VERIFICATION & CERTIFICATION REPORT

For the CDM-GS Project Activity

Kolar Biogas Project
In
India

GS REF. NO. 670
CDM REF. NO. 4058

3rd Monitoring Period
01/01/2015 to 31/12/2015 (including both the days)

REPORT NO.

CDM.16.VER.001

Date of this issue: 21/09/2016	KBS Ref. No.: GS.16.VER.001		
Project Title:	Kolar Biogas Project		
Client:	Foundation myclimate - The Climate Protection Partnership		
Monitoring Period:	01/01/2015 to 31/12/2015 (including both dates)		
Summary:			

KBS Certification Services Pvt. Ltd. has performed the 3rd periodic verification of the GS-CDM project "Kolar Biogas Project" and Gold Standard Ref. Number GS 670. The verification includes confirming the implementation of the monitoring plan of the registered PDD and the application of the monitoring methodology as per CDM Methodologies: AMS.I.C ver. 18, AMS.I.E ver.3 and AMS.III ver.1. A site visit was conducted to check the implementation of registered monitoring plan and verify the data submitted in the monitoring report. KBS confirms the following has been reviewed;

(a) The registered/revised CDM PDD, GS Passport and the monitoring plan and the corresponding validation opinion;
(b) The CDM & GS validation reports;
(c) The applied monitoring methodology(ies);
(d) All supporting documents

KBS Certification Services Pvt. Ltd. Confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 37,534 tCO_2e emission reductions during the monitoring period 01/01/2015 to 31/12/2015 (including both the days).

Subject Group GS Verification **Version of GS rules: 2.0**	*Sectoral Scope(s):* *01,13*	*Methodology:* AMS.I.C ver. 18, AMS.I.E ver.3 AMS.III ver.1	
Verification Team:		***Monitoring report:***	
Team Leader	R Narendra Kumar	First version	18/02/2016
Local Expert	R Narendra Kumar	Final version	16/08/2016
Technical Expert (1.1)	R Narendra Kumar		
Technical Expert (13.1)	M P Kanal		
Independent Technical Reviewer Team		***Verification status:***	
Date: 11/07/2016			
Technical Reviewer	Sanjay Kandari	☐ Findings not closed.	
TR Expert (1.1, 13.1)	Sanjay Kandari	☐ Draft verification opinion	
Manager T&C		☒ Final verification opinion	
Date: 22/09/2016	Chetan Swaroop Sharma		
Authorized Signatory:			
Date: 23/09/2016			
Managing Director	KaushalGoyal	☒ No distribution without permission from client ☐ Unrestricted distribution ☐ Limited distribution	
Revision history:			
Date	*Rev. No.*		
31/08/2016	0		
21/09/2016	1		

Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CERs	Certified Emission Reductions
CH4	Methane
CL	Clarification Request
CO2e	Carbon dioxide equivalent
COP	Conference of Parties
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
ERs	Emission Reductions
FAR	Forward Action Request
GHGs	Greenhouse Gas(es)
GS	Gold Standard
GWP	Global Warming Potential
HH	Household
ISO	International Organization of Standardization
IPCC	Intergovernmental Panel on Climate Change
KBS	KBS Certification Services Pvt. Ltd.
KP	Kyoto Protocol
LE	Leakage Emissions
MR	Monitoring Report
MP	Monitoring Plan
PE	Project Emissions
PDD	Project Design Document
PS	Project Standard
PCP	Project Cycle Procedure
PPA	Power Purchase Agreement
SD	Sustainable Development
QA/QC	Quality Assurance/Quality Control
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation & Verification Standard

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1. INTRODUCTION

1.1 Objective

KBS has been commissioned by 'Foundation myclimate - The Climate Protection Partnership'to perform an independent verification of its registered CDM-GS project"Kolar Biogas Project"(GS No: GS 670 UNFCCC No: 4058) for the reported GHG emission reductions and reported SD parameter values for the given monitoring period 01/01/2015 to 31/12/2015 (both dates included). The Gold Standard projects must undergo independent third party verification and certification of emission reductions as the basis for issuance of Gold Standard Certified Emission Reductions (GS CERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the registered/revised PDD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The actual monitoring systems & procedures and monitoring report conforms with the requirements of the approved monitoring plan and the approved monitoring methodology;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.

1.2 Scope

The scope of the verification is the independent and objective review and ex post determination of the monitored reductions in GHG emission by the project activity along with assessment of GS indicators for sustainability criteria. The verification is based on review of monitoring report, supporting information and

(a) The registered/revised PDD, including the monitoring plan, GS Passport and the corresponding validation opinion(s);
(b) Previous verification reports, deviation requests, requests for revision of monitoring plan;
(c) Monitoring report for the monitoring period under verification including CER calculations sheets and all supporting documents;
(d) The applied monitoring methodology;
(e) Relevant decisions, clarifications and guidance from the CMP and the Gold Standard Board;
(f) All information and references relevant to the project activity's resulting in emission reductions
(g) Reference to the GS sustainability monitoring parameters

The project is assessed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures and related rules and guidance.

KBS has, based on the recommendations in the applicable version of Gold Standard Toolkit and CDM Validation and Verification Standard, employed a rule-based approach in the verification, focusing on the identification of significant reporting risks and the reliability of project monitoring.

1.3 Description of the Project Activity

Title of project activity	Kolar Biogas Project
Gold Standard Id	GS 670
Applied methodology	AMS.I.C ver. 18 AMS.I.E ver.3 AMS.III ver.1
Start date of crediting period	01/04/2012 (CDM crediting period start date)

Project Participants:	M/s SKG Sangha Foundation myclimate - The Climate Protection Partnership
Location of the project activity	Srinivaspur, Kolar, Mulbagal, Malur, and Bangarapettaluks of Kolar District, Karnataka State

The project activity is the installation of biogas plants (digesters) of 2 m^3 or 3 m^3 capacity each for single households having minimum of 2/3 cattle and place to build biogas digester in 5 taluks (Srinivaspur, Kolar, Mulbagal, Malur, and Bangarapet.) in Kolar District in Karnataka State. The biogas units will be fed by cattle dung generated from the households. The biogas stoves will replace the traditional fire wood stoves used for cooking and heating purposes. Thereby, it avoids the related CO_2 emission from the use of non-renewable biomass.

In the baseline situation, the cattle dung was dumped in the traditional open compost pit which results in decay and leading to methane emissions. Since in the project situation, the dung generated from cattle is used in bio-digester and the methane generated from the digester is burnt in cooking stove, the project also results in avoidance of methane emission. The PP planned to install biogas units in 9,380 households in which 6,403 units were commissioned at the end of this monitoring period ie, 31/12/2015.

2. VERIFICATION TEAM

2.1 Verification Team Member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	Narendra Kumar	R	Central Office	x	x	x	x
2.	Technical Expert	IR	Kanal	M P	Central Office		x	x	

2.2 Technical reviewer and approver

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Kandari	Sanjay	Central office
2	Manager Technical & Certification	IR	Sharma	Chetan Swaroop	Central Office
3.	Approver	IR	Goyal	Kaushal	Central Office

3. METHODOLOGY

KBS follows a rule based verification approach, wherein, as a first step, the contract review is undertaken as per latest version of CDM Accreditation Standard. Subsequently, after the contract is signed,the monitoring report of the project activity is made available at Gold Standard registryas per CDM procedures in accordance with Gold Standard rules. Since the Gold Standard prescribes the application of CDM rules and guidelines which are followed along with the Gold Standard rules.

A desk review of the project documentation is undertaken, which is followed by an onsite visit by the members of verification team in accordance with the latest version of CDM AS. The verification protocol is filled by the verification team that is based on standard auditing practices and latest version of CDM VVS, to capture the assessment of applicable CDM requirements viz., latest version of CDM Project Standard, registered PDD, applied methodology/ies and/or tools and recent decisions. The verification protocol provides transparent means to record the observations and compliances by the verification team members and the nonconformities, if any. The verification protocol is an internal document, and is available on request. Following are the major milestones for the verification under consideration.

Duration of verification

Verification Contract	27/01/2016
On site verification	21/06/2016 & 22/06/2016

Draft Verification Report	31/08/2016
Final Verification Report	21/09/2016

3.1 Review of Documentation

A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section 'References'

3.2 Site Visits

A site visit is undertaken by members of verification team, involving but not limited to,

- An assessment of the implementation and operation of the proposed CDM GS project activity as per the PDD;
- A review of information flows for generating, aggregating and reporting the monitoring parameters;
- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the approved monitoring plan;
- A cross-check between information provided in the monitoring report and data from other sources such as plant log books, inventories, purchase records or similar data sources;
- A check of the monitoring equipment, including calibration performance and observations of monitoring practices against the requirements of the PDD and the selected methodology;
- A review of calculations and assumptions made in determining the GHG data and emission reductions;
- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

The site visit for this verification assessment was undertaken by Narendra Kumar (Team Leader & Technical Expert for 1.1 and Local Expert) *&* M P Kanal (Technical Expert 13.1) and details are mentioned below;

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	K	Kiran Kumar	Secretary – M/s SKG Sangha	21/06/2016 & 22/06/2016	- 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 uncertainty and residual risks - Procedural aspects of the Monitoring - Maintenance - Data analysis - Issues in the MR - ER calculation	R Narendra Kumar, MP Kanal
2	Reddy	Srinivasa	Co-ordinator, SKG Sangha	21/06/2016 & 22/06/2016		
3	Reddy	Kempa	Quality Manager, SKG Sangha	21/06/2016 & 22/06/2016		
4	S K	Umesh	Treasurer	21/06/2016 & 22/06/2016		
5	-	Ashok	User, Kanchala Village	21/06/2016	- Verification of data collected through survey - Awareness about ownership of CERs - Working condition of bio-digester unit - SD parameters verification	
6	-	Sudharani		21/06/2016		
7	-	Gopalakrishna	User, Karamanahalli Village	21/06/2016		
8	-	Bhagyamma		21/06/2016		
9	-	Krishnappa		21/06/2016		
10		Basappa		21/06/2016		
11	-	Nagesh		21/06/2016		
12		Ambrasha		21/06/2016		
13	-	Shankar Rao	Kolamuru Village	21/06/2016		
14	-	Raghu Rao		21/06/2016		
15	-	Lakshman Rao		21/06/2016		
16	-	Narayana Rao		21/06/2016		
17	-	Srinivas	User, Ganiganahalli Village	22/06/2016		
18	-	Sathish		22/06/2016		
19	-	Amaravathi		22/06/2016		
20	-	Muniraj		22/06/2016		
21	-	Manjula		22/06/2016		
22	-	Suma		22/06/2016		
23	-	Padma		22/06/2016		
24	-	Ramesh		22/06/2016		
25	-	Anuradha		22/06/2016		
26		Rajathamma	User, S. Agrahara Village	22/06/2016		
27		Shanthamma		22/06/2016		
28		Nagappa		22/06/2016		
29		NarayanaSwamy		22/06/2016		

Other than the verification of the SD parameters some general questions were asked to the stakeholders/end users during the site visit. The questions asked and the answers received from the stakeholders given below:

Questions asked	**Summary of response received from stakeholders/end users**
Is the bio-digester is in working conditions?	Yes
Is the bio-digester is really beneficial to you?	Yes
What are the benefits you enjoyed because of the bio-digester?	• No smoke in the kitchen • Clean & neat kitchen • No soot in the cooking vessels • Time saving from cooking & fuel wood collections • Money saving • Reduction in chemical fertilizer to some extend
Training received from SKG Sangha?	Yes. For operation & maintenance.

3.3 Reporting of Findings

During the course of verification the findings may be raised as under;

CAR is raised if one of the following occurs:

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

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

FAR is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

The verification report contains (section 7) all CARs, CLs and FARs raised during this verification in transparent manner and provides clear information of the issues raised, response received and its resolutions, including the changes in the documents. Additionally, major changes between the webhosted MR and final MR are presented under Section 6 (below the Reference) for easy reference.

3.4 Verification Assessment

Based on the desk review and site visit the team leader follows the verification protocol to identify and record the findings in the context of the project activity. The findings are communicated to the client in the findings document (section 7 of report). The project documentation, including responses to the findings is reviewed by the team leader in consultation with team members, wherever appropriate. The team leader prepares the draft verification report subject to closure or non closure of the findings.

3.5 Internal Quality Control

The draft verification report prepared by team leader is reviewed by an independent technical reviewer (having competence of relevant technical area himself/herself or through an independent technical area expert) to confirm the internal procedures established by KBS are duly followed and

the verification report/opinion is reached in an objective manner and complies with the applicable CDM requirements.

The independent technical reviewer may approve or reject the draft verification report. The findings may be identified even at this stage, which needs to be satisfactorily resolved, before the request for issuance is submitted to Gold Standard. The final decision is taken by the Manager Technical and Certification. The technical reviewer and Manager T&C can be same person.

The final decision is authorized by Managing Director, KBS once the report is approved by the Manager T&C.

3.6 Sampling Approach

During the on-site verification a sampling approach has been used by the verification team to verify the reported values for the monitored parameters as listed in GS MR which are determined through sample survey. Verification team has determined acceptance sample size for all the sample survey parameters based on the table 1 of standard “Sampling and surveys for CDM project activities and programmes of activities” version 5. Considering AQL - 1%, UQL - 15%, producer risk – 10% & consumer risk – 10%, the verification team determined the minimum sample size (n) as 25 and acceptance number (c) as 1. The same is intimated to PP prior to the site visit. During verification, verification team had conducted survey in 25 households of beneficiery among the PP’s sample population of 275. Verification team checked the emission reduction paramters along with the sustabilablity paramters monitored though sample basis. From the acceptance sample survey, verification confirms that none of the monitored value falls beyond unacceptable quality level. Hence verification team accepts all the sample data provided by PP.

4. VERIFICATION FINDINGS

4.1 Remaining Issues (FARs from Previous Validation or Verification)

Discussion:

This is the 3rd periodic verification of the project activity. There is no FAR raised in the Verification report of 2nd periodic verification.

Findings: No finding

Opinion: No remaining issues pending

4.2 Compliance of project implementation with registered PDD

Discussion:

The project involves implementation of 2 m^3 and 3 m^3 DeenBandhu type Bio-digester in the Srinivaspur, Kolar, Mulbagal, Malur, and Bangarapettaluks of Kolar district. The first unit was commissioned on 07/03/2012. At the end of the monitoring period (ie, 31/12/2015), 6,403 units have been installed in which 1416 units are 2 m^3 size units and 4887 units are 3 m^3.

The verification team has reviewed the biogas application form, completion certificates and end user agreements. The verification team has observed at the site that all physical locations of the bio-digesters on sample basis and found that the details are correctly matching with the monitoring report and monitoring records maintained by PP. The type of the digester installed and the locations are consistent with the PDD. Thus the verification team has concluded that the project activity was implemented and operated as per revised approved PDD. The verification team, based on the site visit and document review, was able to conclude that the project activity has been commissioned and implemented as per the validated PDD and that all physical features of the project are in place

Findings: No findings

Opinion:

The implementation and operation of the project activity is in compliance with the description in the revised PDD.

4.3 Evaluation of SD parameters

The verification team checked the sustainable development indicator parameters during the site visit and interview. Following Include the discussion on any additional parameters that are monitored in accordance with the monitoring plan for sustainability indicators as referred in the revised Gold Standard Passport (version 4, 03/12/2015) and monitoring report (version 1.1, dated 16/08/2016).

Monitoring sample survey:

Some of the SD parameters are monitored through sample survey during the monitoring period. The verification team checked whether the PPs have applied a sampling approach to determine the monitored values. For the parameters determined through sampling, the verification team checked the sampling approach followed for each monitoring parameters to confirm the sampling plan mentioned in the revised approved PDD.
The comparison of sample size required

Sample size required (calculated based on 90/10 confidence/precision level and previous monitoring result)	Actual sample size considered for survey	Is sample size is sufficient?
125	276	Yes

The verification confirmed that the sample size considered for the survey is found to be appropriate.

SD Parameters:
As per the sustainability monitoring plan in the approved revised GS passport, verification team evaluate all sustainable development indicators as followed table:

No	Indicator	Chosen parameter in the registered GS Passport and monitoring report	Way of monitoring	Verification Team's opinion	Verified score
1.	Air Quality	a) How many days in a year and how many hours a single burner is used per day the plant is functioning b) Reduction in incidence of hospitalization	Sample survey	The number of days in a year and number of hours per day the biogas single burner used are monitored through sample survey. Verification team checked all the sample survey sheets and found that the details provided in the excel sheet is correct. Verification team also conducted acceptance sample survey in 25 numbers of households and found no error in the parameter values monitored by PP. Hence, the verification team accepts the value provided by PP. As per the survey results, the beneficiaries uses the biogas stoves are used in 3.25hours/day in all 365 days in a year by the beneficiaries. Also all households experience reduction in incidence of hospitalization during the monitoring period. From comparing the monitored values with baseline conditions mentioned in the passport, verification team concludes the project makes positive impacts on this indicator. .	+ (Positive)
2.	Water quality and quantity	How much dung is fed into the biogas plant daily.	Sample survey	The amount of dung fed into the bio digester is monitored based on the sample survey. Though sample survey the capacity of basket in which dung is collected and the number of basket fed into the digester are monitored and the amount of dung fed in to the digester is estimated from it. Verification team checked all the sample survey sheets and found that the details provided in the excel sheet is correct. Verification team also conducted acceptance sample survey in 25 numbers of households and found no error in the parameter values monitored by PP. Hence, the verification team accepts the value provided by PP. As per the survey results, average of 55.32 kg dung/day is fed into the bio-digester in each households. This makes positive impact on Water quality and quantity compared to baseline as 51.33 kg dung per day is avoided from the open dumping which will affect the water quality during the rainy season. However, PP has rated this neutral in the passport for simplification.	0 (Neutral)
3.	Soil condition	Quantity of spent slurry disposed in the crop fields Reduction in quantity of	Sample survey Quantity of spent	The Quantity of spent slurry disposed in the crop fields and reduction in quantity of chemical fertiliser used in agricultural field are monitored through sample survey. Verification team	+ (Positive)

		chemical fertilisers used in the agricultural soils	slurry is estimated from dung and water fed into the biodigester which are estimated though sample survey	checked all the sample survey sheets and found that the details provided in the excel sheet is correct. Verification team also conducted acceptance sample survey in 25 numbers of households and found no error in the parameter values monitored by PP. Hence, the verification team accepts the value provided by PP. As per the survey results, the average quantity of spent slurry disposed in crop field is 3.85/year and thereby reduction in chemical fertiliser used is about 73.5 kg/year in each project households. From comparing the monitored values with baseline conditions mentioned in the passport, verification team concludes the project makes positive impacts on this indicator. .	
4.	Biodiversity	The amount of non-renewable fuel wood saved by the project.	Baseline survey and monitoring of actual average operating days in the monitoring period and total number of digesters installed.	The amount of non-renewable fuel wood saved by the project is estimated from the baseline fuel wood consumption per households, average number of operating days and total number of bio-digesters installed. The baseline fuel wood consumption per household is verified from the PDD which is estimated though baseline survey. The average operating days in the monitoring period and the total number of digesters installed are verified though PP's installation records. The total amount of NRB saved during the monitoring period by the project activity is estimated as 27,406tonnes which is verified to be correct. From comparing the monitored values with baseline conditions mentioned in the passport, verification team concludes the project makes positive impacts on this indicator	+ (Positive)
5.	Quality of employment	Total number of trainings given to different types of people involved in different activities and number of people trained	Recorded as and when a training is conducted	Verification team checked all the training records including attendance register during the site visit and confirmed that the number of training reported in the GS MR are correct. From comparing the monitored values with baseline conditions mentioned in the passport, verification team concludes the project makes positive impacts on this indicator	+ (Positive)
6.	Livelihood of the poor	Savings of money spent on fire wood for cooking, savings of money spent on kerosene for cooking and any additional income generation by the women through the saved time	Sample survey	The money savings due to avoidance of firewood & kerosene for cooking is monitored through sample survey conducted among beneficiaries. Verification team checked all the sample survey sheets and found that the details provided in the excel sheet is correct. Verification team also conducted acceptance sample survey in 25 numbers of households and found no error in the parameter values monitored by PP. Hence, the verification team	+ (Positive)

				accepts the value provided by PP. As per the survey results, the average money saved from avoidance of wood & kerosene is Rs.1,273/year/household. From comparing the monitored values with baseline conditions mentioned in the passport, verification team concludes the project makes positive impacts on this indicator.	
7.	Access to affordable and clean energy services	How many hours each beneficiary is using biogas stove per day	Sample survey	The number of hours per day the biogas single burner used is monitored through sample survey. Verification team checked all the sample survey sheets and found that the details provided in the excel sheet is correct. Verification team also conducted acceptance sample survey in 25 numbers of households and found no error in the parameter values monitored by PP. Hence, the verification team accepts the value provided by PP. As per the survey results, the beneficiaries uses the biogas stoves are used in 3.25 hours/day. From comparing the monitored values with baseline conditions mentioned in the passport, verification team concludes the project makes positive impacts on this indicator. .	+ (Positive)
8	Human and institutional capacity	How many people were trained on a) construction b) monitoring and maintenance of biogas plant	Recorded as and when a training is conducted	Verification team checked all the training records including attendance register during the site visit and confirmed that the number of training reported in the GS MR are correct. From comparing the monitored values with baseline conditions mentioned in the passport, verification team concludes the project makes positive impacts on this indicator	+ (Positive)
9	Quantitative employment and income generation	a) No of people employed due to the project activity	Number of people employed is based on the PP's employment records.	During site visit, the verification team checked the employment record of the SKG Sangha and confirmed that the total number of people employed by the PP for the project activity is 16 which is consistent with the GS MR.	+ (Positive)
		b) savings due to project activity	Savings due to the project activity is monitored though Sample survey conducted at project households	Verification team also checked all the sample survey sheets to cross check the other parameters (ie, savings due to project activity, Existing local wages and wages paid by the project)and found that the details provided in the excel sheet are correct. Verification team also conducted acceptance sample survey in 25 numbers of households and found no error in the parameter values monitored by PP. Hence, the verification team accepts the value provided by PP. As per the survey results, the average	

				money saved from avoidance of wood & kerosene is Rs.1273/year/household. From comparing the monitored values with baseline conditions mentioned in the passport, verification team concludes the project makes positive impacts on this indicator.	
		c) Existing local wages and	Monitoring survey	The existing wages are confirmed through verification of monitoring survey records. And the wages paid by the project activity (Rs.500) is verified through PP's records. From the monitored value, it is confirmed that the wages paid by the project activity is more than the existing local wages. Hence, the project makes positive impact on this indicator.	
		d) wages paid by the project	PP records of Mason accounts		
10	Balance of payments and investment	Monetary savings due to decrease in Kerosene and chemical fertiliser use	Savings due to the project activity is monitored though Sample survey conducted at project households	The money savings due to the project is monitored through sample survey conducted among beneficiaries. Verification team checked all the sample survey sheets and found that the details provided in the excel sheet is correct. Verification team also conducted acceptance sample survey in 25 numbers of households and found no error in the parameter values monitored by PP. Hence, the verification team accepts the value provided by PP. As per the survey results, the average money saved from avoidance of wood & kerosene is Rs.1273/year/household. From comparing the monitored values with baseline conditions mentioned in the passport, verification team concludes the project makes positive impacts on this indicator.	+ (Positive)
11	Technology transfer and technological self-reliance	How many beneficiaries are trained	Recorded as and when a training is conducted	Verification team checked all the training records including attendance register during the site visit and confirmed that the number of training reported in the GS MR are correct. From comparing the monitored values with baseline conditions mentioned in the passport, verification team concludes the project makes positive impacts on this indicator	+ (Positive)

In summary, verification team confirms that all monitored sustainable development indicators are in accordance to the approved revised GS passport. It is also confirmed that all three categories (ie, Environment, Social Sustainability and Development and Economic and Technological Development) are rated as positive hence the project fulfils the eligibility requirement.

Opinion:

The adequacy and compliance of the monitoring plan in the Monitoring report was found as per the requirements laid by the GS Passport, monitoring methodology and the revised PDD. The information flow (from data generation, aggregation, to recording, calculation and reporting) is already included under respective parameter above. The verification team has verified all the data and collected evidence as per the required monitoring frequency and found to be correct and appropriate meeting the requirements of the GS Passport, applied methodology and revised PDD.

4.4 Assessment of Data & calculation of GHG Emission Reductions

The detailed assessment of GHG emission reduction is provided in the CDM verification report. As assessed by the verification team, the following details are confirmed for the reported monitoring period 01/01/2014 -31/12/2014:

	Amount	Unit
Baseline emissions (BE)	41,698	tCO_2e
Project emissions (PE)	4,161	tCO_2e
Leakage emissions (LE)	3	tCO_2e
Certified emission reductions (CERs)	37,534	tCO_2e

4.5 Recommendations / Forward action request

No FAR has been raised during this monitoring period.

5. VERIFICATION & CERTIFICATION STATEMENT

KBS Certification Services Pvt. Ltd. has been contracted by 'Foundation myclimate – The Climate Protection Partnership' to undertake independent verification and certification for the greenhouse gas (GHG) emission reductions and values of SD parameters reported from the GS CDM Project activity "Kolar Biogas Project" (GS ID 670 & UNFCCC Reference Number 4058) for the monitoring period 01/01/2015 – 31/12/2015 (including both dates) in the GS Monitoring Report Version 01 (first version) dated 18/02/2016.

The verification is based on the CDMPDD, GS Passport and the monitoring report for this project. Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, as well as those defined by the Gold Standard Board.

The management of the 'M/s SKG Sangha' and 'Foundation myclimate – The Climate Protection Partnership'are responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions & SD parameter values on the basis set out within the project Final Monitoring Report Version 01.1 dated 16/08/2016. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the 'M/s SKG Sangha' and 'Foundation myclimate – The Climate Protection Partnership'. The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 01.1 dated 16/08/2016.

It is our responsibility to express an independent GHG verification & SD parameter assessment opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the monitoring period 01/01/2015 – 31/12/2015 (including both dates) based on the reported emission reductions in the Final Monitoring Report Version 01.1 dated 16/08/2016 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data & SD parameter data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

KBS confirms the following;

Reporting period: 01/01/2015 – 31/12/2015 (including both dates)

Verified and certified emission in the above reporting period:

	Amount	Unit
Gold Standard Voluntary emission reductions (GS VERs)	37,534	tCO_2e

Location: Faridabad

Date: 23/09/206

Kaushal Goyal

Managing Director

KBS Certification Services Pvt. Ltd.

6. REFERENCES

No.	Author	Title	References to the document	Provider
1	SKG Sangha	GS Monitoring Report,	Version 01, dated 18/02/2016	SKG Sangha
	SKG Sangha	GS Monitoring Report	Version 01.1, dated 16/08/2016	SKG Sangha
2	SKG Sangha	CDM Monitoring Report	Version 01.1, dated 31/06/2016	SKG Sangha
	KBS	CDM Verification Report	Version 01, dated 29/07/2016	-
	SKG Sangha	ER Calculation Sheet	Version 01.1, dated 31/06/2016	SKG Sangha
3	SKG Sangha	Approved PDD	Version 14, 18/06/2015	Publically available
4	SGS	Validation Report	Dated 28/06/2015	Publically available
5	UNFCCC	PRC document page in UNFCCC	Web link	Publically available
	TUV Nord	PRC Validation Report,	Dated 15/07/2015	
6	UNFCCC	CDM Methodologies: AMS.I.C – "Thermal energy for the user with or without electricity"	Version 18	Publically available
	UNFCCC	AMS.I.E – "Switch from Non-Renewable Biomass for Thermal Applications by the User"	Version 03	Publically available
	UNFCCC	AMS.III.R – "Methane recovery in agricultural activities at household/small farm level"	Version 01	Publically available
7	IPCC	1. 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book 2. 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book	Web link	Publically available
8	UNFCCC	Kyoto Protocol (1997)	Web link	Publically available
9	UNFCCC	Monitoring Report Form (CDM-MRFORM), Version 05.1	Version 05.1	Publically available
10	UNFCCC	CDM Project Standard	Version 9.0	Publically available
11	UNFCCC	Standard: Sampling and surveys for CDM project activities and programme of activities	Version 05	Publically available
	UNFCCC	Guidelines for sampling and surveys for CDM project activities and programme of activities	Version 04	Publically available
12	UNFCCC	CDM Validation and Verification Standard	Version 09	Publically available
13	UNFCCC	Glossary "CDM terms"	Version 08	Publically available

14	SKG Sangha	Biogas basic record set: - Biogas application form - End user agreement for CER ownership - Completion certificate - Payment receipt	For the digesters installed during 01/01/2014 – 31/12/2014	SKG Sangha
15	SKG Sangha	Sample Survey monitoring sheets for this monitoring period	Conducted for the year 2014	SKG Sangha
16	SKG Sangha	Non-project household survey sheets for this monitoring period	Conducted for the year 2014	SKG Sangha
17	SKG Sangha	Training Records: Training conducted for user/beneficiary Training conducted for Mason conducted for staffs involved in monitoring and maintenance	Conducted during 01/01/2015 – 31/12/2015	SKG Sangha
18	SKG Sangha	Plant repair cards	Covering the monitoring period 01/01/2015 – 31/12/2015	SKG Sangha
19	SKG Sangha	Monthly monitoring report by monitoring staff	Covering the monitoring period 01/01/2015 – 31/12/2015	SKG Sangha
20	SKG Sangha	Operating hours data monitored by the selected beneficiaries	Monitored for the year 2015	SKG Sangha

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7. FINDINGS DOCUMENT

Corrective Action Requests

CAR ID	01	**Section no.**		**Date:**01/03/2016
Description of CAR				
The following details shall be included in the SD MR for better understanding • General description of the project, • Project participants involved and • Sampling and survey details				
Project participant response				**Date:**17/08/2016
General description has included in MR. *Project participants involved have been included in the MR.* *Sampling and survey details have been included in MR.*				
Documentation provided by project participant				
Revised GS MR				
DOE assessment				**Date:**31/08/2016
The requested details are now included in the monitoring report. The same is verified and found that the details provided are correct and appropriate. Finding is closed				

CAR ID	02	**Section no.**		**Date:**01/03/2016
Description of CAR				
The emission reduction value mentioned in the GS MR is not consistent with the emission reduction calculated in the ER sheet.				
Project participant response				**Date:**17/08/2016
Emission Reductions generated have been corrected in the MR. They are now consistent with ER sheet.				
Documentation provided by project participant				
Revised GS MR				
DOE assessment				**Date:**31/08/2016
The emission reduction value in the MR is corrected by PP which is now consistent with the ER sheet. Finding is closed.				

CAR ID	03	**Section no.**		**Date:**01/03/2016
Description of CAR				
1. As per survey result, the quantity of spent slurry disposed on fields is only 3.85 tonnes/household/year. But in the GS MR, it is estimated as 40,386 liter/household/year which seems to be high compared to 3.85 value. 2. Savings of money spent on fire wood for cooking, savings of money is mentioned as Rs 2,335/ year in GS MR. This is not consistent with the survey results. 3. Total hours of usage of biogas stove per day are mentioned as 3.54 hrs in the GS. MR. This is not consistent with the survey results.				
Project participant response				**Date:**17/08/2016
1. Quantity of spent slurry disposed in the fields have been corrected to 3.85 tons/year and are now in line with the monitoring survey sheet. *2. Savings of money have been corrected to 1273 rupees per year and is now in line with Monitoring sheet.* *3. Total hours of usage of biogas stove per day have been corrected to 3.25 hours/day*				
Documentation provided by project participant				
Revised GS MR				
DOE assessment				**Date:**31/08/2016

1. The quantity of spent slurry disposed on field is now corrected to 3.85 tonnes/yr/household which is consistent with the survey results *2.* The money saved from avoidance of firewood cooking is now corrected to *1273 rupees/yr/household in the MR which is consistent with the survey result* 3. *The total usage of biogas stoves per day is now corrected to 3.25 which is consistent with the survey results.* Finding is closed.

8. CERTIFICATE OF COMPETENCE

Personnel Name:		**Narendra Kumar**	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert	☒
Area(s) of Technical Expertise			
Sectoral Scope		**Technical Area**	
Energy Industries (renewable/non-renewable sources)		TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar	
Energy industries (renewable/non-renewable sources)		TA 1.2: Energy generation from renewable energy sources	
Energy Demand		TA 3.1: Energy Demand	
Approved by (Manager C& T)		Akhilesh Joshi	
Approval date:		16/01/2016	

Personnel Name:		**M P Kanal**	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope		**Technical Area**	
Energy industries (renewable/non-renewable sources)		TA 1.2: Energy generation from renewable energy sources	
Energy Demand		TA 3.1: Energy Demand	
Waste handling and disposal		TA 13.1. Solid waste and wastewater	
Agriculture		TA 15.1. Agriculture	
Approved by (Manager C & T)		Gagandeep Kakkar	
Approval date:		03/11/2015	

Personnel Name:		**Sanjay Kandari**	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope		**Technical Area**	
Energy Industries (renewable/non-renewable sources)		TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar	

Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure
Approved by (Manager C & T)	Gagandeep Kakkar
Approval date:	03/11/2015

History of the document

Version	Date	Nature of revision	Reviewed by	Approved by
4.0	14/12/2013	Guidance included/improved	Manager CDM Quality 23/12/2013	Managing Director 23/12/2013
3.1	29/10/2012	Updated for EB69 Annex6	Manager CDM Quality 29/10/2012	Managing Director 29/10/2012
3.0	31/08/2012	Revised for VVS Track	Manager CDM Quality 08/09/2012	Managing Director 10/09/2012
2.0	21/12/2011	Comprehensively revised	Manager CDM Quality 21/12/2011	Managing Director 21/12/2011