VERIFICATION REPORT

for the CDM Project Activity

Bagepalli CDM Biogas Programme

In

India

Report No. 01 997 9105077146

Version 02.1, 07/03/2014

Designated Operational Entity (DOE)

TÜV Rheinland (China) Ltd

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I. Project data:

Project title:	Bagepalli CDM Biogas Programme		**Report No.:** 01 997 9105077146	
Registration No. &Date:	0121 & 10/12/2005		**Current version No.:** 02.1	
Monitoring period:	01/08/2011 - 31/08/2013		**Date of current version:** 07/03/2014	
Methodology:	AMS-I.C. version 05		**Date of first issue:** 30/01/2014	
Publication of MR:	The monitoring report (version 01, 05/11/2013) was published at UNFCCC website on 27/11/2013.			
Average emission reductions:	Estimated:	40,820 tCO_2e *(Calculated based on the estimated annual emission reduction of 19,553 tCO_2e/year (as per approved PDD, version 03, dated 22/08/2012) and the monitoring period from 01/08/2011 to 31/08/2013 (ie,762 days)*	Verified for CP1:	21,118 tCO_2e/yr (*achieved from 01/08/2011 to 31/12/2012 including both days*
			Verified for CP2:	9,451 tCO_2e/yr *(achieved from 01/01/2013 to 31/08/2013 including both days)*
			Total (CP1+ CP2)	30,569 tCO_2 *(achieved from 01/08/2011 to 31/08/2013 including both days*
GHG reducing measure/technology:	Avoiding GHG emission by replacing the non-renewable biomass and fossil fuel in cooking through replacing the low efficient conventional cook stoves with the biogas generation from animal dung.			

Party	Project participants	Party considered a project participant	Contract party
India (host)	Agricultural Development and Training Society (ADATS)	No	☐
France (Annex 1 country)	Private Entity: Velcan Energy	No	☒
Switzerland (Annex 1 country)	Private Entity: Velcan Energy	No	☐
Germany (Annex 1 Country)	Private Entity: Atmosfair gGmbH	No	☐

II. Verification Team:

Verification Team			Role									
Full name	**Affiliation TÜV Rheinland**	**Appointed for Sectoral Scopes (Technical Areas: 1.1 & 1.2)**	Team leader	Acting Team Leader	Local Expert	Team Member (Auditor)	Technical Expert	Acting Tech. Expert	Trainee Auditor	Technical Reviewer	Expert to TR	Trainee TR
Mr. R Narendra Kumar	India	1.2	**X**		**X**							
Mr. Murali Ramalingam	India	1.2			**X**	**X**						
Mr. Anudeep Thorat	India	1.1, 1.2			**X**		**X**					
Ms. Indumathi C	India	1.2								**X**		
Mr. Walter Tang	China	1.1, 1.2									**X**	

(Adjust accordingly, i.e. provide one line per person)

Verification Phases	Verification Status
☒ Desk Review ☒ Follow up interviews ☒ Resolution of outstanding issues	☒ Full Approval and Submission for Issuance ☐ Rejected

☒ Corrective Actions / Clarifications Requested	

III. Verification Report:

Final approval	Released	Distribution
☒	**By: Mr. Henri Phan**	☐ No distribution without permission from the Client or responsible organizational unit
Date: 11-03-2014		☒ Unrestricted distribution

Abbreviations

ADATS	Agricultural Development and Training Society
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	CDM Validation and Verification Standard
CEF	Carbon Emission Factor
CER	Certified Emission Reduction(s)
CH_4	Methane
CL	Clarification request
CO_2	Carbon dioxide
CO_{2e}	Carbon dioxide equivalent
CP	Commitment Period
CSU	Coolie Sangha Units
DNA	Designated National Authority
DOE	Designated Operational Entity
FAR	Forward Action Request
FCN	Fair Climate Network
GHG	Greenhouse Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MR	Monitoring Report
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
PDD	Project Design Document
PP	Project Participant
PRC	Post Registration Change
TUV R	TUV Rheinland (China) Ltd
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation And Verification Standard

Verification opinion — summary

The verification team assigned by the DOE (TÜV Rheinland (China) Ltd.) concludes that the CDM Project Activity "Bagepalli CDM Biogas Programme" in India, as described in the registered PDD (version 3, date 22/08/2012) and monitoring report (version 02, date 06/02/2014), meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The verification is conducted in-line with the VVS requirements.

Verification methodology and process

The verification has been performed as described in the VVS version 05.0 and constitutes the following steps:

- Publication of the MR on the UNFCCC website (27/11/2013 -11/12/2013)
- Desk review of the MR and the relevant documents
- On-site assessment (22/01/2014 - 23/01/2014)
- Issuance of Verification Report

The project activity was correctly implemented according to selected monitoring methodology (ies) and monitoring plan. The monitoring equipment was installed, calibrated and maintained in a proper manner, while collected monitoring data allowed verifying the amount of achieved GHG emission reductions. The DOE therefore is pleased to issue a positive verification opinion expressed in the attached Certification statement.

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1. Introduction

The Contracting Client Organization has commissioned the DOE TÜV Rheinland (China) Ltd. to perform a verification of the CDM Project Activity "Bagepalli CDM Biogas Programme" in India (hereafter "project activity"). This report summarises the findings of the verification of the project, performed on the basis of paragraph 62 of the CDM modalities and procedures, as well as criteria given to provide for consistent project operations, monitoring and reporting and the subsequent decisions by the CDM Executive Board. Verification is required for all registered CDM project activities intending to confirm their achieved emission reductions and proceed with request for issuance of CERs. This report contains the findings from the verification and a certification statement for the certified emission reductions.

1.1 Objective

Verification is the periodic independent review and *ex post* determination of both quantitative and qualitative information by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered CDM project activity during a defined monitoring period.
Certification is the written assurance by a DOE that, during a specific period in time, a project activity achieved the emission reductions as verified.
The objective of this verification was to verify and certify emission reductions reported for the "Bagepalli CDM Biogas Programme" in country "India " for the period 01/08/2011 - 31/08/2013.
The purpose of verification is to review the monitoring results and verify that monitoring methodology was implemented according to monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive and presented in a concise and transparent manner.
In particular, monitoring plan, monitoring report and the project's compliance with relevant UNFCCC and host Party criteria are verified in order to confirm that the project has been implemented in accordance with previously registered design and conservative assumptions, as documented. And also if the monitoring plan is in compliance with the registered PDD and approved monitoring methodology.

1.2 Scope

The scope of the verification is:

- To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.
- Where sampling in involved, sampling guidelines are applied to ensure the adequate sampling and survey method is followed in reaching professional judgements.

The verification shall ensure that reported emission reductions are complete and accurate in order to be certified. The verification comprises a review of the monitoring report over the monitoring period from 01/08/2011 to 31/08/2013. Based on registered PDD in part of the monitoring parameters and monitoring plan, emission reduction calculation spreadsheet, monitoring methodology and all related evidence provided by project participants.
On-site visit and stakeholders interviews are also performed as part of the verification process.

2. Methodology

The verification consists of the following four phases:

1. Completeness check and webhost of the Monitoring report for UNFCCC public commenting;
2. Desk review of the monitoring plan, monitoring report, monitoring methodology, project design document, applicable tools in particular attention to the frequency of measurements, quality of metering equipment's including calibration requirements, QA/QC procedures and other relevant documents;
3. On-site visit (including follow-up interviews with project stakeholders, when deemed necessary). The on-site assignment includes the following;
   - An assignment of implementation and operation of project activity with respect to registered PDD or approved revised PDD;
   - Review of information flows for generating, aggregating and reporting the monitoring parameters;
   - Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with monitoring plan of the PDD;
   - Cross check of information and data provided in the monitoring report with plant logbooks, inventories, purchase records or similar data sources;
   - Check of monitoring equipment's, calibration frequency and monitoring practice in-line with methodology and PDD;
   - Review of assumptions made in calculating the emission reduction;
   - Implementation of QA/QC procedure in-line with the PDD and methodology requirement.
4. Resolution of outstanding issues and the issuance of the final Verification report and Certification statement.

The following sections outline each step in more detail.

2.1 Desk review

The following table outlines the documentation reviewed during the verification:

Ref no.		Reference Document
/P1/	/P1.1/	Webhosted monitoring report of the monitoring period 4 (01/08/2011 - 31/08/2013), version 01 dated 05/11/2013
	/P1.2/	Monitoring report of the monitoring period 4 (01/08/2011 - 31/08/2013) (final), version 02, dated 06/02/2014
/P2/	/P2.1/	ER calculation sheets of the monitoring period 4 (01/08/2011 - 31/08/2013) (draft), version 01 dated 05/11/2013
	/P2.2/	ER calculation sheet of the monitoring period 4 (01/08/2011 - 31/08/2013) (Final), version 02, dated 06/02/2014
/P3/		InfoNeeds database at ADATS head office in Bagepalli for complete 5,485 biogas units monitoring details for the monitoring period 01/08/2011 - 31/08/2013.
/P4/		End user agreements between ADATS and biogas unit users.
/P5/		Store register maintained which has details of biogas stove issued
/P6/		Unique Distributors & Trade links Corporation: Various Purchase orders placed (20 Dec 2005,24 Jan 2006, 4 May 2006,29 May 2006,5Aug 2006,19 Sep 2006,17 May 2007,12 Jun 2007,24 Jul 2007,7 Aug 2007) and specification of biogas stove.
/P7/		Training records
/P8/		Velcan Survey data sheet for the years 2012-2013
/P9/		ADATS: Daily log book for monitoring of biogas units maintained by Balakendra teachers for break down details, operational and non-operational hours for the monitoring period 01/08/2011 - 31/08/2013
/P10/		Unique Distributors & Trade links Corporation: Various Purchase orders placed (20 Dec 2005,24 Jan 2006, 4 May 2006,29 May 2006,5Aug 2006,19 Sep 2006,17 May 2007,12 Jun 2007,24 Jul 2007,7 Aug 2007) and specification of biogas stove.

Background investigation and other referred documents/websites:

Reference	Document
/B1/	Approved monitoring methodology: AMS-I.C. Version 5; Thermal energy for the user
/B2/	Kyoto Protocol (1997)
/B3/	Decision 3/CMP. 1 (Marrakesh – Accords)
/B4/	Registered Documents: Registered PDD, version 02 and Approved PDD version 03, dated 22/08/2012 Validation report prepared by DNV, dated 30/10/2005 Validation opinion of Post registered change prepared by DNV, dated 23/08/2012 approved on 27/09/2012 http://cdm.unfccc.int/Projects/DB/DNV-CUK1131002343.1/view?cp=1
/B05/	Previous (for the monitoring period 1, 2 & 3) Monitoring report and Verification Reports
/B6/	UNFCCC Validation and Verification Standard, version 05 Clean Development Mechanism Project Standard, version, 05 Clean Development Mechanism Project Cycle Procedure, version 05 Sampling and surveys for CDM project activities and programme of activities, version 4.1
/B7/	F-CDM-MR Monitoring report form, version 03.2 https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20131105093743062/iss_form07.pdf Guidelines for completing the monitoring report form, version 04.0 http://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20131010103540195/iss_guid07.pdf
/B8/	Websites referred 1. http://cdm.unfccc.int/index.html 2. http://cdm.unfccc.int/methodologies/SSCmethodologies/approved.html 3. http://www.itouchmap.com/latlong.html (Latitude-Longitude location finder)
/B9/	/EB26/- EB 26 meeting report paragraph 109 (http://cdm.unfccc.int/EB/026/eb26rep.pdf)
/B10/	/EB48-A68/- Completeness check issuance (http://cdm.unfccc.int/EB/048/eb48_repan68.pdf)
/B11/	/EB 52-A 60/- Guidelines for assessing compliance with the calibration frequency requirements (http://cdm.unfccc.int/EB/052/eb52_repan60.pdf)
/B12/	"Guidelines on the Application of Materiality in Verifications, Version 01.0
/B13/	Sampling and surveys for CDM project activities and programmes of activities, version 03

2.2 On-site visit and follow-up interviews with project stakeholders

TÜV Rheinland verification team carried out an on-site visit dated (22/01/2014 & 23/01/2014) and performed interviews with the project representatives and stakeholders.
Prior to the interview salient points to be discussed were planned. Date of interview, interviewee and points discussed are given in the following table.

	Date	Name	Organization	Topic
/i/	22/01/2014 & 23/01/2014	Mr. Abid Pasha	System Administrator, ADATS	- General aspects of the project - Changes since validation / previous verification - Remaining issues from validation/ previous verification - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data analysis
	22/01/2014 & 23/01/2014	Mr. Mukheem Pasha	Biogas Coordinator, ADATS	
	22/01/2014 & 23/01/2014	Mr. Venkatanarasappa	BCS President	
	22/01/2014 & 23/01/2014	Mr. Mohsin Khan	Project Manager, FCS	
	22/01/2014 & 23/01/2014	Mr. Mohammad Saheed	Caseworker, ADATS	
/ii/	22/01/2014 & 23/01/2014	Ms. Lakshimi Devi	Village Volunteer, ADATS	- Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - GHG emission reduction calculation - Procedural aspects of the verification - Maintenance
	22/01/2014 & 23/01/2014	Mr. Muniraju R	Caseworker, ADATS	
	22/01/2014 & 23/01/2014	Mr. Azmath	Caseworker, ADATS	
	22/01/2014 & 23/01/2014	Ms. Bhagyamma	Caseworker, ADATS	
	22/01/2014 & 23/01/2014	Mr. TK Muniraju	Caseworker, ADATS	
	22/01/2014 & 23/01/2014	Mr. N Kantharaj	Caseworker, ADATS	
	22/01/2014 & 23/01/2014	Ms. Gangrathnamma	Caseworker, ADATS	
/iii/	22/01/2014 & 23/01/2014	Dr. Sudha Padmanabha	FCN, CDM Specialist	- Data uncertainty and residual risks - GHG emission reduction calculation - Procedural aspects of the verification - Sampling & Survey - Data analysis
	22/01/2014 & 23/01/2014	Mr. Chethan	FCN, CDM Consultant	

The verification team has cross verified the PP's data through acceptance sampling of the PP's sample data. The DOE conservatively considers the Acceptable Quality Level of 1% and Unacceptable Quality Level of 10% with alpha and beta at 5%. Based on this, the verification team determined the acceptance sample size as 61. This is inline with the requirement of 'Sampling and surveys for CDM project activities and programmes of activities', version 03. Hence the verification team has done sample survey in 84 (more than the required sample size) households out of the 200 households surveyed by the PP during the site visit.
Verification Team along with onsite observation, objective evidence collections, data generation and recording analysis also considered the views obtained in these interviews while arriving at Verification Opinion.

2.3 Resolution of outstanding issues

The objective of this phase of the verification is to resolve any outstanding issues (issues that require further elaboration, research or expansion) which have to be clarified prior to final DOE's conclusions on the project implementation, monitoring practices and achieved emission reductions. In order to ensure transparency a verification protocol is completed for the project activity. The protocol shows in transparent manner criteria (requirements), means of verification and resulting statements on verification actual project activity against identified criteria.
The verification protocol serves the following purposes:

- It organises in a table form, details and clarifies the requirements, which CDM project is expected to meet CDM requirements;
- It ensures a transparent verification process where the DOE will document how a particular requirement has been verified and the result of the verification.
- It ensures that the issues are accurately identified, formulated, discussed and concluded in the validation report.
- It ensures the determination of achieving credible emission reductions from the project activity.

The verification protocol consists of three tables. Table 1 reflects the verification requirements and reference to the materials used to verify the project activity against those requirements, as well as means of verification, reference to Table 2 and preliminary and final opinion of the DOE on every particular requirement. Table 3 reflects the carry forward actions initiated by the verification team if the monitoring and reporting require attention and/or adjustment for the next verification period. The completed verification protocol for this project is enclosed in Appendix A to this report.
Findings during the verification can be interpreted as a non-compliance with CDM criteria or a risk to the compliance. Corrective action requests (CARs) are raised, in case:

(a) Non-conformities with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
(b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
(c) Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
(d) Issues identified in a FAR during validation/previous verification(s) that are not been resolved by the project participant(s) to be verified during current verification.

Requests for clarification (CLs) are raised, if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

A forward action request (FAR) is raised during verification to highlight issues related to project implementation/monitoring that require review during the subsequent verification of the project activity. FARs shall not relate to the CDM requirements for issuance.

2.4 Internal quality control

The final verification report underwent a technical review by a qualified independent reviewer before requesting issuance of the project activity. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for CDM validation and verification that meets the criteria of EB guidelines for qualification.

2.5 Verification Team

Before the assessment begins, members of the verification team are ensured to cover the technical area(s), sectoral scope(s) and relevant host country experience including local language ability for evaluating the CDM verificaiton activity. The qualification of the team is as per the criterias defined by the EB guidelines for qualification.

Verification Team			Type of Involvement						
Full name	**Affiliation TÜV Rheinland**	**Appointed for Sectoral Scopes (Technical Areas 1.1 & 1.2)**	Supervising the work	Desk review	Site Visit + Interview	Report and protocol Writing	Technical Expert Input	Reporting Support	Technical Reviewer
Mr. R Narendra Kumar	India	1.2	X	X	X	X			
Mr. Murali Ramalingam	India	1.2			X			X	
Mr. Anudeep Thorat	India	1.1, 1.2			X		X		
Ms. Indumathi C	India	1.2							X
Mr. Walter Tang	China	1.1, 1.2							X

3. Verification findings

The findings of the verification are described in the following sections. The verification criteria (requirements), the means of verification and the results of verification are documented in detail in the verification protocol in Appendix A.

3.1 Project implementation

3.1.1 The implementation of the project activity

Project Participants:	**Project participants**	**Party involved**
	Agricultural Development and Training Society (ADATS)	India (host)
	Velcan Energy	France (Annex 1)
	Velcan Energy	Switzerland (Annex 1)
	Atmosfair gGmbH	Germany (Annex 1)
Project Parties:	Please refer above	
Title of project activity:	Bagepalli CDM Biogas Programme	
UNFCCC registration No:	0121	
Baseline and monitoring methodology:	AMS I.C (version 05)	
Project Type:	Renewable energy	
Project Scale:	Small scale	
Location of the project activity:	Bagepalli, Chickballapur, Chintamani, Gudibanda and Siddalaghatta Taluks of Chickballapur District, Karnataka State, India.	
Project's crediting period:	01/09/2006 to 31/08/2013 (1st Crediting period)	
Total Duration of the project:	7 years (renewable)	
Period verified in this verification:	01/08/2011 to 31/08/2013	

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 approved revised PDD of 22/08/2012 The verification took cognizance of § 193, 194 & 195 of CDM Project Standard.

The project involves implementation of biogas units in the households of Bagepalli, Chickballapur, Chintamani, Gudibanda and Siddalaghatta Taluks of Chickballapur District, Karnataka State, India. The biogas units produce biogas by using the animal dung as feed. The produced biogas contains around 60% of methane and it is used

for cooking and water heating and thereby replacing the non-renewable biomass & fossil fuel based cooking in the households. As per the registered PDD, the project intended to implement 5,500 numbers of 2 m^3 capacity digester in the project area. However PP has implemented only 5,485 numbers of digester. Though the numbers of units implemented are less than numbers mentioned in the PDD, the PP has not seek any notification on the design change as the emission reduction is calculated based on the biogas units in operation and the eligibility condition of the project has not changed.

The number of villages and the unit commissioned in each taluk are as follows:

Taluk	Units Commissioned	Number of Villages
Bagepalli	2,617	125
Chickballapur	647	48
Chintamani	1,001	78
Siddalaghatta	840	58
Gudibanda	380	27
Total	**5,485**	**336**

The details are verified from the InfoNeeds monitoring database/P3/ & end user agreements/P4/ and found to be correct.

PP has not sought any notification on change in the project design, but a revision of monitoring plan was sought (revised PDD dated 22/08/2012) and the same is approved by EB on 27/09/2012.

As per verification team's opinion the PP has implemented the project activity as described in the registered PDD.

Herewith, the Verification Team summarizes *major* changes between webhosted Monitoring Report and final version of Monitoring Report for submission as follows:

Subject	Webhosted Monitoring Report (MR)	Correction to webhosted MR in the final MR submission for issuance with DOE assessment and reason of acceptance.
Consistency		
MR (project title / participants involved/ project location / reference numbers / report date and version etc.)	Title: Bagepalli CDM Biogas Programme PPs: 1. Agricultural Development and Training Society, India 2. Velcan Energy, France 3. Velcan Energy, Switzerland 4. Atmosfair gGmbH, Germany Location: Bagepalli, Chickballapur, Chintamani, Gudibanda and Siddalaghatta taluks of Chickballapur, Karnataka, India MR date: 05/11/2013 Version: 01	Title: No Change PPs: No Change Location: No change MR date: 06/02/2014 Version: 02
Methodologies (title and version numbers) PDD and its version	AMS-I.C: Thermal energy for the user, Version 5	No change
CER calculations (formula applied/ amount of emission reduction)	$ER_y = \sum_{n=1}^{N}(OS_y \times \frac{EM_y}{365} \times number.of.operational.days)$ where: ER_y: yearly Emission Reductions (tCO_2)	No change

<table>
<tr><td></td><td>OS_y:2 m^3 operating system in year y.
N: Number of biogas units. In this project 5,485 biogas units installed and monitored.
EM_y: Baseline emissions per household with a 2 m^3 biogas system. (3.56 t CO_2e/household)</td><td></td></tr>
<tr><td>Registration date, consistent/logical sign - off dates</td><td>Project registration date: 10/12/2005</td><td>No change</td></tr>
<tr><td>Monitoring (period dates / parameters / frequency)</td><td>Monitoring period: 01/08/2011 - 31/08/2013
Parameters & frequency of monitoring:
<table><tr><td>Number of installed 2 m^3 systems</td><td>Day to day basis (till commissioning for all the 5,485 biogas units.)</td></tr><tr><td>Number of operating 2 m^3 systems</td><td>Day to day basis</td></tr><tr><td>2 m^3 system average annual operating time</td><td>Annual (on sample basis)</td></tr><tr><td>Non-usage days of installed and operational biogas plants</td><td>Day to day basis</td></tr></table></td><td>Monitoring period: No change
Parameters & frequency of monitoring:

No Change</td></tr>
<tr><td>Emission Reduction</td><td>30,571 tCO_2</td><td>30,569 tCO_2
The emission reduction is rounded down in the revised MR. Please refer CAR-04</td></tr>
<tr><td>Crediting period (type / start date)</td><td>Type of CP: Renewable (7 years)
Start date of CP: 01/09/2006 (first CP)</td><td>No change</td></tr>
<tr><td colspan="3">Please refer to Appendix A of this report for details of each change between webhosted MR and the final MR for submission. The Verification Team has carried out the verification process based on the Webhosted MR and raised CARs/CLs against the project by issuing the verification protocol.
With the updated information and corrections done on final MR, the PP has addressed all the CARs /CLs that were raised by the Verification Team.
It is concluded that the Verification Team has reviewed the project in line with the VVS (version 05.0) and all the evidence, corrections, justifications and updating done on the final MR with respect to CARs /CLs raised are accepted and closed by the Verification Team, issuing the positive verification opinion for project registration.</td></tr>
</table>

TÜV Rheinland verification team considers the project description of the project contained in the approved revised PDD to be complete and accurate. The PDD complies with the relevant methodology, tools, forms and guidance at the time of PDD submission for registration.

3.1.2 The actual operation of the CDM project activity

As indicated above, the total number of biogas units installed is 5,485 out of 5,500 planned units. During the monitoring period, a total of 808 units were not operational due to the various repairs. In the 808 units, 283 units were totally dysfunctional which cannot be repaired for use again. Hence during the monitoring period 4,677

(5,485-808) units were functional or operational with intermittent repairs and maintenance. The details are verified from the InfoNeeds monitoring solution/P3/ & end user agreements/P4/ and found to be correct. The share of non-operational bio digesters were cross verified through sample survey also.

Some units were not in operational for some period in the monitoring period due to repair and maintenance. The units were later repaired by the end user and/or village volunteer and/or a staff of PP. However, the non-operational days were monitored, recorded and the considered in the emission reduction calculation. A total of 1,045,198 non-operational biogas days (which includes the dysfunctional plants) were recorded for the 5,485 biogas units in this monitoring period which leads to decrease of 25.10% from estimated emission reduction from PDD.

Project physical features (technology, project equipment, monitoring and metering equipment)	The project involves implementation of 5,500 numbers of 2 m^3 biogas units in the households of Bagepalli, Chickballapur, Chintamani, Gudibanda and Siddalaghatta Taluks of Chickballapur District, Karnataka State, India. The biogas units produce biogas by using the animal dung as feed. The produced biogas contains around 60% of methane and it is used for cooking and water heating and thereby replacing the non-renewable biomass & fossil fuel based cooking in the households The monitoring is day to day basis based on the observation and complaints and through yearly sampling. The monitoring does not involve any equipment. The project is implemented as described in the PDD and hence PP does not seek any approval of change in project design.	
Any Project Design Change been sought and approved by EB for the project?	☐ Yes ☒ No	No design change is sought in this project
Any Revision in Monitoring plan is sought and approved by EB for the project?	☐ Yes ☒ No	A revision to the monitoring plan in the registered PDD was sought by the project proponent. UNFCCC has approved the same on 27/09/2012 based on the revised PDD, version 03, dated 22/08/2012 submitted by PP.
Does the monitoring report provide line diagram showing all relevant monitoring points?	☒ Yes ☐ No	The monitoring does not involve any equipment. Hence no line diagram is necessary.

The timeline of the project's implementation is as follow:

Milestone of the project activity	**Timeline**	**Assessment by the verification team**
Starting date of operation: *(note: include mention of the technologies that were supposed to be implemented and whether they are implemented in the right time as specified in the registered PDD)*	05/01/2006	The project started only after the registration of the project activity. The first biogas unit commissioned on 05/01/2006. This is verified form the end user agreement/P4/ and InfoNeeds monitoring database/P3/.
Registration of the project activity	10/12/2005	The registration date is verified through the UNFCCC website http://cdm.unfccc.int/Projects/DB/DNV-CUK1131002343.1/view?cp=1
Crediting period		
1st monitoring period	01/09/2006 – 31/08/2007	Verified form the UNFCCC website: http://cdm.unfccc.int/Projects/DB/DNV-CUK1131002343.1/view?cp=1
2nd monitoring period	01/09/2007 – 31/07/2009	Verified form the UNFCCC website: http://cdm.unfccc.int/Projects/DB/DNV-CUK1131002343.1/view?cp=1

Milestone of the project activity	Timeline	Assessment by the verification team
3rd monitoring period	01/08/2009 – 31/07/ 2011	Verified form the UNFCCC website: http://cdm.unfccc.int/Projects/DB/DNV-CUK1131002343.1/view?cp=1
4th monitoring period	01/08/2011 – 31/08/2013	Current monitoring period

In summary, the monitoring period is reasonable and the actual implementation of the project activity is appropriate to its CDM development. The verification took cognizance of § 193, 194 & 195 of CDM Project Standard.

3.2 Compliance of the monitoring plan with the monitoring methodology including applicable tool(s)

The verification team determined against all the information provided in MR, whether in-line with the applied monitoring methodology.

Determination Requirements	Criteria fulfilled	Determination and reporting by the verification team
Any Deviation been sought and approved by EB for the project.	☐ Yes ☒ No	No deviation in monitoring plan is sought in this project activity.
Is complete set of data for the specified monitoring period is available	☒ Yes ☐ No	Yes the complete set of data for the specified monitoring period (01/08/2011 – 31/08/2013). The same is confirmed through verification of Infoneeds monitoring solution /P3/
Is the required information provided in the monitoring report has been cross-checked with other sources (ex – plant logbooks, inventories, purchase records, laboratory analysis)	☒ Yes ☐ No	Yes, all the data & information provided in the monitoring report has been crosschecked with Infoneeds monitoring solution /P3/
Is the calculation of baseline emissions and project activity emissions and leakage been in accordance with the formulae and methods described in monitoring plan and the applied methodology?	☒ Yes ☐ No	Yes, the calculation of baseline emission, project activity emission and leakage emission is in accordance with the formulae and methods given in the monitoring plan as well as the applied methodology AMS I.C, version 5.
Is all assumptions used for emission calculation have been justified	☒ Yes ☐ No	Yes, all the assumption used for the emission reduction calculation is fixed ex-ante in the registered PDD.
Is appropriate emission factors, IPCC default values and other reference values have been correctly applied	☒ Yes ☐ No	Yes, the emission factors, IPCC default values and other references have been correctly applied in the emission reduction calculation.

The DOE verification team is able to confirm that the monitoring plan contained in the revised PDD of 22/08/2012 is in accordance with the approved methodology applied by the project activity, i.e. AMS I.C (version 05).

3.3 Compliance of the Actual monitoring with monitoring plan in the PDD

The monitoring has been carried out in accordance with the revised monitoring plan accepted on 27/09/2012 contained in the approved PDD of 22/08/2012

Referring to the §196, § 197, § 198 and § 199 of CDM Project Standard, version 5.0, verification team confirms through sample survey during on-site verification and from the document review, the actual monitoring system complies with the monitoring plan mentioned in the approved PDD /B4/. According to the revised monitoring plan approved PDD, there are 4 monitoring parameters required to be monitored. The substantiation of this

conformity on information flow for these parameters including the values in the monitoring reports is reported in the following sections.

3.3.1 Monitored parameters

During the verification, all relevant monitoring parameters of the registered monitoring plan have been verified with regard to the appropriateness of the verification method, the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the section 4 of Table 1 of the verification protocol. After appropriate corrections, carried out by the project participant, it is confirmed that all monitoring parameters have been measured / determined without material misstatements and are in line with all applicable standards and relevant requirements.
Referring to §196, § 197, § 198 and § 199 of CDM Project Standard, version 5.0/B6/, the below tables provide a short summary on the verification of every parameter listed in the monitoring plan.

Ex-Post Parameters:

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Data / Parameter: (as in monitoring plan of PDD):	**Number of installed 2 m^3 systems** (Number of biogas units installed under the project activity)
Value	5,485 as on 1st August 2011
Measuring frequency/Time Interval:	Day to day basis from pre-commission till commissioning for all the 5,485 biogas units.
Reporting frequency:	Day to day basis from pre-commission till commissioning for all the 5,485 biogas units.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	NA
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it Board guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA
Company performing the calibration:	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
How were the values in the monitoring report verified?	The reported data is verified with the data available in the InfoNeeds monitoring system/P3/
If applicable, has the reported data been cross-checked with other available data?	It is cross checked with the number of end user agreement signed/P4/
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Data / Parameter: (as in monitoring plan of PDD):	**Number of operating 2 m^3 systems** (Number of biogas operating systems under the project activity)
Value	Of the constructed units, 283 units are dysfunctional, i.e. they cannot be repaired for use again. During the monitoring period, a total of 808 units were not operational for various repairs. By the end of the crediting period i.e. 31st August 2013, 4,677 (5,485-808) units were functional or operational with intermittent repairs and maintenance.
Measuring frequency/Time Interval:	Day to day basis
Reporting frequency:	Day to day basis
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	NA
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it Board guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA
Company performing the calibration:	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
How were the values in the monitoring report verified?	The reported data is verified with the data available in the InfoNeeds monitoring system/P3/
If applicable, has the reported data been cross-checked with other available data?	It is cross verified during site visit with the end users randomly. It is to be noted that this parameter is not used directly in emission reduction calculation as the non-operating biogas units are accounted as number of non-operating days (complete monitoring days in case of dysfunctional plats) in the parameter 'Non-usage days of installed and operational biogas plants' and then used in the emission reduction calculation
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	Assessment/ Observation by the DOE
Data / Parameter: (as in monitoring plan of PDD):	**2 m^3 system average annual operating time** (Hours of operation of biogas units/day)
Value	3.19 hours/day
Measuring frequency/Time Interval:	Annual (on sample basis)

Reporting frequency:	Annual
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	NA
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it Board guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA
Company performing the calibration:	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
How were the values in the monitoring report verified?	The reported data is verified with the data provided in the in the PP's sample survey data sheet '*Velcan Survey 2012_2013.xlsx)*'/P8/
If applicable, has the reported data been cross-checked with other available data?	The verification team has cross verified the same through acceptance sampling of the PP's sample data. The DOE conservatively considers the Acceptable Quality Level of 1% and Unacceptable Quality Level of 10% with alpha and beta at 5%. Based on this, the verification team determined the acceptance sample size as 61. This is inline with the requirement of '*Sampling and surveys for CDM project activities and programmes of activities'*, version 03. Hence the verification team has done sample survey in 84 (more than the required sample size) households out of the 200 households surveyed by the PP to check the average annual operating time of the biogas system. It is found that all the data were matching with PP's survey data and no error found. Hence the value average annual operating hour provided is correct and appropriate. Moreover, it is to be noted that this parameter is just an indicative parameter and not used for emission reduction calculation.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

Monitoring Parameter Requirement	**Assessment/ Observation by the DOE**
Data / Parameter: (as in monitoring plan of PDD):	**Non-usage days of installed and operational biogas plants** (Based on the number of days some of the biogas units did not function due to: repairs, family not in the village or dung not fed into the digester.)
Value	Please refer ER calculation sheet
Measuring frequency/Time Interval:	Day to day basis by the Balakendra Teachers or the health

	workers at village level, which is entered into the ADATS database – InfoNeeds for all the biogas units.
Reporting frequency:	Day to day basis
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment:	NA
Is accuracy of the monitoring equipment as stated in the PDD? If the PDD does not specify the accuracy of the monitoring equipment, does the monitoring equipment represent good monitoring practise?	NA
Calibration frequency /interval: Is it Board guidance / local or national standards / manufacturers specification	NA
Is the calibration interval in line with the monitoring plan of the PDD? If the PDD does not specify the frequency of calibration, does the selected frequency represent good monitoring practise?	NA
Company performing the calibration:	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No):	NA
Is (are) calibration(s) valid for the whole reporting period?	NA
How were the values in the monitoring report verified?	The reported data has been verified against daily log book records/P9/ for monitoring of biogas units by Balakendra teacher for operational and non-operational hours and also from InfoNeeds Monitoring database./P3/
If applicable, has the reported data been cross-checked with other available data?	The data is cross verified with the 84 sampled end user households during site visit and found that the data provided is correct. Validation team did not find any discrepancy in the data reported for the selected households and hence accepted the data submitted with respect to the installation and non-operating days that have been used for emission reduction calculations/P2.2/
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes
In case only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

In summary, verification team confirms that all the ex-post parameters are monitored in accordance to the approved monitoring plan and applied methodology. The verification took cognizance of § 197,198 and 199 of CDM Project Standard, version 5

Ex-Ante Parameters:

Ex-Ante Parameter:	**Baseline emission per household/year** **(**Baseline emissions per household with a 2 cum biogas system that replaces fuel wood and kerosene in the baseline)
Default values used:	3.56 tCO2
Source and Verification of the source:	This value is estimated in registered PDD and is fixed throughout the crediting period. The registered PDD is verified and found that the value consider in MR is consistent with PDD.

Verification team confirms that ex-ante parameters claimed are in accordance to the approved monitoring plan and applied methodology.

3.3.2 Monitoring responsibility

ADATS is responsible for the operation and maintenance of the project and data collection. ADATS has sufficiently established management procedures and has implemented them effectively to ensure that the process is consistent and the same has been verified to be in place by verification team on site. The procedures cover management responsibilities, data monitoring procedures, training procedures, periodical internal audits, management reviews and corrective actions in case of any deviations.

Verification team confirms from the discussions that were held during the site visit that the responsibilities and authorities in the management and operational system for monitoring and reporting are in accordance with the responsibilities and authorities as detailed in the PDD approved by EB/B4/ and complies with the monitoring plan as per the PDD.

All the data have been measured as specified in the registered PDD/B4/. The monitored data are archived partly in electronic form. The archived data will be kept for the whole crediting period and 2 years after the crediting period.

3.3.3 Accuracy of equipment

No equipment is used in monitoring any parameter.
However for the accuracy of the data, the validation team assessed daily log book records for monitoring of biogas units by Balakendra teacher for operational and non-operational hours/P9/, InfoNeeds database/P3/ at ADATS head office in Bagepalli for the biogas units and the end user agreements between ADATS and biogas unit users/P4/. All the data are also available in hardcopies as well as in electronic format and were evidenced during the verification process. As detailed in section 2 above, during the site visit verification team visited the households for inspection of the Biogas digesters installed and checked the records as per the sample households selected. Verification team did not find any discrepancy in the data reported for the selected households and hence accepted the data submitted with respect to the installation and non-operating days that have been used for emission reduction calculations/P2.2/.

3.3.4 Deviation from and/or Revision of the registered monitoring plan

A revision to the monitoring plan in the registered PDD was sought by the project proponent. In which, the monitoring parameter '*Energy produced by a sample of the systems*' is removed and a new parameter '*Non-usage days of installed and operational biogas plants'* is included. The revision in monitoring plan is validated by DNV and approved by UNCCCC on 27/09/2012 based on the revised PDD, version 03, dated 22/08/2012 submitted by PP/B4/.

3.4 Assessment of data and calculation of greenhouse gas emission reductions

The calculation, applied formulae and the method for calculation of baseline emissions are in accordance with the approved PDD/B4/ and are in line with the requirements of the applied methodology (AMS I.C, version 05/B1/). The formulae and the methods referred in the MR and the emission reduction calculation spread sheet for estimation of emission reduction complies with the corresponding formulae and methods in the approved PDD (section E)/B4/.
The ex-ante and validated fixed value of Baseline emission per household/year (3.56 tCO_2e, approved PDD/B4/) is taken into account for the emission reduction calculation.

Project emission:
No project emission as per approved PDD/B4/

Leakage:
No leakage as per approved PDD/B4/

Baseline Emissions/Emission reduction:
Since project emission and leakage are zero, the baseline emission is equal to emission reduction.

As per approved PDD, the emission reduction is calculated as follows:

$$ER_y = \sum_{n=1}^{N}(OS_y \times \frac{EM_y}{365} \times number.of.operational.days)$$

Where,

Parameter	Description	Value for this MP	DOE assessment
ER_y	Yearly Emission Reductions (tCO_2)	30,569 tCO_2	It is calculated as per the equation provided in the PDD. Emission reduction calculation sheet/P1.2/ is verified. The final emission reduction is rounded down to be conservative. The verification team found that the calculation is correct, tractable and conservative.
OS_y	2 m^3 operating system in year y.	4,677	From the InfoNeeds monitoring database it is found that 808 units were non-operational completely during the monitoring period in which 283 units were totally dysfunctional and cannot be repaired, Hence 4,677 (5,485-808) units were considered as functional or operational with intermittent repairs and maintenance. Hence the value provided is correct It is to be noted that this parameters are accounted as number of non-operating days (complete 762 monitoring days considered as non-operating days in case of dysfunctional plats) in the parameter 'Non-usage days of installed and operational biogas plants' and then used in the emission reduction calculation
N	Number of biogas units	5485	The total number of biogas units installed is verified form InfoNeeds monitoring solution as well as the end user agreement and found to be correct.
EM_y	Baseline emissions per household with a 2 m^3 biogas system.	3.56 t CO_2e	Approved PDD is verified and found that the value is consistent with the value fixed in ex-ante. Hence it is correct.

Hence baseline emission/emission reduction calculated in the MR is correct.

The estimated emission reduction for this monitoring period is 40,820 tCO_2e (based on the annual emission reduction in registered PDD). However during this monitoring period, the reported CERs are only 30,569 tCO_2e which is 25.1% lesser than the estimated emission reduction as per PDD. The verification team confirms that the emission reductions are real and measurable.

No reporting risks have been identified for the data reported. The operational procedures for training, emergency preparedness, maintenance and calibration of monitoring equipments, monitoring measurements and reporting, record handling and maintenance, reviewing monitored data, project performance reviews and corrective actions are available at the plant.

The spread sheet of calculation of emission reductions complies with the criteria set in § 10 (b) of "Guidelines on completeness check of request for issuance" (version 01), Annex 68, EB 48. All the monitored data are archived in electronic form. The data will be kept for the whole crediting period and 2 years after the last crediting period thereby meeting the requirement of the PDD and also complying the requirements of § 17 (a) of

"General guidelines to SSC CDM methodologies", version 17. The meter readings are directly taken and applied, thus there are no material errors in the emission reduction claim as per "Guidelines on the Application of Materiality in Verifications, Version 01.0". The verification team has checked and confirms that all the meters are calibrated. Thus conclude no material risks in the claimed emission reduction for the applied period.

Against the Guidelines on the Applicability of Materiality in Verifications, version 01, the verification team further assessed the materiality in verification on the project activity and interpreted as follows:

Reference	Requirement	Verification team assessment
Section 10	The CMP materiality decision prescribes the thresholds for the application of materiality in verifications, by defining that information is material if it might lead, at an aggregated level, to an overestimation of the total emission reductions or removals achieved by a CDM project activity equal to or higher than: (a) 0.5 per cent of the emission reductions or removals for project activities achieving a total emission reduction or removal of equal to or more than 500,000 tons of carbon dioxide equivalent per year; (b) 1 per cent of the emission reductions or removals for project activities achieving a total emission reduction or removal between 300,000 and 500,000 tons of carbon dioxide equivalent per year; (c) 2 per cent of the emission reductions or removals for large-scale project activities achieving a total emission reduction or removal of 300,000 tons of carbon dioxide equivalent per year or less; (d) 5 per cent of the emission reductions or removals for small-scale project activities other than project activities covered under subparagraph (e) below; (e) 10 per cent of the emission reductions or removals for the type of project activities referred to in decision 3/CMP.6, paragraph 38 (referred to as microscale project activities).	The project activity is a small scale project activity. As per registered PDD/B4/, the estimated CERs of the project is 19,553 tCO_2e annually, thus meets the item (d) of the para 10 in the Materiality guideline/B12/. Therefore, the threshold for the application of materiality in this verification is 5 per cent as per guideline/B12/.
Section 24	The DOE should describe in its certification/certification report the risks, the risk assessment undertaken and how the verification and sampling plans were designed to respond to these risks and ensure that all material errors, omissions or misstatements were detected.	The risk assessment has been undertaken by the verification team by means of onsite physical inspection, stakeholder's interview and document review to all the respective data source data/P3/ The acceptance sampling survey was conducted by verification team and found that there is no error found in PPs sample data. The verification team is able to confirm that all parameters are properly monitored, the accuracy of all the data reported in the ER spread sheet/P2.2/ has been completely verified against the monitored data/P3/, the data management system and QA/QC process are carried out appropriately. Thus no material errors, omissions or misstatements were detected by the

		verification team during the risk assessment.
Section 25	The DOE should also describe whether and how the verification and sampling plans were revised to take into account the need for further audit procedures due to the nature/type of errors, omissions or misstatements detected.	Only the parameter '2 m^3 system average annual operating time' is monitored though sample basis by PP. The same is verified through accepance sampling and found that the data are correct. However this parameter is not used for emission reduction calculation. All paramter used for emission reduction calculation are monitored 100% by PP on day to day basis.
Section 26	The DOE should also document how materiality was applied in determining whether a detected error, omission or misstatement was material or immaterial either individually or in aggregate.	N/A, as verified before, no material errors, omissions or misstatements were detected by the verification team during the risk assessment.
Section 27	The DOE should state in its certification/certification opinion that the claimed emission reductions or removals are free from material errors, omissions or misstatements, with a reasonable level of assurance.	Refer to Certification statement of this report.

3.4.1 Assessment of actual emission reductions with the estimate emission reductions in PDD

The MR includes a comparison of the calculated actual emission reductions with the ex-ante calculated values in the registered PDD.

Estimated Emission Reduction as per Registered/Approved PDD:	**40,820 tCO_2**
Actual Emission Reduction for the Monitoring Period	**30,569 tCO_2**
Is any increase of CER's occurred?	No
Reason for Increase of CER's	NA

In summary, verification team confirms that actual emission reduction is 25.1% lower than the estimate of the approved PDD for the current monitoring period.
The cause for the decrease of CER's than the actual for the current monitoring period is been justified by the PP and the same is been verified and accepted by the Verification team. The verification took cognizance of § 201 & 202 of CDM Project Standard.

3.5 Issues remaining from the validation/previous verification period

The following FAR raised in 3rd verification report which needs to be checked in this verification period:

"During the site visit it was noticed that biogas digester ID number 8081 was non- functional .It is to be confirmed that this reflects as non-usage days in the next verification period."
The verification team checked the operational details of the biogas digester ID number 8081 and found that the project was not in operation from 1st Nov 2011 to 23rd Dec 2011 and 13th January 2013-2nd April 2013 (for 133 days) which include the DOE site visit days of previous verification. The same is verified against the InfoNeed monitoring solution. The same is accounted in emission reduction calculation sheet. Hence the FAR opened in the previous verification report is closed.

Appendix A

CDM Verification protocol

Bagepalli CDM Biogas Programme in India

to Report No. 01 997 9105077146

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1. Implementation					
1.1 Have all physical features proposed in the registered PDD been implemented at the project site? § 187 of CDM Project Standard	/P1.1/ /B4/	/DR/ /I/	The project has been implemented as described in the registered PDD except the total number of the bio digester unit where only 5,485 out of 5,500 units specified in approved PDD. This does not affect any eligibility condition of the project activity and the emission reduction is calculated based on the operational unit. The implantation status is confirmed during the site visit and found to be OK	OK	OK
1.2 Has the project activity been operated in accordance with the project scenario described in the registered PDD and relevant guidance? Reference: <http://cdm.unfccc.int/EB/033/eb33rep.pdf>, §75 § 185 of CDM Project Standard	/P1.1/ /B1/ /B4/	/DR/ /I/	Yes, the project has been operated in accordance with the project scenario described in the registered PDD and relevant guidance. This has been verified from the site visit interview and from document review.	OK	OK
1.3 If the project activity is implemented on a number of different locations, has the Monitoring report provided the verifiable starting dates for each site? § 188of CDM Project Standard	/P1.1/	/DR/ /I/	The project activity is implemented in Five Taluks of Chickballapur District namely Bagepalli, Chickballapur, Chintamani, Gudibanda and Siddalaghatta. Yes, the monitoring reports provide verifiable starting dates for all units.	OK	OK
1.4 Is the start date of monitoring period consistent?	/P1.1/ /P2.1/	/DR/ /I/	Yes, the start date of the project activity is consistent with the start date mentioned in the Infoneeds monitoring solution & the purchase orders.	OK	OK

[1] MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1.5 Is the monitoring report consistently filled with respect to all sections as required by its guideline of filling the monitoring report?	/P1.1/ /B7/	/DR/ /I/	Subject to closure of CAR-01	~~CAR-01~~	OK
1.6 Does the CER's obtained for the monitoring period within the limit of estimate in the registered PDD? Request for justification for higher estimated CER if not clarified.	/P1.1/ /P4/	/DR/ /I/	Yes. The CER achieved in this monitoring period is within the limit of estimated CERs specified in the PDD.	OK	OK
1.7 Is the monitoring system provided in line diagrams showing all relevant monitoring points?	/P1.1/	/DR/ /I/	Not applicable as no equipment involved in the monitoring .	OK	OK
2. Monitoring plan and methodology					
2.1 Is the monitoring plan established in accordance with the monitoring methodology? § 186 of CDM Project Standard	/P1.1/ /B1/	/DR/	Yes, the monitoring plan has been established under section C, Section D.2 & section D.3 of the MR which is in accordance with the monitoring methodology of I.C version 5 and in compliance with the registered PDD.	OK	OK
2.2 In case the implemented monitoring plan defers from the monitoring methodology, has any requests for revision to or deviation from the monitoring methodology been officially communicated to the CDM EB? Reference: § 209,210,211 of CDM Project Standard (for temporary deviation) § 212,213 of CDM Project Standard (for permanent change)	/P1.1/ /B1/	/DR/	The revised monitoring plan is approved by EB on 27/09/2012	OK	OK
2.2.1 Have the above changes to the monitoring plan been approved by the CDM EB?	/P1.1/ /B1/	/DR/	The revised monitoring plan is approved by EB on 27/09/2012	OK	OK
3. Monitoring and the monitoring plan					

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.1 Is monitoring established in full compliance with the monitoring plan, contained in the registered PDD (or new monitoring plan approved by the CDM EB)? § 229 of CDM Validation and Verification Standard	/P1.1/ /B1/	/DR/	Yes, the monitoring plan has been established under section C Section D.2 & D.3 of the MR is in compliance with the Section B.7 of the registered PDD. Hence § 191 of CDM Project Standard requirement is met.	OK	OK
3.2 Are all baseline emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	/P1.1/ /B1/	/DR/	Yes, all the baseline emission parameters monitored and updated in accordance with the monitoring plan, monitoring methodology and relevant CDM EB decision.	OK	OK
3.2.1 Was the monitoring equipment for baseline emission parameters controlled and monitoring results recorded as per approved frequency?	/P1.1/ /B1/ /B4/	/DR/	Not applicable as the no equipment is involved in monitoring any of the parameter.	OK	OK
3.2.2 Was the monitoring equipment for baseline emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	/P1.1/ /B1/ /B4/	/DR/	Not applicable as the no equipment is involved in monitoring any of the parameter.	OK	OK
3.3 Are all project emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	/P1.1/ /B1/ /B4/	/DR/	Not applicable as the project emission is zero	OK	OK
3.3.1 Was the monitoring equipment for project emission parameters controlled and monitoring results recorded as per approved frequency?	/P1.1/ /B1/ /B4/	/DR/	Not applicable as the no equipment is involved in monitoring any of the parameter.	OK	OK

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.3.2 Was the monitoring equipment for project emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	/P1.1/ /B1/ /B4/	/DR/	Not applicable as the no equipment is involved in monitoring any of the parameter.	OK	OK
3.4 Are all leakage emission parameters monitored and updated in accordance with monitoring plan, monitoring methodology and relevant CDM EB decisions?	/P1.1/ /B1/ /B4/	/DR/	Not applicable as the leakage is zero	OK	OK
3.4.1 Was the monitoring equipment for leakage emission parameters controlled and monitoring results recorded as per approved frequency?	/P1.1/ /B4/ /P4/	/DR/	The leakage is zero in this project activity. Moreover no equipment is used to measure the leakage emission parameter	OK	OK
3.4.2 Was the monitoring equipment for leakage emission parameters calibrated in accordance with QA&QC procedures described in the registered monitoring plan?	/P1.1/ /B4/ /P3/	/DR/	The leakage is zero in this project activity. Moreover no equipment is used to measure the leakage emission parameter	OK	OK
3.5 Were all monitoring parameters available and verifiable through the whole monitoring period?	/P1.1/ /P3/	/DR/ /I/	Yes, all the monitoring parameters are available and verifiable for the whole monitoring period and the same has been verified from onsite visit and review of supporting documents/.	OK	OK
3.5.1 In case, only partial monitoring data is available and PP(s) provide estimations or assumptions for the rest of data, was it possible to verify those estimations and assumptions? Reference: <http://cdm.unfccc.int/EB/026/eb26rep.pdf>, §109(b)	/P1.1/ /P3/	/DR/ /I/	The parameter '2 m^3 system average annual operating time' is monitored once in a year through sampling survey. This is cross verified through acceptance sampling during the site visit and found to be correct.	OK	OK

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
3.6 Was management and operation system established and operated in accordance with the monitoring plan?	/P1.1/ /B4/	/I/	Yes, The management and operation system established and operated in accordance with the monitoring plan	OK	OK
3.7 Was is it possible to verify that involved management and operation personal is fully aware of the responsibilities and perform all operations according to the registered monitoring plan and internally developed manuals?	/P1.1/ /P4/	/I/	All the management & operational personal involved are aware of their responsibilities and perform all operations according to the registered monitoring plan. The same is verified through interview with the personnel during site visit.	OK	OK
3.8 Does the monitoring system provide organizational structure, role and responsibilities, emergency procedures?	/P1.1/ /P4/	/DR/ /I/	Yes, the monitoring system provides detailed organizational structure, roles and responsibilities and emergency preparedness.	OK	OK
3.9 Does any uncertainties identified and addressed?	/P1.1/ /P4/	/DR/	No uncertainties are identified.	OK	OK
4. Parameters					
4.1 **Monitored parameter** Title: Number of biogas units installed under the project activity Indication: Number of installed 2 m3 systems Units: NA (number) Estimated value (*ex-ante*): 5,500 Measured value (*ex-post*): 5,485 (*Note: Refer to the approved Monitoring Plan and list all the parameters to be monitored separately, each parameter in individual row following the above format example . Pay particular attention on the consistency between the information on verification parameter in the monitoring report and the verification report.*)	/P1.1/ /B4/ /P3/	/DR/ /I/	The number of biogas system installed is based on the actual units installed in the project area by the project proponent. This was recorded in InfoNeeds monitoring solution whenever a new unit was constructed. The end user agreement is signed once the unit was constructed. The InfoNeeds monitoring solution as well as the end user agreement is verified to check the value of the parameter and found that the number of biogas unit installed is correct.	OK	OK

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
4.2 **Monitored parameter** Title: Number of biogas operating systems under the project activity Indication: Number of operating 2 m3 systems Units: NA (number) Estimated value (*ex-ante*): 5,500 Measured value (*ex-post*): 5,202 (*Note: Refer to the approved Monitoring Plan and list all the parameters to be monitored separately, each parameter in individual row following the above format example . Pay particular attention on the consistency between the information on verification parameter in the monitoring report and the verification report.*)	/P1.1/ /B4/ /P3/	/DR/ /I/	The biogas units went dysfunctional are monitored as and when it happens and the same is recorded in the InfoNeeds monitoring solution. So, the number of biogas operating system is calculated based on the difference between the total installed system and the systems went dysfunctional. Subject to closure of CL-02	~~CL-02~~	OK
4.3 **Monitored parameter** Title: Hours of operation of biogas units/day Indication: 2 m3 system average annual operating time Units: hours/day Estimated value (*ex-ante*): - Measured value (*ex-post*): 3.19 (*Note: Refer to the approved Monitoring Plan and list all the parameters to be monitored separately, each parameter in individual row following the above format example . Pay particular attention on the consistency between the information on verification parameter in the monitoring report and the verification report.*)	/P1.1/ /B4/ /P8/	/DR/ /I/	The Hours of operation of biogas units/day is monitored through sampling survey once in a year. The sampling method selected is stratified sampling. The value is verified through acceptance sampling survey during the site visit. However the formula used to calculate the sample size is not correct. Hence CAR-03 is raised	~~CAR-03~~	OK

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
4.4 **Monitored parameter** Title: Non-usage days of installed and operational biogas plants Indication: Non-usage days of installed and operational biogas plants Units: days Estimated value (*ex-ante*): - Measured value (*ex-post*): Specified in the ER calculation sheet. (1,045,198 days on total) (*Note: Refer to the approved Monitoring Plan and list all the parameters to be monitored separately, each parameter in individual row following the above format example . Pay particular attention on the consistency between the information on verification parameter in the monitoring report and the verification report.*)	/P1.1/ /B4/ /P3/	/DR/ /I/	The non-usage days are monitored on day to day basis with the help of end users, village volunteers and ADATS staffs. The date of starting of non-operational and date of restarting of operational of the unit are recorded in the InfoNees Monitoring solution. The InfoNeeds monitoring solution as well as the end user agreement is verified to check the value of the parameter. Also the same is confirmed through sample basis with the end users and village volunteers and found that the value provided is appropriate. Nevertheless CL-0 is raised	~~CL 04~~	OK
4.5 **Default parameter** Title: Baseline emissions per household with a 2 cum biogas system that replaces fuel wood and kerosene in the baseline Indication: Baseline emission per household/year Units: tCO2 Default/Used value: 3.56 (*Note: Refer to the approved Monitoring Plan and list all the default parameters separately, each parameter in individual row following the above format example. Pay particular attention on the consistency between the information on verification parameter in the monitoring report and the verification report.*)	/P1.1/ /B4/	/DR/ /I/	The value is estimated during the validation of the project and value is validated and found to be correct. The same is checked in the validation report and found to be consistent.	OK	OK
5. Calculations					

Checklist question	Ref.	MoV[1]	Findings, comments, references, data sources	Draft conclusion	Final conclusion
5.1 Have all the calculations related to the baseline emissions been carried according to the formulae and methods described in the registered PDD and applied methodology? § 194 of CDM Project Standard	/P1.1/ /P2.1/ /B1/ /B4/	/DR/	As per the PDD and the methodology, the emission reduction is calculated directly as follows: $ERy = \sum_{n=1}^{N}(OS_y \times \frac{EM_y}{365} \times number.of.operational.days)$ All the values are verified to be correct. Thus it is confirmed by the DOE that all the calculation related to baseline emission has been carried out according to the formula and methods described in the registered PDD and applied methodology. Nevertheless CAR-04 is raised	~~CAR-04~~	OK
5.2 Have all the calculations related to the project emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	/P1.1/ /P2.1/ /B1/ /B4/	/DR/	Not applicable as the project emission is zero.	OK	OK
5.3 Have all the calculations related to the leakage emissions been carried according to the formulae and methods described in the registered PDD and applied methodology?	/P1.1/ /P2.1/ /B1/ /B4/	/DR/	Not applicable as the leakage emission is zero.	OK	OK

List of Requests for Corrective Action (CAR) and Clarification (CL)

No.	Type of request	Observation	Reference (Table 1)	Summary of project owner response	Verification team conclusion
1.	CAR	MR-Front Page: The latest version of MR template available is version 3.2. However PP has used the older version (ie, version 3.1) of the MR template. So split up details of emission reduction (ie, ER achieved up to 31/12/2012 & ER achieved from 01/01/2013) is missing in the table.	1.5	The Monitoring Report is now provided on the latest version of MR template 3.2. Further, the split up details of emission reduction is provided in the revised Monitoring Report.	The PP has now updated the current MR with the requirements of the latest MR template (ver 3.2). CAR-01 is closed
2.	CL	MR-Section A1: It is mentioned that 282 biogas units become dysfunctional. However as referred from the ER calculation sheet, there are 808 units which are not functional for more than two years. Please clarify why all the units are not considered as dysfunctional.	4.2	During the Monitoring Period, 283 units were dysfunctional, i.e. they cannot be repaired further for use. The rest of the 808 units (808-283 = 525) are non-operational as it requires repairs and can be fixed for making them operational. This has been corrected in the monitoring report. Of course, the emission reduction calculations have been accounted only for the 4,677 units which were functional or operational with intermittent repairs and maintenance.	The justification provided is acceptable. Moreover the emission reduction is based on the days of operation for any unit. Hence the details of the number of dysfunctional units do not directly affect the emission reduction. CL-02 is closed
3.	CAR	MR-Section D.3.1: 1. The reliability requirements and the target parameter are missing in the description of sampling design. 2. The formula used for the sample size calculation is applicable for the percentage parameter where the expected proportion of the operating biogas units is considered for calculation of the sample size. But the parameter that is to be determined from sampling survey is 'average annual	4.3	1. The target parameter is average operating time (in hours) of biogas units. The reliability requirement is 90%. This has been added in the revised monitoring report. 2. The formula has been corrected to determine the sample size based on the mean and standard deviation of the parameter. This is included in the revised Monitoring Report.	1. The reliability requirement is mentioned as 90% in the MR which is acceptable as the project is small scale project. 2. The sample size calculation is now provided for based on the mean value (ie, average annual operating time'.

		operating time' which is a mean parameter. Hence the formula used to calculate the sample size is not correct.		However, based on the calculations, the number of households sampled is much more than the determined sample size.	The sample size is recalculated based on the revised formula and found that the required sample size is only 6 which is much lesser than the actual sample done (ie 200) by PP. CAR-03 is closed
4.	CAR	MR-Section E.4: The emission reduction are not are not rounded down hence the emission reduction arrived are not conservative.	5.1	The total emission reductions have been rounded down for both the calendar years and then added to arrive at conservative emission reductions. Now the total emission reduction is revised to 30,569 tCO_2 from the earlier 30,571 tCO_2 in version 1 of the Monitoring Report.	The emission reduction is now rounded down now. Hence the emission reduction calculated is conservative. CAR-04 is closed
5.	CL	Verification Report of 3rd Monitoring period: As per the FAR-01 raised in the verification report of the third monitoring period (prepared by DNV Climate Change Services AS (DNV), Report number PRJC-349639-2011-CCS-IND, dated 12/03/2013), the bio digester ID number 8081 was non-functional during the DOE site visit of 3rd verification which falls under current monitoring period. Please clarify how the non-operating days are addressed in the current monitoring period	-	As can be seen from the CERs calculations sheet, the unit ID 8081 was non-operational for 133 days. Based on the Breakdown log, the unit was not operational from 1st Nov 2011 to 23rd Dec 2011 and 13th January 2013-2nd April 2013 (which was during the site visit for the previous verification). This is also reflected in the ADATS Monitoring Solution. ERs have not been estimated for the non-operational days. Kindly see Operating Units sheet, Row 1839 in the CERs calculations sheet.	The verification team checked the operational details of the biogas digester ID number 8081 and found that the project was not in operation from 1st Nov 2011 to 23rd Dec 2011 and 13th January 2013-2nd April 2013 (for 133 days) which include the DOE site visit days of previous verification. The same is verified against the InfoNeed monitoring solution. The same is accounted in emission reduction calculation sheet. CL-05 is closed

Table 3: List of forward action requests (FARs)				
FAR number	Observation	Reference	Summary of project participants' response	Verification team conclusion
	NA			

Appendix B

Certification statement

to the Verification Report 01 997 9105077146

Certification statement

TUV Rheinland (China) Ltd., the DOE, has performed the verification of the registered CDM project activity "UNFCCC Registration № 0121", "Bagepalli CDM Biogas Programme" in India. The project activity is designed to generate emission reductions by avoiding non-renewable biomass and fossil fuel based cooking in households.

The project participants are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project. It is DOE's responsibility to express an independent verification statement on the reported GHG emission reductions from the project. The DOE does not express any opinion on the selected baseline scenario or on the validated and registered PDD. The verification is carried out in-line with the VVS requirements.

The verification was performed to identify the compliance of the project activity with implementation and monitoring requirements, and to verify the actual amount of achieved emission reductions, through obtaining evidence and information on-site that included i) checking whether the provisions of the monitoring methodology and the monitoring plan were consistently and appropriately applied, ii) the collection of evidence supporting the reported data and iii) emission reductions that are claimed is free from material errors, omissions or misstatements.

The verification is based on:

— PDD version 02, registered with the CDM Executive Board on 10/12/2005 and its monitoring plan;

— Approved revised PDD, date 22/08/2012; approved by EB on 27/09/2012 and its monitoring plan

— Approved monitoring methodology AMS I.C "Thermal energy for the user", version 05;

— Approved validation report, dated 30/10/2005;

— Approved Validation opinion of Post registered change, dated 23/08/2012 approved on 27/09/2012

— Previous approved verification reports;

— Monitoring reports version 02, dated 06/02/2014 and its supporting documents.

This statement covers verification period of 762 days between 01/08/2011 and 31/08/2013.

The DOE has raised 02 clarification and 03 corrective action requests, all of which have been successfully resolved by PPs. No Forward action requests is raised

The DOE considers necessary to give reasonable assurance that reported GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology and the revised approved monitoring plan contained in the revised approved PDD are fairly stated.

The breakdown of the emission reductions for the monitoring period has also been clearly demonstrated, with emission reduction for second commitment period calculated using the latest GWPs and the following is verified to be correct :

Actual emission reduction for the monitoring period up to (and including) 31 December 2012	21,118 tCO_2
Actual emission reduction for the monitoring period from (and including) 1 January 2013	9,451 tCO_2

The DOE , hereby certifies that the project activity, achieved emission reductions by sources of GHG equal to 30,569 tCO_2 equivalent and all monitoring requirements have been fulfilled.

The DOE states that the Claimed emission reductions are free from material errors, omissions and misstatements with a reasonable level of assurance.

11/03/2014 Date	10/03/3014 Date	07/03/2014 Date
Mr. Henri Phan DOE Manager TUV Rheinland (China) Ltd.	Ms. C Indumathi Technical Reviewer TUV Rheinland (India) Pvt. Ltd	Mr. R Narendra Kumar Team Leader TUV Rheinland (India) Pvt. Ltd

Appendix C

CERTIFICATES OF COMPETENCE

Qualification

R, Narendra Kumar /

Emission Trading
United Nations Framework Convention on Climate Change

(The following data is set by the certification body)

Auditor No.:
(AuditorenRegNr)

Appointed: (Zugelassen)	ja	Qualification Level: (Qualifikationsstufe)	Lead Auditor
External: (Externer)		Add. reviewer: (Zusätzlicher Prüfer)	
EAC Scopes: (EAC Branchen)	CDM 03 - Energy demand CDM 01 - Energy industries (renewable - / non-renewable sources)		
Add. qualification: (zus. Qualifikation)			
First Appointment: (Erstberufung)	05/15/2012	Valid to: (Gültig bis)	05/14/2015

Remarks:	TA. 1.2, 3.1
Languages:	Tamil English Hindi

Experience Exchange

Date	Location	Remarks	Accreditation(s)

Monitoring

Latest Monitoring: (letzte Beurteilung)	Next Monitoring: (nächste Beurteilung)

Remarks:

History of scope allocation

Date: 2012-06-29
Change: EAC CDM removed; CDM added
By: Praveen Urs
Reason:

Date: 2012-06-28
Change: EAC CDM, CDM added
By: Praveen Urs
Reason:

History

Created:	06/27/2012 12:58:24 PM	Kaustubh Rane/Ind/TUV
Modified:	06/29/2012 06:18:45 PM ZE8	Praveen Urs/Chn/TUV
	06/28/2012 06:04:05 PM ZE8	Praveen Urs/Chn/TUV
	06/27/2012 12:58:53 PM	Kaustubh Rane/Ind/TUV

Qualification

Ramalingam, Murali /

Emission Trading
United Nations Framework Convention on Climate Change

(The following data is set by the certification body)

Auditor No.:
(AuditorenRegNr)

Appointed: (Zugelassen)	ja	Qualification Level: (Qualifikationsstufe)	Lead Auditor
External: (Externer)		Add. reviewer: (Zusätzlicher Prüfer)	
EAC Scopes: (EAC Branchen)	CDM 01 - Energy industries (renewable - / non-renewable sources) CDM 03 - Energy demand		
Add. qualification: (zus. Qualifikation)			
First Appointment: (Erstberufung)	15-05-2012	Valid to: (Gültig bis)	14-05-2015

Remarks:	TA 1.2 TA 3.1
Languages:	Tamil English

Experience Exchange

Date	Location	Remarks	Accreditation(s)

Monitoring

Latest Monitoring: (letzte Beurteilung)	Next Monitoring: (nächste Beurteilung)

Remarks:

History of scope allocation

Date:	2012-06-18
Change:	EAC CDM, CDM added
By:	Praveen Urs
Reason:	

History

Created:	18-06-2012 10:47:56	Kaustubh Rane/Ind/TUV
Modified:	18-06-2012 18:02:36 ZE8	Praveen Urs/Chn/TUV
	18-06-2012 18:02:33 ZE8	Kaustubh Rane/Ind/TUV
	18-06-2012 10:48:25	

Export to ICMS

Last Export:

Qualification
Mr. Anudeep Niranjan Thorat

Emission Trading
United Nations Framework Convention on Climate change

Appointed:	☒		
		Qualification level:	Technical Expert
External:	☒		
Scopes:	1 Energy industries (renewable / non renewable 5 Chemical Industry 11 Fugitive emissions		

Scope:	1.1; 5.1; 11.1;
Languages:	English Hindi Marathi
Legal requirements	☒

Validity:

First Appointment	2 July 2013	Valid To:	1 July 2016

Approved By:

Mr. Henri Phan	

History of Scope Allocation:

Date:	
Change:	
By:	
Reason:	

Qualification

C, Indumathi /

Emission Trading
United Nations Framework Convention on Climate Change

(The following data is set by the certification body)

Auditor No.:
(AuditorenRegNr)

Appointed: (Zugelassen)	ja	Qualification Level: (Qualifikationsstufe)	Lead Auditor
External: (Externer)		Add. reviewer: (Zusätzlicher Prüfer)	yes
EAC Scopes: (EAC Branchen)	CDM 01 - Energy industries (renewable - / non-renewable sources)		
Add. qualification: (zus. Qualifikation)			
First Appointment: (Erstberufung)	06-07-2012	Valid to: (Gültig bis)	06-05-2015

Remarks:	TA 1.2
Languages:	Tamil
	English
	Hindi

Experience Exchange

Date	Location	Remarks	Accreditation(s)

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next Monitoring:
(nächste Beurteilung)

Remarks:

History of scope allocation

Date: 2012-08-02
Change: EAC CDM added
By: Praveen Urs
Reason:

History

Created:	30-07-2012 12:45:55	Kaustubh Rane/Ind/TUV
Modified:	26-08-2013 14:58:11 ZE8	Henri Phan/Chn/TUV
	02-08-2012 17:58:28 ZE8	Kaustubh Rane/Ind/TUV
	30-07-2012 12:46:56	

Export to ICMS

Last Export:

Qualification

Tang, Walter /

Emission Trading
United Nations Framework Convention on Climate Change

(The following data is set by the certification body)

Auditor No.:
(AuditorenRegNr)

Appointed: (Zugelassen)	ja	Qualification Level: (Qualifikationsstufe)	Lead Auditor
External: (Externer)		Add. reviewer: (Zusätzlicher Prüfer)	

EAC Scopes: (EAC Branchen)
- CDM 01 - Energy industries (renewable - / non-renewable sources)
- CDM 02 - Energy distribution
- CDM 03 - Energy demand
- CDM 13 - Waste handling and disposal
- CDM 04 - Manufacturing industries

Add. qualification: (zus. Qualifikation)

First Appointment: (Erstberufung)	10/10/2011	Valid to: (Gültig bis)	09/10/2015

Remarks:	Appointed as Technical Reviewer for TA 1.1, 1.2, 2.1, 2.2, 3.1 Direct work experience. TA 4.3, 4.5, 13.1 based on Annex D para 9 of the Accrediation Standard
Languages:	Chinese simplified English

Experience Exchange

Date	Location	Remarks	Accreditation(s)

Monitoring

Latest Monitoring:
(letzte Beurteilung)

Next Monitoring:
(nächste Beurteilung)

Remarks:

History of scope allocation

Date: 2012-02-13
Change: EAC CDM added
By: Praveen Urs
Reason:

Date: 2012-02-13
Change: EAC CDM, CDM, CDM, CDM added
By: Praveen Urs
Reason:

History

Created:	12/06/2011 05:00:51 PM ZE8	Walter Tang/Chn/TUV
Modified:	07/06/2012 04:47:48 PM ZE8	Praveen Urs/Chn/TUV
	07/02/2012 03:08:57 PM ZE8	Praveen Urs/Chn/TUV
	07/02/2012 03:08:48 PM ZE8	Praveen Urs/Chn/TUV
	05/15/2012 03:30:46 PM ZE8	Nelly Yong/MY/TUV
	02/13/2012 08:00:10 PM ZE8	Praveen Urs/Chn/TUV
	12/06/2011 05:01:30 PM ZE8	Walter Tang/Chn/TUV