufficiently supported by evidence. Verification shall ensure that the reported GHG emission reductions are complete and accurate in accordance with the applicable VCS criteria in order to be certified. Verification is conducted using CTI procedures in line with the requirements specified in the VCS Program and ISO14064-3 requirements and applying auditing techniques. Verification team assessed and determines that the implementation and operation of the project activity, and steps to report GHG emission reductions comply with the VCS rules. The verification involved a document review of relevant documentation and interview with the project participants. Verification is not meant to provide any consultancy towards the project participants; however, stated request for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

1.3 Level of Assurance

All GHG sinks, sources and GHG emissions equal to or greater than 5% of the total GHG assertions are considered. The project as generated average of 60,000 VCUs per year, and therefore can be considered as a normal project per the VCS rules, in regards to its scale, subject to a 5% materiality threshold.

The assessment was conducted to provide a reasonable level of assurance of compliance against the defined audit criteria and materiality threshold within the audit scope. Based on the audit

findings the verification statement reasonably assures that the GHG assertion is materially correct and is a fair representation of the GHG data and information.

1.4 Summary Description of the Project

The project is implemented by Hefei Luyu Agricultural Technology Co., Ltd. which aims to change the water regime during the rice cultivation period. It changes continuously flooded to intermittent flooded condition during rice cultivation so that to result in reduced anaerobic decomposition of organic matter in rice cropping soils and thus reduced generation of methane. The Project involves a total acreage of 13,005 ha for double-cropping rice. With the replacing of the continuously flooded method by intermittent flooded method, the project solves the problems of excessive water used during rice cultivation and expected to decrease 48% of the CH_4 emission. The project activity generates GHG emission reductions by changes continuously flooded to intermittent flooded condition during rice cultivation, which has been verified by on-site inspection, and checking the related documentations, interview with the project implementer. In the monitoring period from 02-March-2018 to 31-December-2020, the total verified carbon units (VCUs) achieved in the monitoring period are 180,000 tCO_2e, CTI is able to certify that the GHG emission reductions from the project were generated as 197,236 tCO_2e, by considering the net GHG emission reductions generated during this monitoring period have exceeded the threshold required in the small-scale methodology applied, which is the 60,000 tCO_2e per year, the GHG emission reductions are amount to 180,000 tCO_2e can be claimed as VCUs..

The project activity generates GHG emission reductions by changes continuously flooded to intermittent flooded condition during rice cultivation. Thus the project generates GHG emission reductions and produces financial, social and environmental benefits. The project has resulted in the local sustainable development as described in Section 1 of the Monitoring Report. The project was registered as a VCS project activity with the Ref. No. 2476 on 14-September-2021/46/ and the emission reductions have been certified as verified carbon units (VCUs) for this monitoring period.

2. VERIFICATION PROCESS

2.1 Method and Criteria

A project specific Verification and monitoring plan was developed to guide the verification auditing process to ensure efficiency and effectiveness. The purpose of the verification is to present a risk assessment for determining the nature and extent of validation procedures necessary to ensure the risk of auditing error is reduces to a reasonable level. According to the ISO14064-3, the criteria are the policy, procedure or requirement used as reference against which evidence is compared. Therefore, verification of the monitoring plan and the reported project results were measured for compliance against the following criteria:

- VCS Standard, v4.1/43/
- VCS Program Guide, v4.0/4/
- VCS Program Definitions, v4.1/3/
- CDM methodology AMS-III.AU "Methane Emission Reduction by Adjusted Water Management Practice in Rice Cultivation" (version 04.0)/39/
- CDM Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities, V9.0/40/
- CDM Guideline for Sampling and Surveys for CDM Project Activities and Programme of Activities, V4.0/41/

The verification process derived from all items in the verification criteria stated above. Field sampling and techniques based on the project parameters, scope and best professional judgement of the verification team in order to meet a reasonable level of assurance. The verification method of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- A desk review of the VCS Monitoring Report/1/ submitted by the client and additional supporting documents with the use of customized verification documents checklist
- Verification planning
- On-Site assessment
- Background investigation and follow-up interviews with personnel of the project developer and related farmers, technicians
- Draft verification reporting
- Resolution of Corrective Action Requests (CARs) and Clarification Requests (CLs)
- Final verification reporting

- Technical review
- Final approval of the verification.

The verification process derived from all items in the verification criteria stated above. Field sampling and techniques based on the project parameters, scope and best professional judgement of the verification team in order to meet a reasonable level of assurance.

Sampling approaches have been utilized by PP and VVB during this verification.

PP sampling approach

PP has applied a sampling method for monitoring of farmers' compliance with project cultivation practice (determination of $A_{s,g}$), details are stated as below,

The project database with all 3,610 participated rice households with 15,235 farmers' identification/22/ including name and address of the rice farmer, size of the field and additional farm specific information, PP has set up a database that allow an unambiguous identification of participating rice farm, and as per the applied methodology, a cultivation logbook shall be maintained for all project fields, thus all the farmers are required by PP to complete the logbooks. But the reporting and verification shall be done on the basis of samples of the log-books from the farmers. Then the database/22/ has been used as the basis for PP to conduct the sampling method as stated below.

As per the requests from applied methodology, the reporting and verification shall be done on the basis of samples of the log-books from the farmers, according to the latest version of the "Standard for sampling and surveys for CDM project activities and programme of activities" (version 09.0), PP has established a sampling method following this standard and the sampling size is verified as correct and PP has used 90/10 confidence/precision as the criteria for the reliability of sampling efforts for small-scale project activity is deemed as in line with the requirement of the sampling standard/40/.

311 samples have been selected according to stratified sampling method in 11 towns based on the numbers determined for each town calculated by the weight of total farmers numbers of each town in project area which is verified as in line with the numbers determined in PD and in line with the requirement of the sampling standard/40/. And then for sample selection of each town, a random sampling method has been used for determine the famers sample in each town and finally the randomly selected 311 samples has been defined. Due to this monitoring period covered nearly three years, project proponents randomly selected 311 samples at the beginning of each year during this monitoring period, that means total 933 samples were selected for this monitoring period to determine whether the project fields were cultivated according to the project cultivation practice as defined by the project activity.

The selected sampled farmers' logbooks/10/ including all parameters that are part of the project cultivation practice during cultivation season have been checked, CTI confirmed that 933 farmers are randomly selected from the 3,610 households list by the simple random sampling (SRS) method. The excel function "randbetween" is employed to choose the farmers sample group. It is able to confirm that the sampling approach was consistent with the related requirements.

VVB sampling approach

The sampling plan during on-site verification is determined taking into account the accessibility and similitude of the areas and the tool for sampling was referred by verification team for the site verification.

The verification team reviewed the farmers' logbooks/10/ and cross-checked with the inspection during the on-site period, including 25 random famers interview and related cultivation area visit. Verified whether the sample approach is reasonable to conduct and the implementation and results of the sample survey can be accepted.

As per the Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities, V9.0/40/ (hereafter referred to as the "sampling standard"), CTI has applied acceptance sampling to verify the monitoring results of farmers' compliance with project cultivation practice (determination of $A_{s,g}$) based on farmers' logbooks/10/.

Using own professional judgement, it is assumed that the Acceptable Quality Level (AQL) is 1% and the Unacceptable Quality Level (UQL) is 15% for this project. The maximum error of producer's risk is assumed at 10% and consumer's risk is assumed at 10%, in compliance with the sampling standard/40/. Based on these assumptions, the verification team refers to the sampling standard and sampling guideline and found that sample size should be not less than 25 and acceptance number is 1.

To be more conservative, before the on-site visit, CTI determined 25 as the sample size and randomly selected 25 from the survey list of the 933 samples. For the randomly selection of 25, a pre-randomized order of numbers ranging from 1-933 as calculated by Excel's RAND () function was brought to the field and a farmer list prepared in the field. If for example, the first number is 5, then the farmer's name that was listed 5th on the farmer list would be the one to be surveyed.

During on-site visit, 25 farmers (total sample size) were chosen by the verification team randomly to check the logbook's and interview them together with site and cultivation practice inspection, so that the project cultivation practice for determination of correctness of data $A_{s,g}$ can be verified. This considered to be a good practice.

The 25 selected farmers from 933 samples were interviewed, site and cultivation practice inspected by verification team from the sampling conducted by the PP. Via the information got during site interview and inspection of the cultivation practice comparing with the PP's data in the sample records of logbooks/10/, it is found that all information is consistent between each other. No discrepancy is found between the sample records/10/ and the site verification sample results. And all the samples confirmed that they have required by PP to complete the logbooks which the template was provided by PP.

As there are no discrepant records, i.e. the discrepant record is less than the acceptance number of 1, the sample records/23/ is accepted as per "Sampling and Surveys for CDM Project Activities and Programme of Activities"/40/.

2.2 Document Review

The VCS MR/1/ and supporting background documents related to the project implementation were reviewed. Documents review was conducted to ensure consistency with and identify any deviation from VCS program requirements. Desk review included an examination of the project details, data and parameters, and quantification of GHG emission reductions.

Furthermore, the verification team used additional documentation by third parties like host party legislation, technical reports referring to the monitoring or to the basic conditions and technical data.

The references used in the course of this verification are summarized in Appendix 3.

The verification was performed basing on the documents check and site inspection/measurements, refer to the section 4 of this report for the verification process detail and corresponding documents review.

2.3 Interviews

The objective of the interview process was to solicit important information from personnel related to project and relevant to the verification process. Onsite interviews and information discussions were conducted with project implementer/I1/, local officer from Agricultural Bureau/I2/, expert from Anhui Academy of Agricultural Sciences/I3/, technicians from local agrotechnical stations/I4/, rice cultivation farmers/I5/ and Project VCS development consultant/I6/. The interviews were performed by the verification team on-site (within the project area, in Anqing City, Anhui Province, P. R. China) and the following is a list of the main interviewees and subject.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Chen/I1/	Yiliang	Hefei Luyu Agricultural Technology Co., Ltd./Vice General Manager	17-September-2021, &21-September-2021 ~ 22-September - 2021	- Chronological description of the project activity with documents of key steps of the implementation. - Technical details of the project realization, project feasibility, designing, operational life time - Project Boundary - Baseline - Additionality - Eligibility criteria - ER calculation - Monitoring plan and arrangements - Crediting period - Project activity starting date - Ownership - local stakeholder consultation - SD indicators - Non-Permanence Risk	Li Ziqi Yan Shun
2.	Hua/I1/	Jian	Hefei Luyu Agricultural Technology Co., Ltd./Staff			
3.	Hu/I1/	Yanmei	Hefei Luyu Agricultural Technology Co., Ltd./Staff			
4.	Tan/I2/	Xi	Huaining Agricultural Bureau / Section Staff	21-September-2021		
5.	Guo/I3/	Xiaoying	Anhui Academy of Agricultural Sciences /expert	17-September-2021		
6.	Shi/I3/	Liulin	Anhui Academy of	17-Septem		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
			Agricultural Sciences /expert	ber-2021		
7.	Qi/I4/	Meng	Local agrotechnical stations/ technicians	21-September-2021	- Baseline Survey - Farmer survey - Stakeholder comments - Agricultural aspects - Environmental aspects - Local Agricultural characteristics - Local Rice cultivation type - Local filed condition - Local farmers' income - Local rice yield - Local flooding condition - Fertilizer utilization - Technical Training	
8.	Jin/I4/	Qiying		22-September-2021		
9.	Lv/I4/	Qi		22-September-2021		
10.	Jin/I4/	Wenlong		22-September-2021		
11.	Zhu/I4/	Chunzhu		22-September-2021		
12.	Zhou/I5/	Wenxiu	Sampled Farmers included into project	21-September-2021	- General information of farmer - Field area - Rice type - Cultivation type - Baseline Scenario - Flooding type in baseline - Fertilizer utilization in both baseline and project - Flooding type in project scenario - Rice yield comparison - Technical Training - Field record - Income level - Job opportunities	
13.	Zhao/I5/	Jinfa		21-September-2021		
14.	Li/I5/	Shaohui		21-September-2021		
15.	Hua/I5/	Baiwan		21-September - 2021		
16.	Chen/I5/	Bi		21-September - 2021		
17.	Tao/I5/	Li		22-September - 2021		
18.	Chu/I5/	Fei		22-September - 2021		
19.	Qian/I5/	Hongxuan		22-Septem		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
				ber - 2021		
20.	Wei/I5/	Rushuang		22-September - 2021		
21.	Yan/I5/	Xinlei		22-September - 2021		
22.	Shen/I5/	Bei		22-September - 2021		
23.	Yan/I5/	Minghui		22-September - 2021		
24.	Li/I5/	Chuanqian		22-September - 2021		
25.	Zhang/I5/	Fan		22-September - 2021		
26.	Li/I5/	Zhen		22-September - 2021		
27.	Kong/I5/	Zhuyi		22-September - 2021		
28.	Qin/I5/	Chuanmin		22-September - 2021		
29.	Zhao/I5/	Yan		22-September - 2021		
30.	Shi/I5/	Ke		22-September - 2021		
31.	He/I5/	Yaowen		22-September - 2021		
32.	Jiang/I5/	Mao		22-September - 2021		

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
33.	Zhang/I5/	Jingyan		22-September-2021		
34.	Jiang/I5/	Xiaoli		22-September-2021		
35.	Qian/I5/	Lan		22-September-2021		
36.	Zhao/I5/	Cuihong		22-September-2021		
37.	Liu/I6/	Ji	Shanghai Libra Investment & Management Co., Ltd./ Technical manager	17-September-2021, &21-September-2021 ~ 22-September-2021	- Financial aspects - Monitoring period - Project activity starting date - Assumptions - Baseline study assumptions - Additionality - Crediting period - Monitoring plan and implementation - Monitoring measurements - Editorial issues of the VCS PD	
38.	Liu/I6/	Lili				

2.4 Site Inspections

The verification site inspection was conducted on 17-September-2021, 21-September-2021~22-September-2021. A ground inspection of the project plan was conducted during the site visit and the verification team interviewed project implementer/I1/, local officer from Agricultural Bureau/I2/, expert from Anhui Academy of Agricultural Sciences and Anhui Academy of Social Sciences/I3/, technicians from local agrotechnical stations/I4/, rice cultivation farmers/I5/ and Project VCS development consultant/I6/.

During the site inspection, the reference fields for both baseline and project scenarios were inspected, the sampled farmers and technicians, experts were interviewed, the monitoring equipment in laboratory was checked and documents evidence were checked, details as following table,

Duration of on-site inspection: 17-September-2021, 21-September-2021~22-September-2021				
No.	Activity performed on-site	Site location	Date	Team member

1.	Opening meeting Interview with PP, experts, consultant representatives[1], Monitoring instruments check in laboratory	Office in Hefei Luyu Agricultural Technology Co., Ltd. and laboratory of Institution of Agricultural Engineering, Anhui Academy of Agricultural Sciences in Hefei City, Anhui Province, P.R. China	17-September-2021	Li Ziqi Yan Shun
2	On-site inspection Interview with sampled farmers and technicians	Project Area in Huaining County, Anhui Province, P.R. China	21~22-September-2021	Li Ziqi Yan Shun
3	Documents check	Project Area in Huaining County, Anhui Province, P.R. China	21-September -2021	Li Ziqi Yan Shun
4	Finding Summary	Project Area in Huaining County, Anhui Province, P.R. China	22-September -2021	Li Ziqi Yan Shun
5	Close Meeting	Project Area in Huaining County, Anhui Province, P.R. China	22-September -2021	Li Ziqi Yan Shun

During the site inspection, total six baseline and project reference fields were checked, the 6 plot areas are determined by the verification team by checking the map of the project location, details as following table,

Table 2-1 Locations for site inspection with reference fields

Site Visit time	Area	Coordinates		Inspection Results
Baseline Scenario Reference fields				
21-September-2021	Renxinghe Community, Jingong Town, Huaining County	116.885500°E	30.793000°N	The baseline reference fields were selected that they are representative of baseline scenario where double-cropping rice was planted by continuously flooded method without any organic amendments, and the geographical coordinates of three fields were verified as consistent with the MR by GPS device used by VVB. Also the chambers were confirmed as installed on the fields.
		116.881400°E	30.794000°N	
		116.883294°E	30.800241°N	
Project Scenario Reference fields				

[1] Six projects' (2397, 2476, 2477, 2396, 2506 and 2507) opening meeting was conducted together on 17-September-2021.

21-September-2021	Renxinghe Community, Jingong Town, Huaining County	116.874759°E	30.803143°N	The measurements on project and baseline reference fields were carried out in an equal manner and simultaneously. The project reference fields were selected that they are representative of project scenario where double-cropping rice was planted by intermittent flooded method without any organic amendments, and the geographical coordinates of three fields were verified as consistent with the MR by GPS device used by VVB. Also the chambers were confirmed as installed on the fields.
		116.876389°E	30.806944°N	
		116.875375°E	30.803674°N	

Furthermore, during the site inspection, VVB also visited 25 farmers' cultivation area within the project area and interviewed with them about the information in logbooks. Hence during the site inspection, the 25 sampled areas are determined by the verification team by checking the map of the project location, details as following table,

Table 2-2 Locations for famer's area

Site Visit time	Area	Coordinates		Inspection Results
Project Area				
21-September - 2021	Jiuyuan Village in Jingong Town	116.912500°E	30.789138°N	Each area is verified as located in the project boundary by checking the geographical coordinates and KML file. Cultivation and flooding approach are consistent as project design
		116.910220°E	30.789250°N	
		116.915520°E	30.787550°N	
		116.911302°E	30.786773°N	
		116.917539°E	30.786885°N	
		116.907550°E	30.789535°N	
		116.908961°E	30.788430°N	
		116.906269°E	30.790520°N	
		116.904427°E	30.791818°N	
		116.902256°E	30.792592°N	
	Zhongliang Village in Sanqiao Town	116.684225°E	30.628139°N	
		116.686164°E	30.628844°N	

22-September - 2021		116.686188°E	30.630348°N	
		116.688887°E	30.628298°N	
		116.690769°E	30.627020°N	
		116.687901°E	30.627423°N	
		116.689047°E	30.630593°N	
		116.690392°E	30.631572°N	
		116.691393°E	30.630160°N	
	Wangling Village in Pingshan Town	116.691206°E	30.458725°N	
		116.690295°E	30.459024°N	
		116.691449°E	30.460336°N	
		116.691585°E	30.460975°N	
		116.692170°E	30.461619°N	
		116.691384°E	30.462286°N	
		116.881400°E	30.794000°N	
		116.883294°E	30.800241°N	

2.5 Resolution of Findings

Material discrepancies identified in the course of the validation are addressed either as CARs, CLs or FARs.

A Corrective Action Request (CAR) is established where:

The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;

The VCS Version 4.1 requirements have not been met;

There is a risk that the emission reductions cannot be monitored or calculated.

A Clarification Request (CL) will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A Forward Action Request (FAR) will be issued when certain issues related to project implementation should be reviewed during the first verification.

A detailed list of the CARs CLs and FAR raised and discussed in the course of this verification is included in Appendix 4 of this report.

In the course of the verification, 2 Corrective Action Requests (CARs), 2 Clarification Requests (CLs) were raised and successfully closed. The assessment is included in Appendix 4 of the report.

2.5.1 Forward Action Requests

This is the 1st periodical verification, and there is no FAR raised in the validation report/6/.

2.6 Eligibility for Validation Activities

The VVB Shenzhen CTI International Certification Co., Ltd holds accreditation for both validation and verification for the relevant sectoral scope 14 (AFOLU).

3. VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project only sought the registration with the VCS Program in and validation was conducted by VVB and has been successfully registered in VCS Program with the Ref. No. 2476 on 14-September-2021/46/.

The project has neither been registered nor seeking registration under any other GHG programs which has been confirmed via checking the UNFCCC/45/, GS/50/, VCS/46/ and other GHG schemes' website. CTI verified that the project is only participated in VCS program/46/.

3.2 Methodology Deviations

During the monitoring period, there are no methodology deviations.

3.3 Project Description Deviations

During the monitoring period, there are no project description deviations related to the significant change.

3.4 Grouped Project

This section is not applicable as the project is not a grouped project.

4. VERIFICATION FINDINGS

4.1 Project Implementation Status

Through the onsite visit, interviewing the project developer and reviewing the project design, it was confirmed that the project was implemented to change the water regime during the rice cultivation period. It changes continuously flooded to intermittent flooded condition during rice cultivation so that to result in reduced anaerobic decomposition of organic matter in rice cropping soils and thus reduced generation of methane. The Project involves a total acreage of 13,005 ha for double-cropping rice.

As per the Appendix 1 Eligible AFOLU project categories in VCS standard version 4.1/43/ and the validation report/6/, CTI confirmed that the project belongs to one type of AFOLU categories, i.e. Agricultural Land Management (ALM), the project is applicable to one of eligible ALM activities, i.e. Improved Cropland Management (ICM).

Via site inspection with rice lands/38/ and interview with farmer representatives/I5/, CTI confirmed that before the project implementation, the paddy fields are regarded as an isolate unit and the rice was continuously flooded, and with the project, the cement ditches and reservoirs were constructed to conduct the intermittent flooded water regime during rice cultivation. With the replacing of the continuously flooded method by intermittent flooded method, the project solves the problems of excessive water used during rice cultivation and expected to decrease 48% of the CH_4 emission.

Via checking the MR/1/, CTI confirmed that the project activity generates CH_4 emission reductions by build ditches for applying intermittently flooded method in project area, that otherwise continuously flooded method was used in rice paddies, which means fields have standing water throughout the rice growing season and may only dry out for harvest and in this condition, the organic matter in rice soil under flooded condition would emit a large amount of methane (CH_4) because of anaerobic decomposition. Due to the CH_4 in rice paddies is produced by the anaerobic decomposition of organic matter after the flooding, hence through the project that allows the field to drain halts CH_4 production, which happens in anaerobic condition, reducing the total quantity of CH_4 released during the cropping season.

On the basis of site visit and the reviewed project monitoring report and other supporting docs, it can be confirmed that w.r.t. the realized technology, the project cement ditches and reservoirs, as well as the monitoring and metering equipment, the project has been implemented and operated as applied methodology and monitoring plan described in the registered PD/5/.

This verification covers the period from 02-March-2018 to 31-December-2020 (including both days). The Project involves a total acreage of 13,005 ha for double-cropping rice, therefore, 180,000 tCO_2e emission reductions are claimed as VCUs during this monitoring period.

The construction of high standard rice fields commenced on 20-November-2017 and its start date was on 02-March-2018, which has been confirmed in the project database with all 3,610 participated rice farmer households' identification/22/ against the registered Validation Report/6/.

VVB confirmed that the activities commenced before the monitoring period and during this monitoring period have been stated in the MR. Via site inspection of the project site and interview with the sampled farmers, VVB confirmed that the main activities commenced before the monitoring period including built high-standard rice paddies, provided trainings to technicians and farmers and the rice cultivation used

continuously flooded water regime, while after the project implementation, the construction of high-standard farmland would no longer to be continued and with the completion of the project, the rice cultivation apply intermittent flooded water regime and the trainings were provided to technicians and farmers continuously during this monitoring period. Hence, VVB confirmed that whether activities commenced before the monitoring period continue to be implemented have been demonstrated clearly in the MR.

As part of the site visit the Verification Team was able to confirm that the project implementation is in accordance with the project description contained in the registered PD/5/. There are no any material discrepancies between project implementation and the project description.

The project was registered as a VCS project activity with the VCS Ref. No. 2476 on 14-September-2021/46/, with 21 years renewable crediting period started from 02-March-2018 to 01-March-2039 under VCS Program.

The project has neither been registered and rejected nor seeking registration under any other GHG programs which has been confirmed via checking the UNFCCC/45/, GS/50/, VCS/46/ and other GHG schemes' website. It is verified that the project is seeking registration only in VCS program/46/.

The project proponent is not part of any emission trading program which has been confirmed via checking the UNFCCC/45/, GS/50/, VCS/46/ and other GHG schemes' website. The net GHG emission reductions during this monitoring period from the project was not used for compliance with emission trading programs or to meet binding limits on GHG emissions. The project activity has not participated under any other GHG programs which has been confirmed via checking the UNFCCC/45/, GS/50/, VCS/46/ and other GHG schemes' website, it is verified that the implementation of the project is consistent with the description in the Project Design Document (PDD) and the monitoring system is fully functional to generate Verified Carbon Units (VCUs) without any double counting for this monitoring period from 02-March-2018 to 31-December-2020.

Besides, based on VVB's local expertise, China has a national emissions trading scheme only cover the high-emission industries, such as power generation sector that emitted at least 26,000 tons of CO_2e/year which has been verified in the public website/47/, and it is confirmed that the project activity is not included the mandatory emission control scheme and there is no emission cap enforced for the project owner by checking the enforced company list in public information/52/. Hence, it is confirmed that the emission reductions will not be double counted.

This monitoring period (02-March-2018 to 31-December-2020) is the 1st monitoring period belongs to first 7-year crediting period from 02-March-2018 to 01-March-2025 (both days included).

Details of the project location are given in table 3-1 below:

Table 3-1: Project Location

No.	Project Location
Host Country	China
Region:	Anhui Province
Project location address:	Huaining County in Anqing City
Latitude:	30°20' to 30°50'N
Longitude:	116°28' to 117°03'E

The location of the project site is verified with on-site investigation by GPS devices and checking the google earth map/49/.

KML file with project boundary is checked as provided/7/, and is verified as consistent with the MR and on-site investigation by GPS devices and checking the google earth map/49/.

The approved consolidated methodology applied in the project activity is AMS-III.AU–"Methane Emission Reduction by Adjusted Water Management Practice in Rice Cultivation" (version 04.0)/39/. Also refers to the latest approved version of the following tools and guidelines:

"Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities" (version 9.0)/40/

"Guideline for Sampling and Surveys for CDM Project Activities and Programme of Activities", version 4.0/41/.

Via on-site inspection and interview with the project implementer, CTI verified that the project contributes the sustainable development through the following aspects:

- *High yield brings extra income and improves the living standard of local farmers (Goal 1 of UN SDG) – verified by checking the employment contracts/26/ and monthly payroll to the technicians/27/;*
- *Increase the rice productivity alleviates hunger problem (Goal 2 of UN SDG) – verified by interview with local farmers/I5/ and checking the farmers' log-books/10/;*
- *Use a proportion of benefits to improve the local children's education (Goal 4 of UN SDG) – verified by interview with local officers/I2/ and checking the Records and photo evidence related to the book donation activity in Huaining County by the project owner/28/;*
- *Women are given priority for employment and their social status is raised (Goal 5 of UN SDG) – verified by checking the employment contracts/26/ and monthly payroll to the technicians/27/;*
- *Provide more job opportunities for local farmers (Goal 8 of UN SDG) – verified by checking the employment contracts/26/ and interview with technicians/I4/;*
- *Sequester greenhouse gas and mitigate climate changes (Goal 13 of UN SDG) – verified by checking the Emission Reduction Calculation sheet/2/.*

Via checking the validation report/6/, CTI verified that there is no any previously validated methodology deviations.

In conclusion, Verification Team was able to confirm that the project implementation is in accordance with the project description contained in the registered PD/5/.

CL 01 and CAR 01 were raised and successfully closed. Refer to Appendix 4 for detail assessment.

4.2 Safeguards

4.2.1 No Net Harm

The analysis of the potential negative environmental and socio-economic impacts of the project activity is sufficiently described in MR/1/ and the impacts are verified as consistent with the PD/5/. The assessment is as below,

Environmental impacts - It is considered that the environmental impacts have been comprehensively described in Section 2.1 of MR including the excessive use of fertilizer and pesticide could cause pollution to soil and surface water if farmers do not control the amount of fertilizer and pesticide well during cultivation in the operation period, which will impact on the ecosystem and environment of local area in project area according to the project operation situation and interview with local experts/I3/, technicians/I4/ and farmers/I5/.

Environmental impacts mitigation actions - Associated with the interview with local experts/I3/, technicians/I4/ and farmers/I5/ and checking the Technical Guidelines for Intermittently Flooded Rice Cultivation Method/13/, CTI confirmed that technicians patrolled the rice paddies every week and instructed the farmers how to use the optimal amount of fertilizer according to the technical guidelines. Hence CTI verified that there were no excessive use of fertilizer and pesticide and no any negative impacts found in the project location during this monitoring period.

Socio-economic impacts - It is considered that the Socio-economic impacts have been comprehensively described in Section 2.1 of MR including the cement ditches and reservoirs were badly damaged without long-term maintenance in the operation period, which will impact on the life safety of farmers and even result in reduced rice production and thus reduced farmers' income according to the project operation situation and interview with local experts/I3/, technicians/I4/ and farmers/I5/.

Socio-economic impacts mitigation actions - Associated with the interview with local experts/I3/, technicians/I4/ and farmers/I5/ and checking the Technical Guidelines for Intermittently Flooded Rice Cultivation Method/13/, CTI confirmed that technicians patrolled the rice paddies every week and farmers could immediately call the technician if a ditch broke down in their fields and the technicians can solve the problem within one hour and appeal to local agricultural bureau to activate the emergency mechanism if can't solve by themselves. Furthermore, via checking the farmers' log-books/10/ and confirmed by local officers/I2/ and technicians/I4/, CTI verified that there were no any damaged ditches and reservoirs found in the project location during this monitoring period.

In conclusion, there were some potential impacts on environment and socio-economic during the operation period which has been demonstrated in the MR/1/, however the proper measurements and mitigation actions have been carried out by project implementer to mitigate such impacts and there is no net harm occurred during this monitoring period.

4.2.2 Local Stakeholder Consultation

A stakeholder consultations survey including questionnaires and stakeholder meetings was carried out by the project developer during this monitoring period to present local stakeholders' opinions on the implementation of project and their willingness to participate.

Prior to the verification, the notice of meeting has been posted on the bulletin board in each village which has been verified by checking the photo of posted notice/29/ and this is also checked during site inspection. And via checking the local stakeholder consultation (LSC) records/31/, CTI confirmed that 129 villagers, the representatives of village committee, agricultural bureau and government representatives attended the stakeholders' meeting which was organized by the project proponent and the agricultural bureau at the Huaining Agricultural Bureau on 20-August-2021.

Besides, questionnaire survey was conducted to collect the views of stakeholders before the project verification from July to September in 2021, questionnaires were distributed to relevant personnel of village representatives, relevant governmental officials and local farmers, totally 70 copies of questionnaires were issued to relevant personnel with 70 pieces of reply received. The stakeholders' background information and comments from questionnaires were summarized and recorded in the MR, Section 2.2.

Via checking the 70 filled questionnaires/31/, CTI verified that all respondents knew about the Project. Most of them have enjoyed benefits during the project operation, and thought the project bring benefit including 1) create jobs; 2) get more benefits from selling carbon credits; 3) reduce methane emissions, save water resource and increase the rice productivity; and 4) improve the social status of women by hiring them to be technicians. Most of the respondents are willing to participate in the operation and training of the project and they have no negative opinions on the project implementation during this monitoring period.

Finally, CTI verified that there is no one thinks that the project has a negative impact on the local life and environment, local stakeholders are supportive of the project operation by checking the questionnaires/31/, and thus no need to change the project implementation based on the stakeholder inputs.

For the continuous communication mechanism, via site inspection checking the Suggestion Book published on the notice board of villages/32/, CTI confirmed that there was no comments or suggestions in the book during this monitoring period, and via interview with PP, CTI verified that they have checked the book regularly and collect all the comments received if any.

Via interview with the technicians/I4/ and farmers/I5/ during site visit, CTI verified that there were no comments from the local villagers issued to the technicians who are responsible for the communication during this monitoring period. Hence there is no need to change the project implementation based on the stakeholder inputs and comments.

In addition, based on above assessment, CTI confirmed that there were no negative opinions received on the project implementation during this monitoring period, however, local stakeholders have also been communicated on some positive opinions during this monitoring period as listed in the MR, Section 2.2, which is verified by CTI by checking the meeting records and questionnaires/31/.

AFOLU Specific

Due to the project is an AFOLU project, according to the MR template/42/ request, below are assessed of how the project has communicated the following with local stakeholders,

- *The results of project implementation, including the results of monitoring.*

Prior to the verification, the notice of LSC meeting and results of project implementation, including the results of monitoring has been posted on the bulletin board in each village which has been verified by checking the photo of posted notice/29/ and this is also checked during site inspection.

- *Any changes, where relevant, to risks, costs and benefits the project may bring to local stakeholders.*

Through villagers' meetings and questionnaires survey confirmed by interview with local farmers/I5/ and checking the LSC records/31/.

- *Any changes, where relevant, to relevant laws and regulations covering workers' right in the host country.*

Informed farmers of all relevant laws and regulations covering workers' rights in the host country by Project implementer and under the supervision of the local agricultural bureau and government confirmed by interview with local officers/I2/ and local farmers/I5/.

- *The process of VCS Program verification and the validation/verification body's site visit.*

Informed farmers by publishing notification and invitation on the notice board about the process of VCS Program verification and the validation/verification body's site visit confirmed by interview with local farmers/I5/ and checking the photo of posted notice/29/.

In conclusion, there were no negative opinions received from local stakeholders on the project implementation during this monitoring period, therefore, it is verified that the project continues to communicate the necessary relevant information about the project implementation and the process of VCS Program verification during this monitoring period.

CL 02 was raised and successfully closed. Refer to Appendix 4 for detail assessment.

4.3 AFOLU-Specific Safeguards

MR has provided the details of AFOLU-Specific safeguards related to the project and the assessment are demonstrated as below,

- Activities implemented to mitigate risks

  The local stakeholders has been identified in the registered PD/5/. So based on the site inspection and interview with the local technicians/I4/ and farmers/I5/, CTI confirmed that local stakeholders identified the potential risks due to project implementation is that the farmers may encounter dangers when checking the rice in the filed like slipping. The mitigation activities are confirmed as in place via site inspection and checking the technical training records/33/, CTI verified that the stakeholders acknowledged the risks and they were trained annually to reduce the risks and injuries. Via interview with the local technicians/I4/ and farmers/I5/, CTI confirmed that no risks occurred during this monitoring period, thus the mitigation activities were not utilized.

- Any updates to the property and land use rights

  As verified in the validation report/6/, during the on-site visit and checking the business license/20/ of the participant parties, the government approval of the project/16/, and the carbon reduction project cooperation agreement signed between the farmers and Hefei Luyu Agricultural Technology Co., Ltd./19/, CTI verified that the rice paddies and agricultural fields

involved in the project was owned by the farmers which has been confirmed by site interview with farmers/I5/ and local officer from Agricultural Bureau/I2/ and checking the Certification of land rights/18/.

As verified in the validation report/6/, CTI confirmed that a stakeholder survey was carried out by the project developer during June 2017 which was prior to the start date of the project, and based on the survey resullts, CTI verified that there were no comments and issues from the local stakeholders during the construction and implementation period and the project approved by local government. Hence the project has obtained the free, prior and informed consent of the affected parties and the project does not encroach on private property, community property or government property.

For this monitoring period, via site interview with with farmers/I5/ and local officer from Agricultural Bureau/I2/, CTI confirmed that there were no any updates to the property and land use rights of the local stakeholders and the evidence of Certification of land rights/18/ was provided to prove that the project has not negatively impacted such rights of farmers.

Furthermore, considering the project type and implementation method, CTI verified that the land use type is not changed due to the implementation of the project and no land occupation involved thus no compensation or return happened in this monitoring period.

- Processes used to communicate and consult

The registered PD/5/ describes a feedback and grievance redress process; a specific staff in charge of recording and collecting conflicts and grievances of local communities and individual villagers was nominated who is the first responsible for responding to requests from the community which has been confirmed during on-site interview with the project owner. In addition, by interview with the residents, they confirm that they can either appeal through village representatives or directly to the local forestry bureau for their comments to the project. PP promised that grievances will be addressed in a reasonable amount of time, usually contacted and discussed with relevant community within 3 days, answered and proposes a solution within 1 week in case of claims or complaints and dealt within 30 working days in case of suggestions. The PP declares to be available to adjust the grievance mechanism according the recorded dynamics and evaluation of effectiveness of the process in place.

For the continuous communication mechanism, via site inspection checking the Suggestion Book published on the notice board of villages/32/, CTI confirmed that there was no comments or suggestions in the book during this monitoring period, and via interview with PP, CTI verified that they have checked the book regularly and collect all the comments received if any.

Via interview with the technicians/I4/ and farmers/I5/ during site visit, CTI verified that there were no comments from the local villagers issued to the technicians who are responsible for the communication during this monitoring period. In addition, based on above assessment, CTI confirmed that there were no negative opinions received on the project implementation during this monitoring period, however, local stakeholders have also been communicated on some positive opinions during this monitoring period as listed in the MR, Section 2.2, which is verified by CTI by checking the meeting records and questionnaires/31/.

Therefore, the feedback and grievance procedure is properly addressed and no any conflicts were raised via the established grievance redress procedure.

In conclusion, project proponent has taken the appropriate measures to ensure that the project has not created negative impacts on local stakeholders and mitigated such impacts if occurred. And based on above assessment, CTI verified that the project has no negative impacts on local stakeholders during this monitoring period.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

4.4.1 Assessment of Data and parameters Available at Validation

By means of comparison of the MR/1/ and the ER calculation/2/ with the registered PD/5/, the verification team has checked whether all parameters fixed ex-ante have been applied correctly.

The parameters that are fixed ex ante are following:

Parameters	Source of data	Values applied	Demonstration by Verification team
A_y - Area of project fields in year y	Determined by collecting the project field sizes in a project database. The size of project fields is determined by GPS or satellite data	13,005 ha	This is an ex-ante fixed value as listed in the PD/5/ and derived from GPS results measured by Huaining Agricultural Bureau/8/ which has been verified during the validation process/6/.
GWP_{CH4} - Global warming potential of CH_4	28 tCO_2e/tCH_4 from IPCC's Fifth Assessment report, GHG Protocol	28 tCO_2e/tCH_4	25 tCO_2e/tCH_4 from IPCC's Fourth Assessment report, GHG Protocol/35/ is an ex-ante value as listed in the PD/5/, and according to the PD, any future revision of the IPCC's assessment report should be taken account. Then based on the requirement 3.14.4 of VCS Standard 4.1/43/, projects that complete validation on or before 31 July 2021 may use GWP values from AR4 for ex-ante emission reduction estimates, though such projects shall use GWP values from AR5/36/ for ex-post calculations. So 28tCO_2e/tCH_4 from IPCC's Fifth Assessment report, GHG Protocol/36/ is applicable to this monitoring period and in compliance with the VCS Standard 4.1/43/.
$EF_{BL,c}$ - Seasonal baseline emission factor for continuously flooded fields	The source is Report of Measuring Methane Emission Rate of Double-cropping Rice	(1) 190.96 kg CH_4/ha/season for early season rice;	This is an ex-ante fixed value as listed in the PD/5/ and derived from Report of Measuring Methane Emission Rate of Double-cropping Rice Paddies with Continuously Flooded Method by

without organic amendments	Paddies with Continuously Flooded Method by Closed Chamber in Huaining County in 2017/24/	(2) 180.96 kg CH_4/ha/ season for later season rice	Closed Chamber in Huaining County in 2017/24/ which has been verified during the validation process/6/. This value is used for ex ante emission reduction calculation thus not used for the ex-post emission reduction calculation during this monitoring period.
$SF_{BL,w}$ - Baseline scaling factors to account for the differences in water regime during the cultivation period	The source is 2006 IPCC Guidelines for National Greenhouse Gas Inventories/34/	1	This is an ex-ante fixed value as listed in the PD/5/ and derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories/34/ which has been verified during the validation process/6/. This value is used for ex ante emission reduction calculation thus not used for the ex-post emission reduction calculation during this monitoring period.
$SF_{p,w}$ - Project scaling factors to account for the differences in water regime during the cultivation period	The source is 2006 IPCC Guidelines for National Greenhouse Gas Inventories/34/	0.52	This is an ex-ante fixed value as listed in the PD/5/ and derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories/34/ which has been verified during the validation process/6/. This value is used for ex ante emission reduction calculation thus not used for the ex-post emission reduction calculation during this monitoring period.
$SF_{BL,p}$ - Baseline scaling factors to account for the differences in water regime in the pre-season before the cultivation period	The source is 2006 IPCC Guidelines for National Greenhouse Gas Inventories/34/	1	This is an ex-ante fixed value as listed in the PD/5/ and derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories/34/ which has been verified during the validation process/6/. This value is used for ex ante emission reduction calculation thus not used for the ex-post emission reduction calculation during this monitoring period.
$SF_{P,p}$ - Project scaling factors to account for the differences in water regime in the pre-season before the cultivation period	The source is 2006 IPCC Guidelines for National Greenhouse Gas Inventories/34/	1	This is an ex-ante fixed value as listed in the PD/5/ and derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories/34/ which has been verified during the validation process/6/. This value is used for ex ante emission reduction calculation thus not used for the ex-post emission reduction calculation during this monitoring period.

$SF_{BL,o}$ - Baseline scaling factors should vary for both type and amount of organic amendment applied	Calculated in PD/5/	1	This is an ex-ante calculated value as listed in the PD/5/ which has been verified during the validation process/6/. This value is used for ex ante emission reduction calculation thus not used for the ex-post emission reduction calculation during this monitoring period.
$SF_{P,o}$ - Project scaling factors should vary for both type and amount of organic amendment applied	Calculated in PD/5/	1	This is an ex-ante calculated value as listed in the PD/5/ which has been verified during the validation process/6/. This value is used for ex ante emission reduction calculation thus not used for the ex-post emission reduction calculation during this monitoring period.

In conclusion, the parameter fixed ex ante has been indicated in the registered PD/5/. And the MR is checked as in line with the PD.

4.4.2 Assessment of Data and parameters Monitored

During the verification all relevant monitoring parameters as listed in PD/5/ have been verified and summarized in the below table.

$A_{s,g}$	Aggregated project area in a given season s
Title in line with Methodology?	Yes
Data unit correctly expressed?	Yes – ha
Appropriate description?	Yes
Monitored Value?	13,005 for both early and later season rice in the project area during this monitoring period
Correct value provided?	Yes
Source clearly referenced? (appropriate?)	Yes–it is monitored by collecting the project field sizes in a project database with farmers information/22/, and the size of each household's rice field in the database is determined by using GPS by Huaining Agricultural Bureau which has been confirmed by interview with officers from Huaining Agricultural Bureau.
Choice of data correctly justified?	Yes –to determine by collecting the project field sizes in a project database which is in line with the applied methodology and only compliant farms are considered. The compliant farms are determined by checking the farmers' log-books/10/.
Measurement method and procedures correctly described?	Yes – Field measurement and by checking the farmers' log-books/10/. The size of project fields has been determined by GPS data during field measurement. And every week, the technicians are required to check whether the project fields recorded in the database are cultivated by intermittent flooded method with the help of the logbooks/10/. At the end of each cropping season, the technicians submitted the Fact Sheets on Rice Cultivation/11/ in terms of the information got from sampled logbooks.
Calculation method?	Yes – Sum of area of each compliant household's rice fields

Monitoring frequency correctly described?	Every season - verified as per PD and the applied methodology
Monitoring equipment correctly described?	GPS measuring equipment - verified as per PD and the applied methodology The model, precision and calibration information of the equipment used has been provided, the compass was calibrated by placing the equipment horizontally and vertically before use, and the automatic calibration of the barometer was turned on before use, which has been verified as actual by checking the Instruction of GPS Measuring Equipment/25/, thus it is confirmed that the calibration for this equipment was valid for this monitoring period.
QA/QC procedure correctly described?	Yes-General guidelines for SSC CDM methodologies has been referred. The project field sizes derived from the project database with farmers information/22/ was cross-checked with the farmers' log-books/10/ to determine the final compliant household's rice fields for this monitoring period.
Purpose of data?	BE_s and PE_s calculation
Comments?	Via checking the farmers' log-books/10/, CTI confirmed that all the farmers cultivated double-cropping rice with intermittent flooded water regime in this monitoring period are involved, and only these farmers' farm were compliant.

$EF_{BL,s,g}$	Baseline emission factor of group g in a given season s
Title in line with Methodology?	Yes
Data unit correctly expressed?	Yes –kg CH_4/ha per season
Appropriate description?	Yes
Monitored Value?	

Categories	$EF_{BL,s,g}$ (kg CH_4/ha/season)		
	2018	2019	2020
Early season	193.74	190.97	184.23
Later season	186.03	183.70	189.59

Correct value provided?	Yes
Source clearly referenced? (appropriate?)	Yes–it is monitored by field measurements in baseline reference fields and analyzed in the laboratory. During the field measurements in baseline reference fields, the gas samples were taken from closed chambers, then all gas samples were stored in evacuated vial and sent to laboratory for analysis. And the final result of $EF_{BL,s,g}$ for each season is calculated by the analysis results as per the method in PD and applied methodology.
Choice of data correctly justified?	Yes –field measurements in baseline reference fields and analyzed in the laboratory as per PD and applied methodology
Measurement method and procedures correctly described?	Yes – field measurements in baseline reference fields as per instructions in the appendix (Guidelines for measuring methane emissions from rice fields) and IPCC 2006, volume 4, chapter 5.5/34/ as per PD and applied methodology
Calculation method?	Yes- Refer to equations in below section 4.4.3 for calculation process which is verified in line with PD and applied methodology
Monitoring frequency correctly described?	Regular measurements in three baseline reference fields, three closed chambers were placed in each field and samples were measured three times a week from each closed chamber, all gas samples taken from closed chambers were stored in evacuated vial

	and sent to laboratory for analysis - verified as per the PD and applied methodology. Obtained from the calculation of the emission rate for baseline reference fields according to the requirements in the Appendix of methodology, and the $C_{CH4,t}$ (CH_4 concentration in chamber at time t) of weekly gas samplings is derived from the laboratory analysis. Refer to section 4.4.3 for detail assessment.
Monitoring equipment correctly described?	Closed chambers in fields and FID (gas chromatography with flame ionization detector) in laboratory- verified as per PD and the applied methodology For the closed chambers installed in the three baseline reference fields, via site inspection and checking the devices, it is confirmed that the chambers are installed in line with the requirement in methodology as assessed in table 4-1, and by considering this type of the equipment, there is no accuracy and calibration requested. For the FID, the model, column and calibration information of the equipment used has been provided, the FID was calibrated with certified standard gas each day of analysis before and after the analyses, via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that the calibration is conducted in line with certified standard gas each day of analysis before and after the analyses as per request of the methodology in laboratory analysis.
QA/QC procedure correctly described?	The implementation of methane measurement in rice fields was conducted by technicians trained by experts and the laboratory was checked getting valid ISO/IEC 17025 certificate/15/. All the data were cross-checked by technicians and experts. The QA/QC procedure is verified as appropriate and in line with the requirement of Appendix in methodology.
Purpose of data?	BE_s calculation
Comments?	-

$EF_{P,s,g}$	Project emission factor of group g in a given season s
Title in line with Methodology?	Yes
Data unit correctly expressed?	Yes –kg CH_4/ha per season
Appropriate description?	Yes
Monitored Value?	

Categories	$EF_{P,s,g}$ (kg CH_4/ha/season)		
	2018	2019	2020
Early season	100.74	99.31	95.80
Later season	96.74	95.50	98.52

Correct value provided?	Yes
Source clearly referenced? (appropriate?)	Yes–it is monitored by field measurements in project reference fields and analyzed in the laboratory. During the field measurements in project reference fields, the gas samples were taken from closed chambers, then all gas samples were stored in evacuated vial and sent to laboratory for analysis. And the final result of $EF_{P,s,g}$ for each season is calculated by the analysis results as per the method in PD and applied methodology.
Choice of data correctly justified?	Yes –field measurements in project reference fields and analyzed in the laboratory as per PD and applied methodology

Measurement method and procedures correctly described?	Yes – field measurements in project reference fields as per instructions in the appendix (Guidelines for measuring methane emissions from rice fields) and IPCC 2006, volume 4, chapter 5.5/34/ as per PD and applied methodology
Calculation method?	Yes- Refer to equations in below section 4.4.3 for calculation process which is verified in line with PD and applied methodology
Monitoring frequency correctly described?	Regular measurements in three project reference fields, three closed chambers were placed in each field and samples were measured three times a week from each closed chamber, all gas samples taken from closed chambers were stored in evacuated vial and sent to laboratory for analysis - verified as per the PD and applied methodology. Obtained from the calculation of the emission rate for project reference fields according to the requirements in the Appendix of methodology, and the $C_{CH4,t}$ (CH_4 concentration in chamber at time t) of weekly gas samplings is derived from the laboratory analysis. Refer to section 4.4.3 for detail assessment.
Monitoring equipment correctly described?	Closed chambers in fields and FID (gas chromatography with flame ionization detector) in laboratory- verified as per PD and the applied methodology For the closed chambers installed in the three project reference fields, via site inspection and checking the devices, it is confirmed that the chambers are installed in line with the requirement in methodology as assessed in table 4-1, and by considering this type of the equipment, there is no accuracy and calibration requested. For the FID, the model, column and calibration information of the equipment used has been provided, the FID was calibrated with certified standard gas each day of analysis before and after the analyses, via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that the calibration is conducted in line with certified standard gas each day of analysis before and after the analyses as per request of the methodology in laboratory analysis.
QA/QC procedure correctly described?	The implementation of methane measurement in rice fields was conducted by technicians trained by experts and the laboratory was checked getting valid ISO/IEC 17025 certificate/15/. All the data were cross-checked by technicians and experts. The QA/QC procedure is verified as appropriate and in line with the requirement of Appendix in methodology.
Purpose of data?	PE_s calculation
Comments?	-

In conclusion, CTI confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with PD, applied methodology, all applicable standards and relevant requirements.

4.4.3 Assessment of in Compliance with monitoring plan

By means of comparison of the MR with the applied CDM methodology and all VCS standards' requirements.

The verification team has checked whether the monitoring implementation during this monitoring period is in compliance with the monitoring plan in PD and related requirements of the applied methodology/tools.

The verification team has checked the monitoring system in MR against the applied methodology and monitoring plan of the PD.

The monitoring system has been operated as per the monitoring plan in the PD as in compliance with the latest applicable version of the methodology (AMS-III.AU version 04.0).

Data and parameters to be monitored as above tables are confirmed in line with the PD and applied methodology, also corresponding to the formula used for ER calculation.

Monitoring team

Via the MR and PD, the monitoring team consists of the project proponent, Shanghai Libra Investment Management Co., Ltd, technicians and experts from the agricultural bureau, and by site inspection with the representatives from these parties, CTI confirmed that the roles of the team have been clearly defined and the responsibilities have been implemented by monitoring team sufficiently.

Furthermore, for the analysis of emission rate of gas sampling on field, a laboratory with relevant certificate conducted test and the measurement team was leaded by an expert who has a doctoral degree and field of study is agricultural environmental engineering which is verified by checking the CV of the expert/14/. Therefore, CTI verified that the monitoring system was well implemented by monitoring team to ensure the monitoring results are correct and accurate.

Monitoring process

1) Monitoring of farmers' compliance with project cultivation practice (determination of $A_{s,g}$)

   The monitoring method in the MR for monitoring of farmers' compliance with project cultivation practice is checked by verification team, CTI confirmed that the description is in line with the PD and applied monitoring methodology.

   The project database with all 3,610 participated rice farmer households' identification/22/ including name and address of the rice farmer, size of the field and additional farm specific information have been provided to the verification team, CTI confirmed that the PP has set up a database that allow an unambiguous identification of participating rice farm, and as per the applied methodology, a cultivation logbook shall be maintained for all project fields, thus all the farmers are required by PP to complete the logbooks. But the reporting and verification shall be done on the basis of samples of the log-books from the farmers. Then the database/22/ has been used as the basis for PP to conduct the sampling method as stated below.

   As per the requests from applied methodology, the reporting and verification shall be done on the basis of samples of the log-books from the farmers, according to the latest version of the "Standard for sampling and surveys for CDM project activities and programme of activities" (version 09.0), hence PP has established a sampling method following this standard and the sampling size is verified as correct and PP has used 90/10 confidence/precision as the criteria for the reliability of sampling efforts for small-scale project activity is deemed as in line with the requirement of the sampling standard/40/.

   311 samples have been selected according to stratified sampling method in 11 towns based on the numbers determined for each town calculated by the weight of total farmers numbers of each town in

project area which is verified as in line with the numbers determined in PD and in line with the requirement of the sampling standard/40/.

And then for sample selection of each town, a random sampling method has been used for determine the famers sample in each town and finally the randomly selected 311 samples has been defined.

Due to this monitoring period covered nearly three years, project proponents randomly selected 311 samples at the beginning of each year during this monitoring period, that means total 933 samples were selected for this monitoring period to determine whether the project fields were cultivated according to the project cultivation practice as defined by the project activity.

After collecting the sampled logbooks each year by technicians, the expert from local agriculture bureau checked and verified the information and then finally send to PP to complete the MR.

The selected sampled farmers' logbooks/10/ including all parameters that are part of the project cultivation practice during cultivation season have been checked, CTI confirmed that the logbooks/10/ covered information as follow,

a) Sowing (date),

b) Fertilizer, organic amendments, and crop protection application (date and amount);

c) Water regime on the field (e.g. "dry/moist/flooded") and dates where the water regime is changed from one status to another,

d) Yield

e) Whether they have followed fertilization recommendations provided with the introduction of the adjusted water management practice

During the site visit, CTI applied acceptance sampling approach to verify the results of farmer's logbooks as per the Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities, V9.0/40/. Refer to section 2.1 for details of the VVB sampling approach.

Via checking the results listed in sampled farmers' logbooks/10/, CTI verified that the monitoring of farmers' compliance with project cultivation practice is in line with the monitoring plan in PD/5/ and applied methodology, and CTI confirmed that all the project reference fields are cultivated in a way that they represent the ranges of cultivation practice elements on the project fields in a conservative manner with respect to methane emissions. There were no farmers relevantly deviate from the defined project cultivation practice and thus all the farmer's fields can be deemed to be represented by the reference fields, and all the farmer's fields shall be taken into account for the determination of the aggregated project area of that season $A_{s,g}$, that means that the final monitoring result of $A_{s,g}$ during this monitoring period is verified as correct.

2) Monitoring of baseline and project emissions (determination of $EF_{BL,s,g}$ and $EF_{p,s,g}$)

a. Requirement

For ex post emission reduction calculation, as per the PD/5/ and applied methodology AMS-III.AU Version 04.0, the monitored parameters of $EF_{BL,s,g}$ and $EF_{p,s,g}$ need to be measured as per the instructions in the Appendix (Guidelines for measuring methane emissions from rice fields) of the applied methodology and IPCC 2006, volume 4, chapter 5.5.

b. Plan

As per the methodology, the PP has prepared a detailed plan for the seasonal methane measurements before the start of each season, via checking the plan/9/, CTI confirmed that the plan included the schedule for the field and laboratory measurements, the logistics that are necessary to get the gas samples to the laboratory and a cropping calendar, all reference field specific information regarding location and climate, soil, water management, plant characteristics, fertilizer treatment and organic amendments, it is verified that the plan was prepared in compliance with the requirements in the applied methodology.

c. Reference fields

Besides, via checking the description of determination of the reference fields in MR/1/, it is confirmed that the project proponents have made sure that the measurements on project and baseline reference fields are carried out in an equal manner and simultaneously.

The details information of baseline and project reference fields have been listed in the MR clearly which is verified as actual by checking the methane measurement and calculation reports/12/ and site inspection by checking the fields identification, location, area size, geological coordinates, type of rice, climate etc. CTI concluded that the both the baseline and project reference fields have been set up in a way that represent baseline and project emissions in the project rice fields. For the only one group with the same cultivation pattern for this project during this monitoring period, there were three reference fields with the same pattern have been determined in the project area for baseline and project reference fields respectively which is confirmed as in line with the applied methodology.

Due to all fields within project area have the same cultivation pattern which has been verified in the farmer's logbooks/10/ and it is confirmed that only one group in this project for this monitoring period. In line with the applied methodology, 3 baseline reference fields and 3 project reference fields were set in the project area, respectively, which are fixed rice paddies with area of around 0.3 to 0.4 ha. The determination of the reference fields is confirmed as reasonable by site interview with the expert/I3/.

d. Measurements on the fields

For the actual implementation of methane measurement in rice fields during this monitoring period, via checking the methane measurement and calculation reports in both baseline and project reference fields for six seasons (two seasons each year)/12/, CTI confirmed that the measurements have been conducted by technicians trained by expert from Anhui Academy of Agricultural Sciences in these fields using the closed chamber method in both baseline and project rice fields. Based on local expertise from verification team, CTI confirmed that Anhui Academy of Agricultural Sciences is a comprehensive agricultural research institution directly controlled under the provincial government, there are 14

professional sub-institutes including rice. And Via checking the CV of these experts/14/, CTI confirmed that the experts work in the research institution and their fields of study is rice. Thus the requirement for implementation of methane measurement in rice fields of the methodology is satisfied. Refer to below tables for detail assessment of the monitoring methods.

Table 4-1. On the field - technical options for the chamber design

Feature	Conditions	Justification
Chamber material	Option 1: Non-transparent • Commercially available PVC containers or manufactured chambers (e.g. using galvanized iron); • Painted white or covered with reflective material (to prevent increasing inside temperature); • Only suitable for short-term exposure (typically 30 min) followed by immediate removal from the field	Via on-site checked the six chambers, CTI confirmed that the chambers used in this project is made of PVC materials covered with reflective material to prevent the increasing inside temperature. And as confirmed by expert who conducted the measurement/I3/, CTI confirmed that the chambers only put just before the sampling and then removed after 30 mins of sampling which fulfilled with the material request listed in the PD and applied methodology.
Placement in soil	Option 1: Fixed base • Base made of non-corrosive material and remains in the field for the whole season; • Base should allow tight sealing of the chamber; • Base should have bores in the submerged section to allow water exchange between inside and outside; • Base should be installed at least 24 hours before the first sampling	Via on-site checked the six chambers, CTI confirmed that the chambers' base used in this project is fixed made of non-corrosive PVC material and was embedded before transplantation, remaining in the field for the whole season. Base allows tight sealing of the chamber and has bores in the submerged section to allow water exchange. And as confirmed by expert who conducted the measurement/I3/, CTI confirmed that the first sampling was taken 24 hours after the base installation which fulfill with the placement in soil request listed in the applied methodology.
Auxiliaries of chamber	• Thermometer for measuring the temperature inside the chamber; • Fan (battery operated) inside the chamber for mix the inside air during sampling; • Sampling port (rubber stopper placed in a bore of the chamber)	Via on-site checked the six chambers, CTI confirmed that the auxiliaries of chambers used in this project is a thermometer and a fan inside the chamber and the sampling port is set on the top of the chamber which fulfill with the request listed in the PD and applied methodology.

Basal area	Rectangular or rounded, but has to cover minimum of four rice hills (ca. 0.1 m^2 minimum)	Via on-site checked the six chambers, CTI confirmed that the shape and size of base used in this project rectangular and installed covering four rice hills (0.25 m^2) which fulfill with the request listed in the PD and applied methodology.
Height	Option 1: Fixed height Total height (protruding base + chamber) should exceed plant height	Via on-site checked the six chambers, CTI confirmed that the total height of chamber and base is 1.5 meters which is higher than the largest plant height of 1.2m as confirmed by expert thus is fulfill with the request listed in the PD and applied methodology.

Table 4-2. On the field – air sampling

Feature	Conditions	Justification
Replicate chambers per plot	Minimum requirement: Three replicate chambers per plot	Via on-site checked the six chambers, CTI confirmed that the three replicate chambers were placed in one plot (only one group) for both baseline and project reference fields that fulfill with the request listed in the PD and applied methodology.
Number of air samples per exposure / data points per measurement	Minimum requirement: Three samples per exposure	Via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that there were three samples for every exposure analyzed that fulfill with the minimum request listed in the PD and applied methodology.
Exposure time	30 minutes	Via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that exposure time is 30 minutes that fulfill with the request listed in the PD and applied methodology.
Daytime of measurement	Morning	Via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that measuring time was at morning in daytime is 30 minutes that fulfill with the request listed in the PD and applied methodology.
Measurement interval	Minimum requirement: once per week	Via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that

		measurement interval period is once per week that is fulfill with the minimum request listed in the applied methodology.
Syringe	Suitability test (leak proof) before measurement Preferably equipped with a lock for ease of handling	Via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/ and on-site checked the six chambers, CTI confirmed that the syringe with a lock was used in chamber and it is checked for leak proof before every measurement that fulfill with the request listed in the PD and applied methodology.
Sample storage until analysis	• Storage < 24 h: air samples can remain in syringe; • Storage > 24 h: transfer air samples into evacuated vial, store with slight overpressure	Via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that the three samples were taken before a laboratory analysis was performed, so the samples were stored in the evacuated vials that fulfill with the request listed in the PD and applied methodology.

During the site visit, the expert showed how to take gas samples on the field, also the closed chambers have been checked, CTI verified that the installation of chambers and gas exposure process is in line with the plan/9/ and applied methodology. In conclusion, CTI confirmed that the chambers were installed correctly and air samplings were taken correctly.

e. Laboratory analysis

After the gas samples sent to the laboratory, the analysis was conducted by the qualified expert with calibrated devices. Refer to below tables for detail assessment of the Laboratory analysis methods.

Table 4-3. Laboratory analysis

Feature	Conditions	Justification
Method	Gas Chromatograph with flame ionization detector (FID)	Via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that the FID is used in laboratory analysis.
Injection	Direct injection or with multi-port valve and sample loop	Via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that the direct injection method is used in laboratory analysis.
Column	Packed (e.g. molecular sieve) or capillary column	Via checking the methane measurement and calculation reports/12/ for this monitoring period and

		site interview with expert/I3/, CTI confirmed that the packed column is used in laboratory analysis
Calibration	With certified standard gas each day of analysis before and after the analyses are done	Via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that the calibration is conducted in line with certified standard gas each day of analysis before and after the analyses as per request of the methodology in laboratory analysis

For the certificate of laboratory and calibration information of equipment, refer to below section 4.4.4 for detail assessment.

Via checking the methane measurement and calculation reports/12/ for this monitoring period, CTI confirmed that the measurements in fields and analysis in laboratory were all carried out in line with the requirement in PD and applied methodology. And after this step, the concentration of methane in the gas samples $C_{CH4,t}$ were obtained.

f. Calculations

Based on the "Calculation of the emission rate for a plot (reference field)" in the Appendix. Guidelines for measuring methane emissions from rice fields in the applied methodology AMS-III.AU ver. 04.0, the mass of CH_4 emissions for a plot (reference field) is calculated by below formulars,

$$m_{CH_{4,t}} = c_{CH_{4,t}} \times V_{chamber} \times M_{CH_4} \times \frac{1atm}{R \times T_t \times 1000} \quad (1)$$

Where:

m_{CH_4}	=	Mass of CH_4 in chamber at time t (mg)
t	=	Point of time of sample (e.g. 0,15,30 in case of three samples within 30 minutes)
$c_{CH_{4,t}}$	=	CH_4 concentration in chamber at time t, from gas analysis (ppm)
$V_{Chamber}$	=	Chamber volume (L)
M_{CH_4}	=	Molar mass of CH_4: 16g/mol
$1atm$	=	Assume constant pressure of 1atm, unless pressure measurement is installed
R	=	Universal gas constant: 0.08206 L atm/K^{-1} x mol^{-1}
T_t	=	Temperature at time t (K)

(1) Determine the slope of the line of best fit for the values of over time with the help of Excel:

$$s = \frac{\Delta m_{CH_4}}{\Delta t} \quad (2)$$

Where:

s	=	Slope of line of best fit (mg/min)

(2) Calculate the emission rate per hour for one chamber measurement:

$$\mathrm{RE_{ch}} = \mathrm{s} \times \frac{60\mathrm{min}}{\mathrm{A_{chamber}}} \quad (3)$$

Where:

RE_{ch}	=	Emission rate of chamber ch (mg/h x m²)
ch	=	Index for replicate chamber on a plot
$\mathrm{A}_{chamber}$	=	Chamber area (m²)

(3) Calculate the average emission rate of a chamber measurement per plot:

$$\mathrm{RE_{plot}} = \frac{\sum_{\mathrm{ch}=1}^{\mathrm{Ch}} \mathrm{RE_{ch}}}{\mathrm{Ch}} \quad (4)$$

Where:

RE_{plot}	=	Average emission rate of a plot (mg/h x m²)
ch	=	Number of replicate chambers per plot

(4) Further procedure: from the average emission rates per plot of each chamber measurement, derive the seasonally integrated emission factor by integration of the measurement results over the season length. The simplest way of integration is multiplying the emission rate with the number of hours of the measurement interval (e.g. one week) and accumulating the results of every measurement interval over the season. Convert from mg/m² to kg/ha by multiplying with 0.01.

So, the final integrated results of with the $EF_{BL,s,g}$ and $EF_{p,s,g}$ (kgCH_4/season/ha) in the three reference fields for both baseline and project is calculated based on above formulars for this monitoring period.

Via checking the methane measurement and calculation reports/12/ for this monitoring period, CTI confirmed that the calculation results of $EF_{BL,s,g}$ and $EF_{p,s,g}$ (kgCH_4/season/ha) listed in the MR is consistent with the methane measurement and calculation reports listed in the 6 methane measurement and calculation reports for 6 different seasons in this monitoring period.

Monitoring frequency

The monitoring frequency for three monitored parameters $A_{s,g}$, $EF_{BL,s,g}$ and $EF_{p,s,g}$ are confirmed as all in line with the requirement in the applied methodology and PD/5/.

Data management

All the data collected for this monitoring period were archived electronically which has been confirmed by checking the electronical evidence and will be archived at least two years after the end of the last crediting period of the project activity.

QA/QC

The QA/QC procedure for this monitoring period is checked and verified by CTI as correct and reasonable, the monitoring results have been conducted or cross-checked by agricultural bureau experts. The monitoring equipment will be updated if there are new versions or more efficient monitoring tools available

to keep the data more accurate. Via site inspection, CTI verified that the monitoring equipment used are the efficient monitoring tools.

Emergency procedure

Monitoring team will take actions to deal with missing data due to negligence and improper operation and maintain or will displace the broken chamber if any malfunction, also pay close attention to weather forecasts during rice planting, and the monitoring data will be calculated conservatively for emission calculations during the troubleshooting period.

By site interview with monitoring staff and experts and checking the related evidence for data/10/,/12/, CTI verified that no emergency situations have been occurred. Thus no emergency procedure was used for this monitoring period.

Based on above assessment, CTI verified that the monitoring system complies with the applied methodology and the monitoring plan and all applied procedures are completely in compliance to the methodology AMS-III.AU. (version 04.0) and PD.

CAR 02 was raised and successfully closed. Refer to Appendix 4 for detail assessment.

4.4.4 Compliance with the calibration frequency requirements for measuring instruments

During the verification the relevant monitoring equipment has been checked whether the calibration requirements have been met; especially if the calibration frequency is in line with the requirements of the registered PD/5/ and/or the applicable calibration standards.

The information of monitoring equipment used for monitoring in this monitoring period is listed in PD and the calibration information has been assessed in above section 4.4.2 in each monitoring parameter table.

Via site inspection of the above monitoring devices, it is confirmed that the GPS measuring equipment and Chambers are not applicable to the calibration frequency requirements. And for the FID in laboratory, the device was checked by VVB during site visit and via checking the methane measurement and calculation reports/12/ for this monitoring period and site interview with expert/I3/, CTI confirmed that the calibration is conducted in line with certified standard gas each day of analysis before and after the analyses as per request of the methodology in laboratory analysis. Thus CTI verified that the FID was calibrated in compliance with the calibration frequency requirements as defined in applied methodology.

Furthermore, via checking the certificate of laboratory named Institution of Agricultural Engineering, Anhui Academy of Agricultural Sciences/15/, CTI confirmed that the laboratory get ISO/IEC 17025 certificate issued by China National Accreditation Service (CNAS) with authorized scope of Gas Chromatograph and Gas Collection Chamber Items. Hence CTI verified that the two key monitoring parameters $EF_{BL,s,g}$ and $EF_{p,s,g}$ were measured and calculated by certified lab, thus the results in the methane measurement and calculation reports/12/ issued by laboratory named Institution of Agricultural Engineering, Anhui Academy of Agricultural Sciences are verified and certified as correct and credible.

In conclusion, the equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan in PD. Based on that the VVB can confirm that all installed monitoring equipment has been duly calibrated for this entire monitoring period.

4.4.5 Assessment of data and calculation of emission reductions or net removals

4.4.5.1 Calculation of baseline GHG emissions or removals

According to the methodology, the baseline scenario is the continuation of the current practice e.g. continuously flooded rice cultivation in the project fields.

Hence baseline emissions is calculated on a seasonal basis using the following formula:

$$BE_y = \sum_s BE_s \quad (5)$$

$$\mathrm{BE_s} = \sum_{\mathrm{g=1}}^{\mathrm{G}} \mathrm{EF_{BL,s,g}} \times \mathrm{A_{s,g}} \times 10^{-3} \times \mathrm{GWP_{CH_4}} \quad (6)$$

Where:

$\mathrm{BE_y}$	=	Baseline emissions in year y (tCO_2e)
$\mathrm{BE_s}$	=	Baseline emissions from project fields in season s (tCO_2e)
$\mathrm{EF_{BL,s,g}}$	=	Baseline emissions factor of group g in season s ($kgCH_4$/ha per season)
$\mathrm{A_{s,g}}$	=	Area of project fields of group g in season s (ha)
$\mathrm{GWP_{CH_4}}$	=	Global warming potential of CH_4 (tCO_2e/tCH_4)
g	=	Group g, covers all project fields with the same cultivation pattern (G = total number of groups)

During this monitoring period covered three years from 2018 to 2020, there are total 6 seasons, and based on the assessment of the farmers' logbooks/10/, it is confirmed that there was only one group defined. And based on the above assessment in section 4.4.2, 4.4.3 and 4.4.4, CTI verified that the parameters $A_{s,g}$ and $EF_{BL,s,g}$ were monitored in line with the PD and applied methodology.

Via checking the results in the methane measurement and calculation reports/12/ issued by laboratory named Institution of Agricultural Engineering, Anhui Academy of Agricultural Sciences, CTI confirmed that via the measurement results of C_{CH4}, based on the formulars of (1) to (4) listed in this report, the Average emission rate of a plot RE_{plot} was calculated and final integrated results of RE_{plot} with the unit of (kg/season/ha) in the three reference fields is equal to $EF_{BL,s,g}$ ($kgCH_4$/season/ha) which are summarized in Table 4-4 below,

Table 4-4 RE_{plot} (kg/season/ha) in baseline reference fields during this monitoring period

from 2018 to 2020

Year	Category	Early Season			Later Season		
		RE_{plot} (mg/h x m²)	Hours over the season	RE_{plot} (kg/season /ha)	RE_{plot} (mg/h x m²)	Hours over the season	RE_{plot} (kg/season /ha)
2018	Plot 1	6.202		186.06	6.492		182.30
	Plot 2	6.425		192.75	6.701		188.16

	Plot 3	6.747	3,000 hours (125 days)	202.41	6.683	2,808 hours (117 days)	187.66
	Average	6.458		193.74	6.625		186.03
2019	Plot 1	6.291	2,976 hours (124 days)	187.22	6.465	2,808 hours (117 days)	181.54
	Plot 2	6.278		186.83	6.406		179.88
	Plot 3	6.682		198.86	6.755		189.68
	Average	6.417		190.97	6.542		183.70
2020	Plot 1	6.399	2,928 hours (122 days)	187.36	6.669	2,880 hours (120 days)	192.07
	Plot 2	6.106		178.78	6.654		191.64
	Plot 3	6.371		186.54	6.426		185.07
	Average	6.292		184.23	6.583		189.59

Therefore, the baseline emission factors of group g in season s $EF_{BL,s,g}$ are summarized as follow table:

Table 4-5 $EF_{BL,s,g}$ (kg CH_4/season/ha) in baseline reference fields during this monitoring period from 2018 to 2020

Year	2018		2019		2020	
Season	Early Season	Later Season	Early Season	Later Season	Early Season	Later Season
$EF_{BL,s,g}$ (kgCH_4/season/ha)	193.74	186.03	190.97	183.70	184.23	189.59

Finally, based on the above values of $EF_{BL,s,g}$ and formular (5) and (6), the baseline emissions BE_y (tCO_2e) during the period from 2018 to 2020 is calculated in below table,

Table 4-6 BE_y calculation during this monitoring period from 2018 to 2020

Year	2018		2019		2020	
Season	Early Season	Later Season	Early Season	Later Season	Early Season	Later Season
$EF_{BL,s,g}$ (kgCH_4/season/ha)	193.74	186.03	190.97	183.70	184.23	189.59
GWP_{CH_4} (t CO_2e/t CH_4)	28	28	28	28	28	28
$A_{s,g}$ (ha)	13,005	13,005	13,005	13,005	13,005	13,005
BE_s (tCO_2e)	70,548	67,740	69,539	66,892	67,085	69,037
Annual Total BE_y (tCO_2e)	**138,288**		**136,431**		**136,122**	

In conclusion, the calculations of baseline GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized baseline. Any assumptions used in emission calculations have been justified. Appropriate emission factors, GWPs and other reference values have been correctly applied. No

errors, miscalculations, omissions, misstatements or incomplete information has been identified. It can be confirmed that the baseline calculation is overall correct.

4.4.5.2 Calculation of project GHG emissions or actual net GHG removals by sinks

According to the methodology, the project emissions within the project boundary is calculated on a seasonal basis using the following formula:

$$PE_y = \sum_s PE_s \tag{7}$$

$$PE_s = \sum_{g=1}^{G} EF_{P,s,g} \times A_{s,g} \times 10^{-3} \times GWP_{CH_4} \tag{8}$$

Where:

PE_y	=	Project emissions in year y (tCO_2e)
PE_s	=	Project emissions from project fields in season s (tCO_2e)
$EF_{P,s,g}$	=	Project emission factor of group g in season s ($kgCH_4$/ha per season)

During this monitoring period covered three years from 2018 to 2020, there are total 6 seasons, and based on the assessment of the farmers' logbooks/10/, it is confirmed that there was only one group defined. And based on the above assessment in section 4.4.2, 4.4.3 and 4.4.4, CTI verified that the parameters $A_{s,g}$ and $EF_{P,s,g}$ were monitored in line with the PD and applied methodology.

Via checking the results in the methane measurement and calculation reports/12/ issued by laboratory named Institution of Agricultural Engineering, Anhui Academy of Agricultural Sciences, CTI confirmed that via the measurement results of C_{CH4}, based on the formulars of (1) to (4) listed in this report, the Average emission rate of a plot RE_{plot} was calculated and final integrated results of RE_{plot} with the unit of (kg/season/ha) in the three reference fields is equal to $EF_{P,s,g}$ ($kgCH_4$/season/ha) which are summarized in Table 4-4 below,

Table 4-4 RE_{plot} (kg/season/ha) in project reference fields during this monitoring period

from 2018 to 2020

Year	Category	Early Season			Later Season		
		RE_{plot} (mg/h x m²)	Hours over the season	RE_{plot} (kg/season /ha)	RE_{plot} (mg/h x m²)	Hours over the season	RE_{plot} (kg/season /ha)
2018	Plot 1	3.481	3,000 hours (125 days)	104.43	3.462	2,808 hours (117 days)	97.21
	Plot 2	3.334		100.02	3.434		96.43
	Plot 3	3.259		97.77	3.440		96.60
	Average	3.358		100.74	3.445		96.74
2019	Plot 1	3.377	2,976 hours (124 days)	100.50	3.429	2,808 hours (117 days)	96.29
	Plot 2	3.118		92.79	3.314		93.06
	Plot 3	3.516		104.64	3.460		97.16
	Average	3.337		99.31	3.401		95.50

2020	Plot 1	3.409	2,928 hours (122 days)	99.82	3.573	2,880 hours (120 days)	102.90
	Plot 2	3.119		91.32	3.475		100.08
	Plot 3	3.288		96.27	3.215		92.59
	Average	3.272		95.80	3.421		98.52

Therefore, the project emission factors of group g in season s $EF_{P,s,g}$ are summarized as follow table:

Table 4-5 $EF_{P,s,g}$ (kg CH_4/season/ha) in project reference fields during this monitoring period from 2018 to 2020

Year	2018		2019		2020	
Season	Early Season	Later Season	Early Season	Later Season	Early Season	Later Season
$EF_{P,s,g}$ (kgCH_4/season/ha)	100.74	96.74	99.31	95.50	95.80	98.52

Finally, based on the above values of $EF_{P,s,g}$ and formular (5) and (6), the project emissions PE_y (tCO_2e) during the period from 2018 to 2020 is calculated in below table,

Table 4-6 PE_y calculation during this monitoring period from 2018 to 2020

Year	2018		2019		2020	
Season	Early Season	Later Season	Early Season	Later Season	Early Season	Later Season
$EF_{P,s,g}$ (kgCH_4/season/ha)	100.74	96.74	99.31	95.50	95.80	98.52
GWP_{CH_4} (t CO_2e/t CH_4)	28	28	28	28	28	28
$A_{s,g}$ (ha)	13,005	13,005	13,005	13,005	13,005	13,005
PE_s (tCO_2e)	36,683	35,226	36,162	34,775	34,884	35,875
Annual Total PE_y (tCO_2e)	**71,909**		**70,937**		**70,759**	

In conclusion, the calculations of project GHG emissions have been carried out in accordance with the formulae and methods described in the registered monitoring plan, the applied methodology and, where applicable, the applied standardized project. Any assumptions used in emission calculations have been justified. Appropriate emission factors, GWPs and other reference values have been correctly applied. No errors, miscalculations, omissions, misstatements or incomplete information has been identified. It can be confirmed that the project calculation is overall correct.

4.4.5.3 Calculation of leakage GHG emissions

In accordance with AMS-III.AU. ver. 04.0, registered PD and validation report, any effects of the project activity on GHG emissions outside the project boundary are deemed to be negligible and do not considered under this methodology, hence leakage does not need to be considered in this project.

CTI confirmed that the no leakage emissions for this monitoring period (LE_y = 0).

4.4.5.4 Summary of calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

The verification team has checked the MR includes a summary table of the emission reductions calculation.

Summary of emission reductions during the monitoring period,

$$ER_s = BE_s - PE_s \quad (9)$$

Where:

ER_s	=	Emission reductions in season s (t CO_2e)
BE_s	=	Baseline emissions from baseline fields in season s (tCO_2e)
PE_s	=	Project emissions from project fields in season s (tCO_2e)

Hence, the emission reduction during this monitoring period from 2018 to 2020 are summarized in the table below

Table 4-7 Emission Reductions Calculation during this monitoring period from 2018 to 2020

Year	2018		2019		2020	
Season	Early Season	Later Season	Early Season	Later Season	Early Season	Later Season
BE_s (tCO_2e)	70,548	67,740	69,539	66,892	67,085	69,037
PE_s (tCO_2e)	36,683	35,226	36,162	34,775	34,884	35,875
ER_s (tCO_2e)	33,865	32,514	33,377	32,117	32,201	33,162
Annual Total ER (tCO_2e)	**66,379**		**65,494**		**65,363**	

Parameters / Period	Baseline Emissions BE_y	Project Emissions PE_y	Leakage Emissions LE_y	Net GHG emission reductions or removals ER
	(tCO_2e)	(tCO_2e)	(tCO_2e)	(tCO_2e)
02-March-2018~ 31-December-2018	138,288	71,909	0	66,379
01-January-2019~ 31 December-2019	136,431	70,937	0	65,494
01-January-2020~ 31 December-2020	136,122	70,759	0	65,363
Total	**410,841**	**213,605**	**0**	**197,236**

All the figures as per the monitoring report were cross-checked by the verification team against basic monitored data. Refer to section 4.4.1 and 4.4.2 of this report for assessment details.

Note that for the ER value year in 2018, which is similar to the ER value of 2019 and 2020 with started date of 2018 is 02-March-2018, CTI assessed as below,

Via checking the famers' logs/10/ and based on the local expertise of VVB, CTI confirmed that for this kind of project which reduce ER due to adjusted water regime during rice cultivation, the ER occurred during the rice growing season which is not a whole year time. Via checking the registered PD, CTI confirmed that for year 2018, the start time of field preparation which is the start date of project that started to generate the ER is 02-March-2018, hence the whole rice growing season has been considered in year 2018 which is same to 2019 and 2020.

Furthermore, based on the assessment of applicability conditions in applied methodology as stated in the validation report/6/, it is confirmed that aggregate annual emission reductions of all fields included under this project activity shall be less than or equal to 60 kt CO_2 equivalent that should not exceed the threshold required in the small-scale methodology. Via checking the MR, ER sheet comparing with the registered PD/5/, it is confirmed that the reason for exceeding is due to the update of GWP_{CH4} from ex-ante determined value of 25 tCO_2e/CH_4 to 28 tCO_2e/CH_4 which in compliance with the VCS standard, version 4.1/43/. Hence, as per the request of the applied small-scale methodology, the PP shall only claim the ER value equal to 60 kt CO_2 equivalent at most which has been listed as below table,

Parameters / Period	Net GHG emission reductions or removals *ER* claimed (tCO_2e)
02-March-2018~ 31-December-2018	60,000
01-January-2019~ 31 December-2019	60,000
01-January-2020~ 31 December-2020	60,000
Total	**180,000**

Therefore, for the total 1st Monitoring period from 02-March-2018 to 31-December-2020, 180,000 tCO_2e equivalent of credits eligible for issuance as VCUs.

Via checking the values in MR/1/ against the ER calculation sheet/2/, CTI confirmed that the emission reductions calculation is overall correct.

4.4.5.5 Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PD

The comparison of actual values of the monitoring period with the estimations in the registered PD has been carried out by VVB.

As per the PD, VVB confirmed that the ex-ante calculation of ER was conducted based on different equations comparing with ex-post calculation of ER. The ex-ante calculation of ER was calculated based on the ex-ante determined $EF_{BL,c}$ and scaling factors derived from IPCC or default in the applied

methodology, hence there is no direct comparison method between the ex-ante and ex-post calculation of ER. Then the VVB has calculated an ex-ante calculation of ER by using the ex-post $EF_{BL,s,g}$ to replace the $EF_{BL,c}$, and also change the GWP_{CH4} from 25 tCO_2e/CH_4 to 28 tCO_2e/CH_4 but still using the ex-ante calculation method of ER in the PD, then the estimated ER value for this monitoring period was finally calculated as 197,203 tCO_2e and thus the ex-post determined value of 197,236 tCO_2e during this monitoring period was found to fit very good to the ex-ante estimated value.

PP has listed the comparison result in the ER sheet/2/, and the related reason has been clarified in the ER sheet which is verified as correct and reasonable by CTI.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Refer to section 4.4 above for the detail assessment of each monitoring parameters and Appendix 3 for the supporting evidence used to determine the GHG emission reductions.

For each reported data, the evidence is provided and verified as sufficient and quality is appropriate. Also, the cross-checks have been performed on the reported data with different source of evidence. The information flow from data generation and aggregation, to recording, calculation and final transposition into the monitoring report has been assessed by VVB in section 4.4 for each parameter and also the calibration have been conducted as per the frequency of monitoring equipment defined in the registered PD.

Therefore, it is concluded that the evidence provided are verified as sufficient and quality is appropriate and thus the evidence can be used to determine the GHG emission reductions and removals for this monitoring period.

4.6 Non-Permanence Risk Analysis

Non-permanence risk analysis only needs to be applied to GHG removals or avoided emissions through carbon sinks. Project activities generating emissions reductions of N_2O, CH_4 or fossil-derived CO_2 are not subject to buffer withholding, since these GHG benefits cannot be reversed.

Since the project only focuses on GHG reductions of CH_4, the project is not subject to buffer withholding.

5. VERIFICATION CONCLUSION

Shanghai Libra Investment & Management Co., Ltd. has commissioned the Shenzhen CTI International Certification Co., Ltd to carry out the Verified Carbon Standard (VCS) 1st periodic verification of the project activity Huaining Adjusted Water Management in Rice Cultivation, VCS Ref. No. 2476 for the period 02-March-2018 to 31-December-2020, with regard to the relevant requirements for VCS Version 4.1.

Based on the documented evidence and corroborated by an on-site assessment, CTI can confirm that:

- the project has been implemented and operated as per the registered PD;
- there is no project description deviation identified for this monitoring period;
- the project complies with the verification criteria for projects set out in VCS Version 4.1;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS requirement;
- the monitoring is in place as per the applied monitoring methodology;
- the monitoring complies with the monitoring plan in the validated PD;

It is certified that the GHG emission reductions from the project during the monitoring period amount as follows:

Verification period: From 02-March-2018 to 31-December-2020

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

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)[2]
02-March-2018~31-December-2018	138,288	71,909	0	60,000
01-January-2019~31 December-2019	136,431	70,937	0	60,000
01-January-2020~31 December-2020	136,122	70,759	0	60,000
Total	**410,841**	**213,605**	**0**	**180,000**

The GHG emission reductions from the project were generated as 197,236 tCO_2e, by considering the net GHG emission reductions generated during this monitoring period have exceeded the threshold required in the small-scale methodology applied, which is the 60,000 tCO_2e per year, the GHG emission reductions are amount to 180,000 tCO_2e can be claimed as VCUs.

Li Zici

Lin Shunrong

CTI

Zhou Lu

CTI

[2] The values are listed as the final ones which can be claimed as VCUs

Verification Team Leader	Final Approval
06-December-2021	06-December-2021

APPENDIX 1: ABBREVIATIONS

Abbreviations	Full texts
AFOLU	Agriculture, Forestry and Other Land Use
ALM	Agricultural Land Management
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CCER	China Certified Emission Reduction
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CH_4	Methane
CL	Clarification Request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CP	Certification Program // Crediting Period
DverR	Draft Verification Report
EIA	Environmental Impact Assessement
ER	Emission Reduction
ETS	Emission Trading Scheme
FAR	Forward Action Request
FID	Gas chromatography with flame ionization detector
FverR	Final Verification Report
GHG	Greenhouse gas(es)
GS	Gold Standard
ICM	Improved Cropland Management
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MR	Monitoring Report
PA	Project Activity
PD	Project Description
PP	Project Participant
QA/QC	Quality Assurance / Quality Control
REDD	Reduced Emissions from Deforestation and Degradation
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
VVB	Validation/Verification Body

APPENDIX 2: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Ms. Shunrong LIN

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 14: Afforestation and reforestation	TA 14.1: Afforestation and reforestation
SS 15: Agriculture	TA 15.1: Agriculture

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by: Wu Lin

Wu LIN

Technical Competent Manager

Shenzhen, 01/01/2021

Ms. Guolian WANG

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	√	√	√	√	√	√

Scope	Technical Area
SS 1: Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
SS 3: Energy demand	TA 3.1: Energy demand
SS 4: Manufacturing industries	TA 4.1. Cement and lime production
SS 5: Chemical industry	TA 5.1: Chemical industry
	TA 5.2: Caprolactam, nitric and adipic acid
SS 11: Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	TA 11.1: Emissions of fluorinated gases
	TA 11.2: Refrigerant gas production
SS 12: Solvents use	TA 12.1: Chemical industry

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by: Wu Lin

Wu LIN

Technical Competent Manager

Shenzhen, 01/08/2020

Mr. Shun YAN

Satisfies the requirements of competence management system of CTI Certification, and is hereby appointed as:

Qualification						
Status	GHG Auditor	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date	-	-	-	-	-	√

Scope	Technical Area
SS 14: Afforestation and reforestation	TA 14.1: Afforestation and reforestation

This appointment is valid for 3 years from its date of approval below and is bound by internal requirements of management system of the Certification Body of CTI.

Approved by: Wu Lin

Wu LIN

Technical Competent Manager

Shenzhen, 01/01/2021

APPENDIX 3: DOCUMENTS REVIEWED OR REFERENCED

No	Author	Title	References to the document	Provider
1.	Shanghai Libra Investment & Management Co., Ltd.	Monitoring Report	Monitoring Report for the 1st monitoring period Draft version 01, dated 15-September-2021 Version 02, dated 21-October-2021 Final version 03, dated 06-December-2021	Project Owner
2.	Shanghai Libra Investment & Management Co., Ltd.	Emission Reduction Calculation Sheet	Emission Reduction Calculation sheets (related to MR) Version 01, dated 15-September-2021	Project Owner
3.	VERRA	VCS Program Definitions	VCS Program Definitions, v4.1	VCS website
4.	VERRA	VCS Program Guide	VCS Program Guide, v4.0	VCS website
5.	Shanghai Libra Investment & Management Co., Ltd	Project Description	VCS project description (VCS PD) for the project, version 03, dated 19-August-2021	Project Owner
6.	CTI	Validation report	VCS Validation report for the project, version 2.0, dated 19-August-2021	CTI
7.	Project Owner	KML file	KML file with project boundary	Project Owner
8.	Huaining Agricultural Bureau	GPS results	GPS results measured by Huaining Agricultural Bureau for project field sizes	Project Owner
9.	Project Owner	Seasonal methane measurements plan	Plan for the seasonal methane measurements	Project Owner
10.	Farmers	Farmers' log-books	Farmers' log-books from 933 sampled farmers selected for monitoring $A_{s,g}$ during this monitoring period.	Project Owner
11.	Technicians	Fact Sheets	Fact Sheets on Rice Cultivation in Huaining County from 2018 to 2020	Project Owner
12.	Institution of Agricultural Engineering, Anhui Academy of Agricultural Sciences	Methane measurement and calculation reports	Six seasons' measurement and calculation reports during year 2018 to 2020 1. 2018 early season issued in August 2018 2. 2018 later season issued in November 2018 3. 2019 early season issued in August 2019 4. 2019 later season issued in November 2019	Project Owner

No	Author	Title	References to the document	Provider
			5. 2020 early season issued in August 2020 6. 2020 later season issued in November 2020	
13.	Institution of Agricultural Engineering, Anhui Academy of Agricultural Sciences	Technical Guidelines	Technical Guidelines for Intermittently Flooded Rice Cultivation Method in Anhui Province issued in September 2020	Project Owner
14.	Experts	CV of the experts	CV of the expert who conducted laboratory analysis	Project Owner
15.	China National Accreditation Service (CNAS)	Certificate of laboratory	Certificate of laboratory named Institution of Agricultural Engineering, Anhui Academy of Agricultural Sciences with ISO/IEC 17025 certificate dated on 04-February-2016 valid to 03-February-2022	Project Owner
16.	Anqing City Agriculture and Rural Affairs Bureau	Project approval	Project approval issued on 22-October-2017	Project Owner
17.	Anqing City Agriculture and Rural Affairs Bureau	Inspection and Acceptance Report	Inspection and Acceptance Report of the project area dated 11-February-2018	Project Owner
18.	Huaining County Municipal Bureau of Land and Resources	Certification of land rights	Certification of land rights issued on Huaining County Municipal Bureau of Land and Resources 07-February-2018	Project Owner
19.	PP and farmers	Cooperation agreements	Cooperation agreements signed between the project proponents and all the farmers which ensure the proper development of the project	Project Owner
20.	Anqing City Market Supervision and Administration	Business License	Business License of Hefei Luyu Agricultural Technology Co., Ltd.	Project Owner
21.	Anqing Weiyu Water Conservancy Engineering Co., Ltd.	Construction Contract	Construction Contract for Huaining County signed between Huaining County Agriculture Committee and Anhui Haokui Construction Engineering Co., Ltd. on 03-November-2017	Project Owner
22.	Project Owner	Farmers database	Information of all the 3,610 farmers included in the project	Project Owner
23.	Anhui Provincial Academy of Social Sciences	Ex-ante investigation report	Ex-ante investigation report with investigation project area, baseline scenario, cultivation practices, including 100 farmer samples in baseline scenario period issued on 25-June-2017	Project Owner

No	Author	Title	References to the document	Provider
24.	Institute of Agricultural Engineering, Anhui Academy of Agricultural Sciences - Laboratory	Report of Measuring Methane	Report of Measuring Methane Emission Rate of Double-cropping Rice Paddies with Continuously Flooded Method by Closed Chamber in Huaining in August 2017 and November 2017	Project Owner
25.	Unistrong	Instruction of GPS	Instruction of GPS Measuring Equipment	Project Owner
26.	Project Owner and employments	Employment contracts	Employment contracts signed between Hefei Luyu Agricultural Technology Co., Ltd. and employments	Project Owner
27.	Project Owner	Monthly payroll to the technicians	Monthly payroll to the technicians during this monitoring period	Project Owner
28.	Project Owner	Records and photo evidence	Records and photo evidence related to the book donation activity in Huaining County by the project owner	Project Owner
29.	Project Owner	Photo of posted notice	Photo of posted notice of meeting on the bulletin board in each village	Project Owner
30.	Shanghai Libra Investment & Management Co., Ltd.	Monitoring Manual	Monitoring and QC Manual for this project in Sep. 2017	Project Owner
31.	Huaining Agricultural Bureau and project owner	Local stakeholder consultation records	• Meeting minutes on 20-August-2021 • Attendance Register List on 20-August-2021 • 70 filled questionnaires distributed to relevant personnel of village representatives, relevant governmental officials, local farmers during this monitoring period	Project Owner
32.	Project Owner	Suggestion Book	Suggestion Book published on the notice board of villages	Project Owner
33.	Hefei Luyu Agricultural Technology Co., Ltd.	Technical Training Records	Technical Training Records to Technicians and Farmers in 2018, 2019 and 2020 including training records and participants records	Project Owner
34.	Intergovernmental Panel on Climate Change	IPCC Guidelines	2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	www.ipcc-nggip.iges.or.jp
35.	Intergovernmental Panel on Climate Change	AR4	IPCC's Fourth Assessment report, GHG Protocol	www.ipcc-nggip.iges.or.jp
36.	Intergovernmental Panel on Climate Change	AR5	IPCC's Fifth Assessment report, GHG Protocol	www.ipcc-nggip.iges.or.jp
37.	National Government	Air Pollution law	Law of the People's Republic of China on Prevention and Control of Air Pollution	Public website

No	Author	Title	References to the document	Provider
38.	On-site Validation team	Photographs of Project Site	Photographs of project area, reference fields, rice, ditches, reservoirs, chambers, bases etc. taken by verification team during the on-site validation	On-site Verification team
39.	UNFCCC	Applied methodology	Approved CDM methodology AMS-III.AU: "Methane Emission Reduction by Adjusted Water Management Practice in Rice Cultivation" (version 04.0)	UNFCCC Website
40.	UNFCCC	Standard for Sampling and Surveys	CDM Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities, V9.0	UNFCCC Website
41.	UNFCCC	Guideline for Sampling and Surveys	CDM Guideline for Sampling and Surveys for CDM Project Activities and Programme of Activities, V4.0	UNFCCC Website
42.	VERRA	Monitoring Report Template	VCS- Monitoring-Report -Template-v4.0	VERRA
43.	VERRA	VCS Standard	VCS Standard, v4.1	VCS website
44.	VERRA	Registration and Issuance Process version 4.0	Registration and Issuance Process version 4.0	VCS website
45.	UNFCCC	UNFCCC	http://cdm.unfccc.int	Website
46.	VCS	VCS	https://verra.org/project/vcs-program/	Website
47.	Ministry of Ecology and Environment of China	China cap & trade scheme	http://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/202101/t20210105_816131.html	Public Website
48.	China CER Exchange Info-platform	China CER	http://cdm.ccchina.org.cn/ccer.aspx	Website
49.	Google	Google Earth Map	earth.google.com	Website
50.	GS	Gold Standard	http://www.goldstandard.org/	Website
51.	IPCC	IPCC publications	www.ipcc-nggip.iges.or.jp	Website
52.	Ministry of Ecology and Environment of China	Enforced company list	http://mee.gov.cn/xxgk2018/xxgk/xxgk03/202012/W020201230736907682380.pdf	Public Website

APPENDIX 4: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS

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

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

Table 2. CL from this verification

CL ID	01	Section no.	1.10	Date : 30/09/2021
Description of CL				
PP is not to clarify that how to avoid double counting of the project by considering China has a national emissions trading scheme.				
Project participant response				Date : 21/10/2021
The method of avoiding double counting of this project by considering China has a national emission trading scheme has been described in the updated version of MR. According to China's national emissions trading scheme, only the high-emission industries are included, covering thermal power generation, petrochemical, chemical, building materials, iron and steel, non-ferrous, paper, aviation and other key emission industries that emitted at least 26,000 tCO_2e in any one year from 2013 to 2016, without renewable project. Moreover, the project proponent, including this project activity, is except for mandatory emission control scheme. Therefore, this project will not and cannot be double counted.				
Documentation provided by project participant				
/1/- version 02				
VVB assessment				Date: 25/10/2021
The revised MR is checked, CTI confirmed that the related information has been added. The project proponent is not part of any emission trading program which has been confirmed via checking the UNFCCC/45/, GS/50/, VCS/46/ and other GHG schemes' website. The net GHG emission reductions during this monitoring period from the project was not used for compliance with emission trading programs or to meet binding limits on GHG emissions. The project activity has not participated under any other GHG programs which has been confirmed via checking the UNFCCC/45/, GS/50/, VCS/46/ and other GHG schemes' website, it is verified that the implementation of the project is consistent with the description in the Project Design Document (PDD) and the monitoring system is fully functional to generate Verified Carbon Units (VCUs) without any double counting for this monitoring period from 02-March-2018 to 31-December-2020. Besides, based on VVB's local expertise, China has a national emissions trading scheme only cover the high-emission industries, such as power generation sector that emitted at least 26,000 tons of CO_2e/year which has been verified in the public website/47/, and it is confirmed that the project activity is not included the mandatory emission control scheme and there is no emission cap enforced for the project owner by checking the enforced company list in public information/52/. Hence, it is confirmed that the emission reductions will not be double counted. CL 01 is closed.				

CL ID	02	Section no.	2.2	Date : 30/09/2021
Description of CL				
The actual process of VCS Program verification and the validation/verification body's site visit is not clarified.				
Project participant response				Date : 21/10/2021
The actual process of VCS Program verification and the validation/verification body's site visit has been clarified in the updated version of MR. Once the project has been registered, the registered version of project description, monitoring manual and monitoring plan in both Chinese and English have been posted on each 129 village's notice board. A brief summary of project location, project registration date, expected annual emission reduction, monitoring period and expected verification date has also been posted for stakeholders. After this monitoring report had been submitted to the VVB, the monitoring plan, manual and the Chinese version monitoring report summary were posted on these villages' notice board, too. Moreover, the on-site verification was from 21-September-2021 to 22-September-2021, and when the project proponent and Shanghai libra knew the specific time of on-site visit, the technicians started to invited the farmers to participate in the on-site stakeholder's interview by means of door-to-door announcements and meeting notice posted. The mobile phone number of contact person of the project were also published on the meeting notice so the villagers can directly reflect any problem about the project. During this on-site verification, the selected sampled farmers' logbooks including all parameters that are part of the project cultivation practice during cultivation season have been checked by VVB. Furthermore, the stakeholders sampled by VVB were interviewed in the stakeholders meeting in Huaining County during the period from 21-September-2021 to 22-September-2021, and asked them whether the project had increased rice production, economic growth, job opportunities, women's social status, education quality and methane emission reduction. Farmers said rice yields have increased by about 10.8% during this monitoring period. The additional job opportunities created during this monitoring period have also improved their economic level. Moreover, 75% of attendees are female farmers and they were pleasant that they were given priority to job recruitment. During this monitoring period, 1,000 stationary sets, including books, pens, pencil-cases and notebooks, had been donated by the project proponent to improve the quality of local education. Thus, all the sustainable development goals brought by this project claimed were realized during this monitoring period.				
Documentation provided by project participant				
/1/- version 02 /29/				
VVB assessment				Date: 25/10/2021
The revised MR is checked, it is confirmed that the actual process of VCS Program verification and the validation/verification body's site visit has been clarified. Informed farmers by publishing notification and invitation on the notice board about the process of VCS Program verification and the validation/verification body's site visit confirmed by interview with local farmers/I5/ and checking the photo of posted notice/29/. The verification site inspection was conducted on 21-September-2021 to 22-September-2021. A ground inspection of the project plan was conducted during the site visit and the verification team interviewed project implementer/I1/, local officer from Agricultural Bureau/I2/, expert from Anhui Academy of Agricultural Sciences and Anhui Academy of Social Sciences/I3/, technicians from local agrotechnical stations/I4/, rice cultivation farmers/I5/ and Project VCS development consultant/I6/. Refer to section 2 of this report for detail information of the VVB site visit. CL 02 is closed.				

Table 3. CAR from this verification

CAR ID	01	Section no.	1.1	Date : 30/09/2021
Description of CAR				
The actual VVB site visit time is missing in the milestone table.				

Project participant response	Date : 21/10/2021
The actual VVB site visit time is 21-September-2021~22-September-2021 and it has been added in the updated version of MR.	
Documentation provided by project participant	
/1/- version 02	
VVB assessment	**Date:** 25/10/2021
The revised MR is checked, CTI confirmed that the actual VVB site visit time is added in the milestone table which is verified as correct. CAR 01 is closed.	

CAR ID	02	Section no.	4.3	Date : 30/09/2021
Description of CAR				
In table 4-1, the locations of the reference fields are not accurate, the village/community name is missing.				
Project participant response				**Date :** 21/10/2021
The administrative units of communities are at the same level as villages. Here, the smallest administrative unit is the Renxinghe Community, which has been provided in the MR.				
Documentation provided by project participant				
/1/- version 02				
VVB assessment				**Date:** 25/10/2021
The revised MR is checked, CTI confirmed that the locations of the reference fields are accurate with correct village name which has been verified by site inspection with GPS device. CAR 02 is closed.				

Table 4. FAR from this verification

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