Monitoring report form

(Version 04.0)

Complete this form in accordance with the Attachment "Instructions for filling out the monitoring report form" at the end of this form.

MONITORING REPORT	
Title of the project activity	Biogas CDM Project of Bagepalli Coolie Sangha
Reference number of the project activity	UNFCCC Reference Number: 2591
Version number of the monitoring report	1
Completion date of the monitoring report	29/07/2014
Registration date of the project activity	28/08/2009
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 3 Duration of this monitoring Period: (first and last days included (01/01/2013- 30/06/2014)
Project participant(s)	Bagepalli Coolie Sangha (BCS) - India Fair Climate Fund (FCF) - Netherlands
Host Party(ies)	INDIA
Sectoral scope and selected methodology(ies), and where applicable, applied standardized baseline(s)	1. Sectoral Scope 1; TYPE I - RENEWABLE ENERGY PROJECTS, AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01, EB 37. 2. Sectoral Scope 1; TYPE I - RENEWABLE ENERGY PROJECTS, AMS-I.C. Thermal energy for the user with or without electricity, Version 13, EB 38.
Estimated amount of GHG emission reductions or net anthropogenic GHG removals by sinks for this monitoring period in the registered PDD	79,038 tCO_2
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved in this monitoring period	42,393 tCO_2
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period up to 31 December 2012 (if applicable)	-
Actual GHG emission reductions or net anthropogenic GHG removals by sinks achieved during the period from 1 January 2013 onwards (if applicable).	42,393 tCO_2

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

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a) Purpose of the project activity and the measures taken for GHG emission reductions or net anthropogenic GHG removals by sinks

The purpose of the project activity is to set up 18,000 biogas plants (digesters) of 2 m^3 capacity each for single households in 5 Taluks of Chickballapur District by the Community Based Organization (CBO) - Bagepalli Coolie Sangha (BCS). These digesters replace Kerosene and Non-Renewable Biomass used in the baseline with biogas for cooking and hot water heating. The biogas units are being installed in a phased manner.

In the project activity, the biogas units are fed with animal dung to produce energy for cooking and heating water. This is replacing the use of fossil fuel kerosene in stoves and non-renewable biomass in traditional cook stoves in the baseline, thus reducing greenhouse gas emissions.

b) Brief description of the installed technology and equipment

Each household has installed a 2 m^3 biogas plant and feed animal dung into the anaerobic digester. The biogas plant is a small thermal appliance that utilises animal dung and converts it into energy by means of a digester in which the dung substrate undergoes acidification and methanation. An individual biogas plant consist of a mixing chamber where waste water, cow dung and leachate from organic waste are mixed, an inlet pipe to feed dung substrate into the digester, the main biogas digester where methane formation / recovery takes place, a slurry outlet pipe, an outlet chamber, and a slurry platform.

Users prepare batches of dung substrate in the mixing tank, before allowing the final mixture to flow into the digester. By utilizing dung substrate in an anaerobic digestion and combustion system, biogas is made available. The biogas is piped to a two-ring gas stove supplied as part of the project activity. Biogas is combusted and used for cooking and water heating. The outlet pipe and tank are provided to remove the digested/treated sludge or fermentation residue, and the slurry platform is provided to maintain the slurry. The chosen technology is the Deenabandhu biogas model which is well-known, tried and tested in India.

c) **Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.)**

The project was registered on 28th August 2009 and the start date of the project activity and crediting period is 1st January 2010.

The first monitoring report was for the period 1st January 2010 – 30st September 2011. During this period 5,038 units were commissioned and 9,080 certified emission reductions were issued.

The second monitoring report was for the period 1st October 2011 to 31st December 2012. During this period, 9,359 biogas units were commissioned and functional and 21,397 certified emissions reductions were issued.

This is the third monitoring report for the period 1st January 2013 to 30th June 2014. As on 30th June 2014, 11,633 biogas units have been commissioned and are functional (see *BCS_III_CER Calculations_V1.xls*) and 80 units are under construction. The status of the project as on 30th June 2014 is as follows:

Taluk	Units Commissioned	Number of Villages
Bagepalli	2,637	184
Chickballapur	2,063	106
Chintamani	3,565	166
Gudibanda	936	53
Siddalaghatta	2,432	120
Total	**11,633**	**629**

The dates of installation for each of the unit is recorded and included in the excel ER calculations sheet (see *BCS_III_CER Calculations_V1.xls*). In between, due to repair and maintenance, some of the biogas units may not be in operation. The days not operational is recorded for each of the unit. This information is included in the excel ER calculations sheet (see *BCS_III_CER Calculations_V1.xls*). The date on which the problem occurred and the problem was fixed is recorded in the village level monitoring sheets and then entered into the digitised monitoring solution, which is the basis for ER calculations excluding non-operational days of the installed units.

d) Total GHG emission reductions achieved or net anthropogenic GHG removals by sinks achieved in this monitoring period

The total GHG emission reductions achieved in this monitoring period is as follows:

Summary of the Project Activity and ERs Generated for the Monitoring Period	
Start date of second monitoring period	01-Jan-2013
Carbon credits claimed up to	30-June-2014
Emission reduction/unit/yr	2.78 tCO_2
Total Biogas Units operational till 30th June 2014	11,633
Total Emission Reductions (including deductions for non-operational days)	44,493 tCO_2
Total Emission Reductions (after considering leakage)	42,393 tCO_2
ERs generated for the period 1st January 2013 to 30th June 2014	**42,393 tCO_2**

A.2. Location of project activity

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a) Host Party(ies): India

b) Region/State/Province: Karnataka

c) City/Town/Community: 5 taluks of Chickballapur District namely Bagepalli, Chickballapur, Chintamani, Gudibanda and Siddalaghatta**.**

d) Physical/Geographical location:

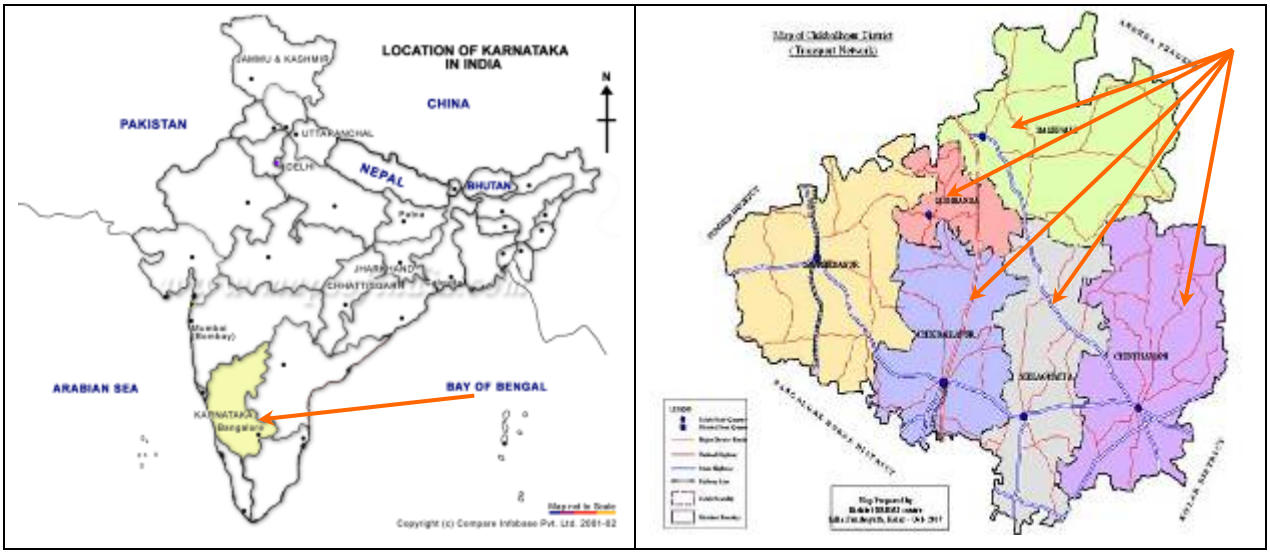

Fig 1: Map showing Karnataka State and the 5 taluks in Chickballapur district where the project is being implemented.

The coordinates of the district is 13° 26′ 48″ N, 77° 43′ 12″ E[1]. The geographical coordinates of the Taluks in which the project is implemented are as follows:

Taluks	Coordinates
Bagepalli	13° 47' 5" North, 77° 47' 35" East
Chickballapur	13° 26' 3" North, 77° 43' 27" East
Chintamani	13° 24' 0" North, 78° 4' 0" East
Gudibanda	13° 40' 10" North, 77° 41' 54" East
Siddalaghatta	13° 23' 17" North, 77° 51' 46" East

A.3. Parties and project participant(s)

Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (Host)	Bagepalli Coolie Sangha (BCS) – Private Entity	No
The Netherlands	Fair Climate Fund (FCF) – Private Entity	No

A.4. Reference of applied methodology and standardized baseline

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a) Sectoral Scope 1; TYPE I - RENEWABLE ENERGY PROJECTS, AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01, EB 37.

Sectoral Scope 1; TYPE I - RENEWABLE ENERGY PROJECTS, AMS-I.C. Thermal energy for the user with or without electricity, Version 13, EB 38.

A.5. Crediting period of project activity

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(a) Type: Renewable

(b) Start Date: 01/01/2010

(c) Length of the crediting period: 7 yrs – 0 months (01/01/2010 – 31/12/2016)

[1] http://en.wikipedia.org/wiki/Chikkaballapur_district

(d) Crediting Period corresponding to this monitoring Period: 01/01/2013 – 30/06/2014

A.6. Contact information of responsible persons/ entities

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Mr. Venkatanarasappa, BCS President, Bagepalli Coolie Sangha
Mr. Abid Pasha, ADATS
Dr. Sudha Padmanabha, Senior CDM Specialist, Fair Climate Network (FCN)

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity

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Implementation and operational status of the project activity:

This Biogas CDM Project is being implemented by Bagepalli Coolie Sangha (BCS), the 25 year old membership based people's organisation in Chickballapur district of Karnataka, using the systems, discipline and procedures of the Bagepalli Coolie Sangha.

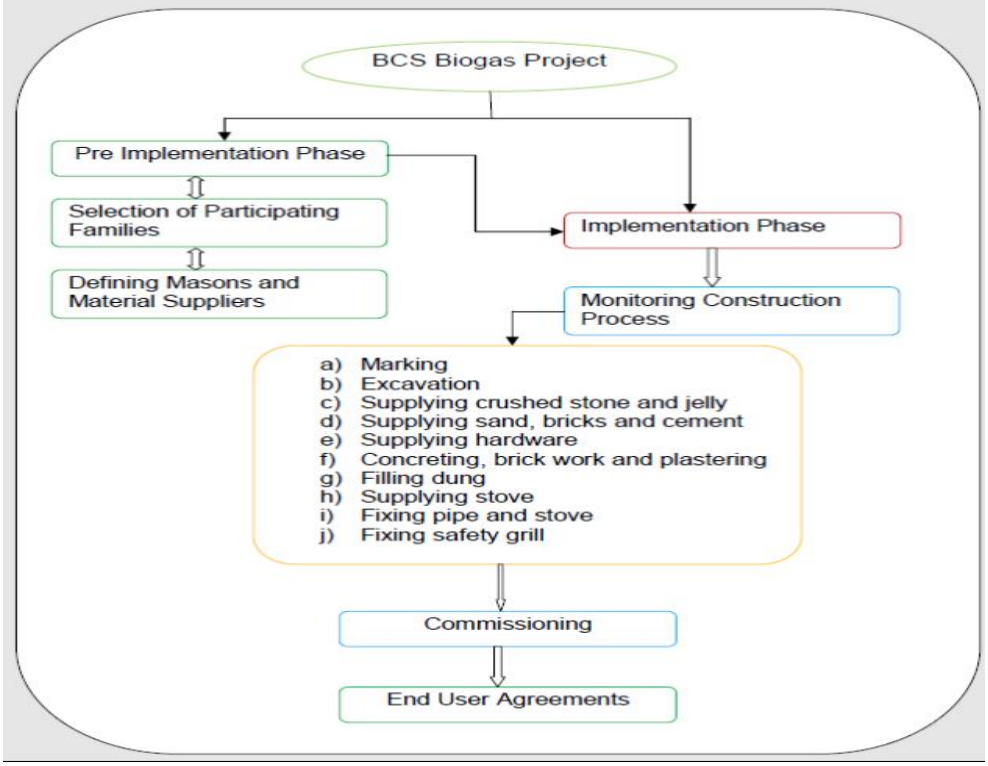

Fig 2: Activity Processes of biogas construction

The biogas plant (Deenabandhu Model Fig: 3) consists of a digester with a fixed, non-movable gas space. Users prepare batches of dung slurry in the mixing tank, before allowing the final mixture to flow into the digester for methane formation phase. By utilizing dung substrate in an anaerobic digestion and combustion system, biogas is made available. Biogas is generated by fermentation of cellulose rich organic matter under anaerobic conditions. In anaerobic conditions, the methane-producing bacteria become more active. The anaerobic digestion consists of three stages: I Hydrolysis; II Acid formation and III Methane fermentation. The processes are carried out by two sets of bacteria namely acid forming bacteria and methane formers. The acidogenic phase I is the combined hydrolysis and acid formation stages in which the organic wastes are converted mainly into acetate, and phase II is the methanogenic phase in which methane and carbon dioxide are formed. The recovered gas is combusted and used for cooking and water

heating. The chosen methane recovery and combustion system is the time tested Deenabandhu model biogas technology which is well-known in India.

The individual plant consists of a mixing chamber where waste water and cow dung are mixed, an inlet pipe to feed the slurry into the reactor, the main biogas reactor/digester where methane formation/recovery takes place, a slurry outlet pipe, an outlet chamber, and a slurry platform. The outlet pipe and tank are provided to remove the digested/treated sludge or fermentation residue and the slurry platform is provided to maintain the treated slurry in clean condition. A pipe leading from the top of the dome to the stove will be provided to supply biogas to a 2-ring stove inside the house.

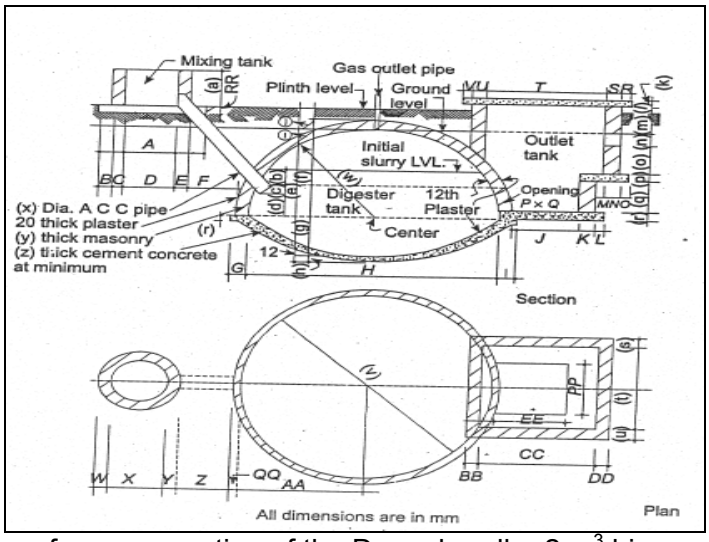

Fig 3: Diagram of a cross-section of the Deenabandhu 2 m^3 biogas model

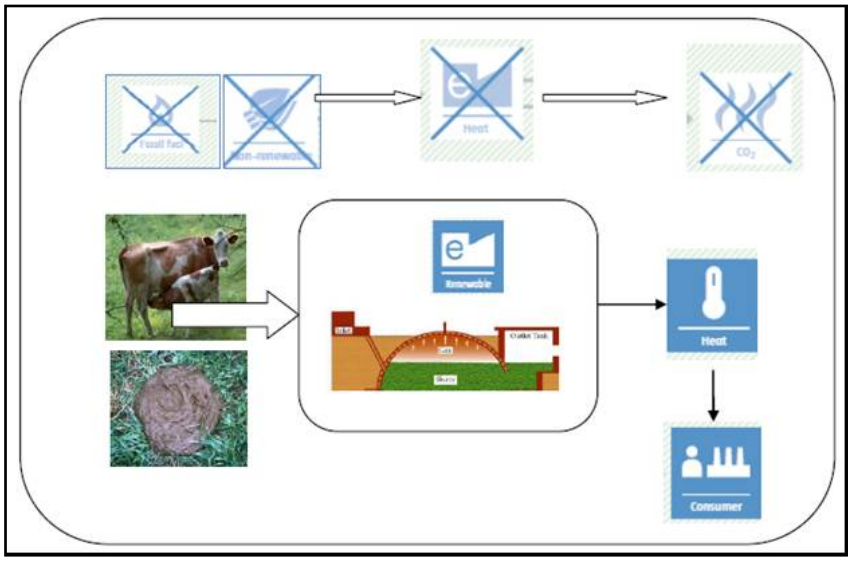

Fig 4: Technical process and equipment of biogas unit

B.2. Post registration changes

B.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

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There are no temporary deviations from registered monitoring plan or applied methodology.

B.2.2. Corrections

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There are no corrections to project information or parameters fixed at validation.

B.2.3. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

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There are no permanent changes from registered monitoring plan or applied methodology.

B.2.4. Changes to project design of registered project activity

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There are changes to the project design of registered project activity. The revised PDD was submitted along with the monitoring plan in the previous monitoring period to reflect the changes in project design, which were as follows.

(a) The applicability and application of the applied methodology under which the project activity has been registered;
(b) The additionality of the project activity;
(c) The scale of the project activity.

This change to the project design of the project activity was approved by CDM EB on 9th September 2013[2].

B.2.5. Changes to start date of crediting period

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There is no change to start date of crediting period.

[2] http://cdm.unfccc.int/Projects/DB/DNV-CUK1242729511.7/view

B.2.6. Types of changes specific to afforestation or reforestation project activity

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This section is not applicable.

SECTION C. Description of monitoring system

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The monitoring system followed for the project activity with regard to data collection procedures including data generation, aggregation, recording, calculation and reporting is as per the monitoring section of the registered Project Document Design (PDD).

C.1 Organization Structure and their roles and responsibilities

The project is being run by the Bagepalli Coolie Sangha which is a 25 year-old membership based registered people's organization formed by small and poor peasant families (landed and landless agricultural labourers) in their respective villages. The Coolie Sangha struggle to rid themselves of exploitation and take control of their own lives in order to undertake grassroots planned development activities.

The organization structure for the project activity is as follows:

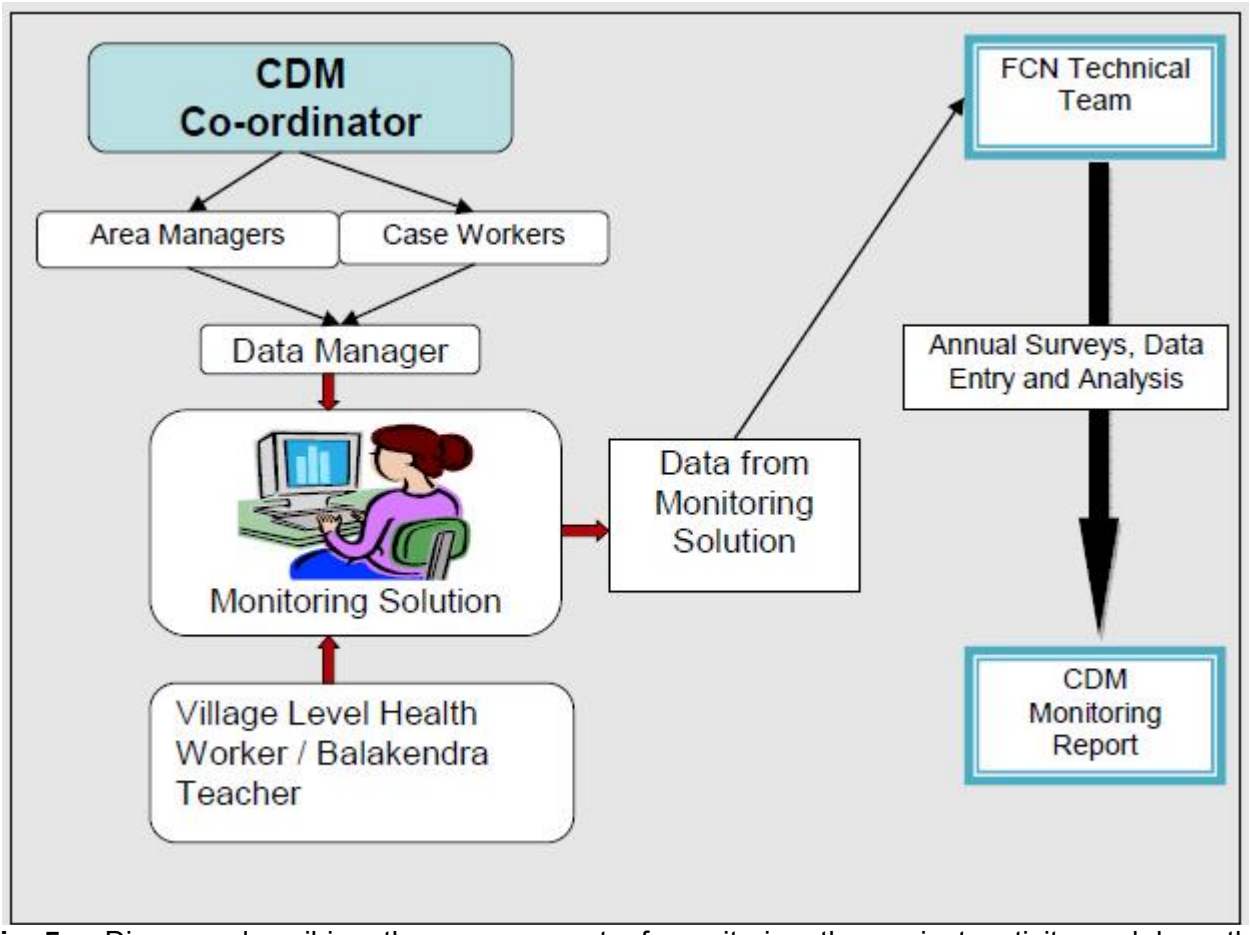

Fig 5: Diagram describing the arrangement of monitoring the project activity and how the monitored data flows from end user to the system database.

CDM Coordinator: The Board of Trustees of the Bagepalli Coolie Sangha has appointed a full time CDM Coordinator, who manages the project.

Staff: The staff involved for the BCS Biogas Project activity are 16 Area Managers, 8 Mahila Trainers (Women Trainers), 8 Case Workers and 1 Data Manager. The tasks and

activities of the BCS Biogas Project are carried out in 16 designated areas, which are coordinated by the 16 Biogas Area Managers. The staffs, in collaboration with the BCS elected cluster secretary, elected representatives, village health workers and balakendra teachers[3], select the participating families. The village level Coolie Sangha Units (CSUs) help in identifying the appropriate sites for biogas construction. The adults of the end-user household voluntarily assist the skilled masons in manual labour, which involves digging pits for construction of the biogas units. During Mahila meetings, the women are taught efficient ways of cooking, operation and maintenance of biogas units.

Masons: Overall, 210 trained Biogas Masons are engaged in construction of biogas plants. A database of the masons is available in the database for the project activity. All details of the masons are entered into the database maintained for the project activity. Each mason is identified to the biogas constructed by him and he takes responsibility of each of the units built by him.

Village level workers: Village level Health Worker or Balakendra Teacher of BCS monitor the functioning of biogas units. They maintain the Daily Usage Registers, wherein the days biogas units are not used are recorded with the reason for non-function. This data is entered into the digitized monitoring system by the Mahila Trainers/Case Workers.

People involved in the entire process of CDM activity are from the Bagepalli Coolie Sangha (BCS), assisted by the NGO, ADATS and the Technical Team of Fair Climate Network (FCN). The BCS holds ownership of the project. All cadres of the BCS are involved in the project activity. ADATS assists the BCS in data recording and storage, while the Technical Team of the FCN assists in Emission Reduction Calculations and Monitoring Report.

C.2. Monitoring system

C.2.1 Data collection procedures

C.2.1.1 Data Generation: The data of 6 construction processes as shown in section B.1 is recorded in books and entered into the monitoring database by Mahila Trainers/Case Workers. This data can be triangulated with other financial transactions of the project activity. The end users of biogas units under the CDM project activity sign an end-user agreement, which contains details of the end-user, the Unit ID number, date of commissioning of biogas and other terms and conditions. These agreements are notarized legal agreements countersigned by the End User and the BCS.

The non-usage biogas days are also recorded in books and entered into the monitoring database. The data entered into the monitoring database is exported to excel sheet for analysis. The generated data is used for emission reduction calculations.

C.2.2 Data Aggregation and Recording

C.2.2.1 Biogas Construction: The biogas construction processes as mentioned in section B.1 are monitored on a day to day basis and database maintained from its initiation to completion dates for each of the biogas unit. All payments for construction of biogas units are made by cheque and suppliers are identified with personal data and digital photographs fed into the computerized databank for verification.

A digitized monitoring database system, custom built by Tristle Technologies Pvt. Ltd., is being used to enter data to generate real-time Progress Reports. Inputting data into this intranet solution is permission driven – i. e. each Biogas Case Worker/Mahila Worker

[3] Balakendra Teachers work at village level imparting informal education to children of the village.

records construction progress and non-usage days of only those villages entrusted to her/him. Progress and Analytical Reports are generated that is totally transparent and open for one and all.

Statutory reports, including Trial Balance, Receipts & Payments statement, Income & Expenditure statement and Balance Sheet, are generated for the project activity. The books of accounts are audited by a certified Chartered Accountant. This financial accounting system gives proof of the construction of these biogas plants under the CDM project activity. Each of the biogas unit has been marked as "BCS-FCF", Unit ID and the date of construction on the doom, which makes it distinct. These evidences validate the construction and commission of total 11,633 biogas plants built in the project area.

The list of biogas users are identified by a User ID, the name of the beneficiary, the CSU membership number, the village, taluk, and other details such as family strength, land holding, caste, etc. (*BCS_III_CER Calculations_V1.xls*). The start date of construction, the processes during construction till the date of commissioning are monitored and entered into the database.

All activity processes, including financial transactions for construction of biogas units, are digitally monitored using a digitised monitoring solution that is integrated into intranet based monitoring system InfoNeeds that tracks various Coolie Sangha activities.

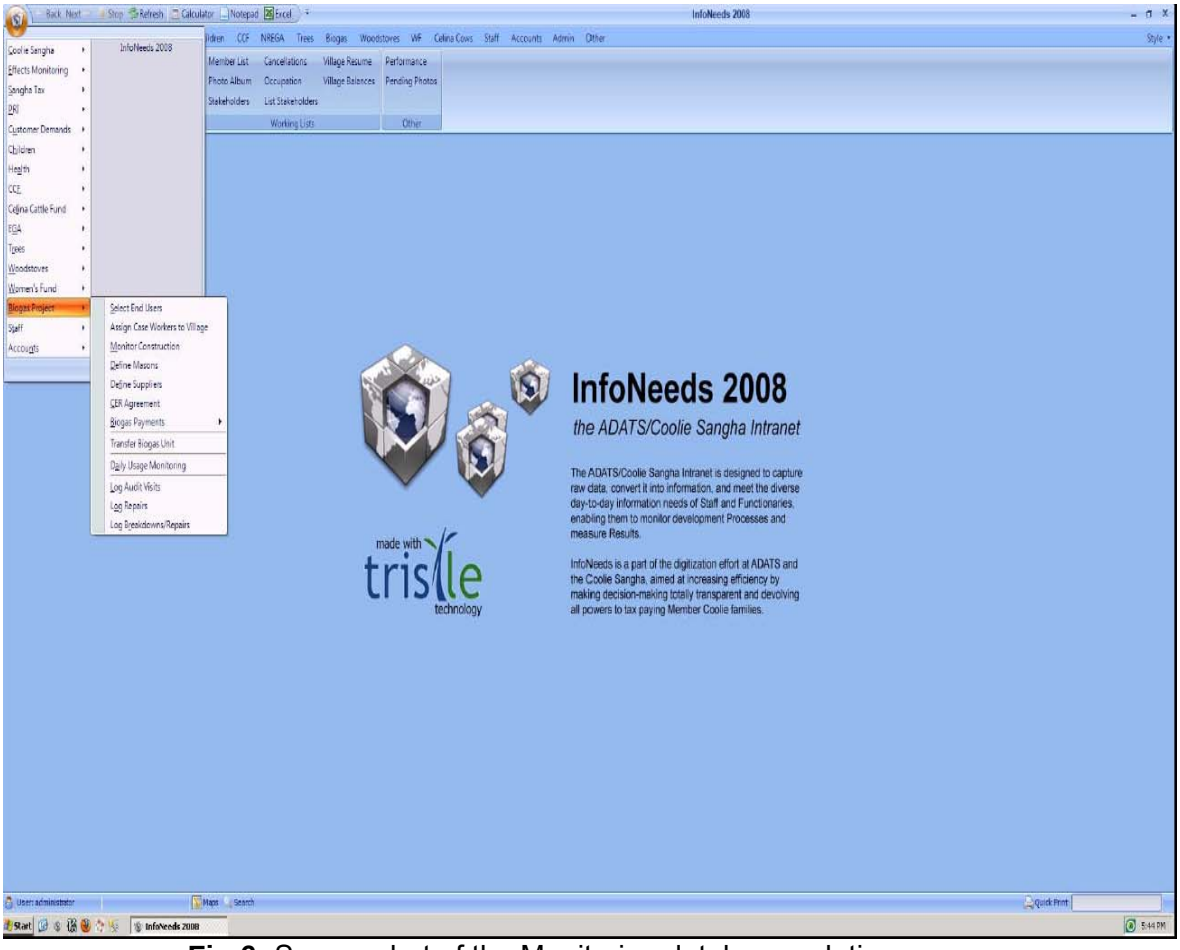

Fig 6: Screen shot of the Monitoring database solution

Open and transparent online reports are used by everyone – Staff, Coolie Sangha functionaries and all other secondary stakeholders to know exactly their progress and results. Reports are generated at all levels i.e. Project, Taluk, Area, Cluster, Village and individual Family level. The database is updated regularly as and when Field Staff return from their respective villages.

C.2.2.2. Non-Usage Days: The information on biogas non-usage days are recorded either by the Balakendra or Village Health worker from its users on a day to day basis or during the weekly Mahila meetings[4] held in every village. The information is updated to the individual biogas user's on-line data base InfoNeeds by the case worker on regular basis. The end users also communicate through mobile phones to the Balakendra or Village Health workers.

C.2.3 Data Storage for calculations of emission reductions

The parameters monitored daily during construction of the units are entered into books, which are maintained for each of the units. This is entered by the relevant case worker to the BCS InfoNeeds Database for the project activity.

The non-usage days of biogas units are recorded in books at each village by the Balakendra teachers or the health workers. This is entered into the InfoNeeds Database for the BCS Biogas Project on regular basis.

Thus data of all processes of biogas construction and non-usage is stored and maintained at the BCS InfoNeeds Database.

The data of surveys conducted was entered into excel sheets and analysed. This data is stored on paper and electronically.

C.2.4. Calculation and reporting

The data generated through monitoring is stored in the BCS monitoring system, the InfoNeeds Data base. From this database, data is exported to Microsoft excel sheets, which is used for emission reduction calculations and reporting.

The emission reductions calculations in excel sheet (*BCS_III_CER Calculations_V1.xls*) submitted to the DOE is thus transparent and verifiable with the BCS InfoNeeds Monitoring system.

C.2.5 QA & QC procedures and emergency procedures for the monitoring system

Status reports of project implementation are taken frequently. All the monitoring books are maintained at the BCS central office. The statutory reports, trial balance, receipts and payments made for the construction are maintained for verification. Income and expenditure statements and balance sheet for the project activity are generated, which gives adequate proof of construction of the units. Each unit has the date of biogas doom construction, unit ID number and 'BCS-FCF' etched on it for field identification and cross check.

Tristle Monitoring Solution has its own software for data backup and restore. The Data Manager has to just select the path and save the backup. This software will back up the entire Database along with photographs. Data backup is taken once every 2-3 days as emergency procedure. These backups are stored in a separate external HDD meant only for backups.

Quality Control Supervisors comprising of the Audit team conduct the overall supervision of installed plants and check the quality of installed biogas plants to ensure that the required materials were used for the construction of biogas units. All payments for construction of biogas units were made by cheque and suppliers were identified with personal data and digital photographs fed into the computerized databank for verification.

[4] These Mahila meetings have been held regularly since many years to discuss all issues of coolie sangha

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Data / Parameter:	B_y
Unit:	Tonnes / year
Description:	Biomass substituted
Source of data:	Registered PDD
Value(s) applied):	3.0733 tonnes/year/family
Purpose of data:	According to the "Instructions for filling out the monitoring report form" the purpose of data needs to be in terms of calculation of baseline emissions, project emissions or leakage. But according to the methodology, the data is directly used to estimate emission reductions for the project activity.
Additional comment:	Fixed ex-ante for the crediting period

Data / Parameter:	**Kerosene usage in baseline**
Unit:	Liters/year
Description:	Kerosene substituted
Source of data:	Registered PDD
Value(s) applied):	60.92 liters/year/family
Purpose of data:	According to the "Instructions for filling out the monitoring report form" the purpose of data needs to be in terms of calculation of baseline emissions, project emissions or leakage. But according to the methodology, the data is directly used to estimate emission reductions for the project activity.
Additional comment:	Fixed ex-ante for the crediting period

Data / Parameter:	$f_{NRB, y}$
Unit:	-
Description:	Fraction of Non-Renewable Biomass
Source of data:	Registered PDD
Value(s) applied):	80%
Purpose of data:	According to the "Instructions for filling out the monitoring report form" the purpose of data needs to be in terms of calculation of baseline emissions, project emissions or leakage. But according to the methodology, the data is directly used to estimate emission reductions for the project activity.
Additional comment:	Fixed ex-ante for the crediting period

Data / Parameter:	**Rating Biogas**
Unit:	kW/digester
Description:	Capacity of a digester
Source of data:	Registered PDD
Value(s) applied):	1.84

Purpose of data:	
Additional comment:	From Registered PDD; to demonstrate that it is below the threshold of a small scale project.

Data / Parameter:	**$NCV_{biomass}$, $NCV_{kerosene}$**
Unit:	TJ/tonne
Description:	Net Calorific Value of Biomass and kerosene
Source of data:	IPCC
Value(s) applied):	$NCV_{biomass}$ 0.015 $NCV_{kerosene}$ 0.0438
Purpose of data:	According to the "Instructions for filling out the monitoring report form" the purpose of data needs to be in terms of calculation of baseline emissions, project emissions or leakage. But according to the methodology, the data is directly used to estimate emission reductions for the project activity.
Additional comment:	From the registered PDD

Data / Parameter:	**$EF_{projected\_fossilfuel}$**
Unit:	tCO_2/TJ
Description:	Emission Factor Kerosene
Source of data:	IPCC
Value(s) applied):	71.5
Purpose of data:	According to the "Instructions for filling out the monitoring report form" the purpose of data needs to be in terms of calculation of baseline emissions, project emissions or leakage. But according to the methodology, the data is directly used to estimate emission reductions for the project activity.
Additional comment:	Default Value as given in the methodology

D.2. Data and parameters monitored

Data / Parameter:	**Biogas Units constructed**
Unit:	Number
Description:	Number of biogas units constructed
Measured/ Calculated / Default:	Measured
Source of data:	The biogas construction is monitored from the start till completion. This is entered into the monitoring database for each of the unit. Thus the timeline of construction of the units is monitored and database maintained.
Value(s) of monitored parameter:	11,633 un till 30/06/2014

Monitoring equipment:	From the monitoring database for the project activity. These are entered by the case workers for the completion of 6 process activities for each of the biogas unit.
Measuring/ Reading/ Recording frequency:	Recording is done by the case workers as and when they return from the villages.
Calculation method (if applicable):	There are no calculation involved
QA/QC procedures:	-This can be triangulated with the end user agreement signed with the beneficiary -The biogas unit is marked with the Unit ID and 'BCS-FCF' and the date of dome construction
Purpose of data:	According to "Instructions for filling out the monitoring report form" the purpose of data needs to be in terms of calculation of baseline emissions, project emissions or leakage. But according to the methodology, the data is directly used to estimate emission reductions for the project activity.
Additional comment:	The file, *BCS_III_CER Calculations_V1.xls*, gives the construction date of each of the unit.

Data / Parameter:	**Number of biogas units operating**
Unit:	Number
Description:	Number of biogas units operating for the monitoring period
Measured/ Calculated / Default:	Measured
Source of data:	-Field Data monitored by Village Health Workers /Balakendra Teachers which is entered into the Tristle BCS monitoring solution. Log books are maintained and the data is entered to the monitoring database. Non-operating biogas units are monitored and recorded. This inversely gives the data of operational units on a day to day basis for each of the unit.
Value(s) of monitored parameter:	The excel sheet *BCS_III_CER Calculations_V1.xls* gives the number of days operational for each of the biogas unit (minus days non-operational since the day of operation)
Monitoring equipment:	There are no monitoring equipments. The biogas units are monitored for non-usage. All the units are being recorded and entered in to the database.
Measuring/ Reading/ Recording frequency:	As and when biogas units are not operational, it is recorded. The remaining days are operational.
Calculation method (if applicable):	For a particular day, the number of operating systems is all the units which were functional. The number of operational days during the monitoring period for each of the system was determined to estimate the emission reductions. [Number of days since commissioned (inclusive of 30th June 2014] minus [number of non-usage days] for each of the biogas unit.

QA/QC procedures:	-As per the I.E methodology, monitoring consists of an annual check of all the appliances or a representative sample thereof to ensure that they are still operating. -For efficient monitoring, continuous day to day monitoring is being done to check for non-usage. A user friendly survey sheet is maintained at the village level by the village health worker or the Bal Kendra Teacher. Hence continuous monitoring of the operational units is being done. - Thus the emission reduction calculations have low uncertainty levels.
Purpose of data:	According to the "Instructions for filling out the monitoring report form" the purpose of data needs to be in terms of calculation of baseline emissions, project emissions or leakage. But according to the methodology, the data is directly used to estimate emission reductions for the project activity.
Additional comment:	

Data / Parameter:	**Monitoring and confirmation of displacement of non-renewable biomass in By**
Unit:	-
Description:	According to the methodology, monitoring should confirm the displacement or substitution of non-renewable biomass at each location
Measured/ Calculated / Default:	Measured
Source of data:	Stratified annual sample survey conducted for the year 2013
Value(s)of monitored parameter:	Based on the stratified sample survey, the extent of replacement of non-renewable fuelwood is complete. Few households use renewable biomass of which the major species are *Lantana camara*, which is a wide spreading weed and forms dense thickets, fallen twigs and branches of *Pongamia pinnata, Eucalyptus*, dried twines of grape plant and crop residue of dried maize stalks, Red gram stalks, Groundnut shells, Coconut waste and Mulberry stalks. As per Annex 18 of the EB 23, this is considered renewable. The non-renewable wood previously used by the beneficiaries is the costliest in terms of time spent to collect or purchase and preparation of the fuel for usage and storage. Thus, by providing a new energy facility to the user which decreases the need for additional fuel usage, the first wood to be replaced is the non-renewable one. Also, as discussed in section E.3, renewable wood is available nearer to their homes and fields with less effort and is the first alternative by the user. Kerosene is completely replaced by biogas. None of the households use kerosene for cooking. Thus 100% of non-renewable wood and kerosene is being completely replaced by biogas under the project activity.
Monitoring equipment:	It is based on statistical sample survey, as described in section D conducted yearly once.

Measuring/ Reading/ Recording frequency:	Annual stratified sample survey
Calculation method (if applicable):	There are no calculation methods. The sample survey is conducted to confirm that non-renewable biomass has been substituted.
QA/QC procedures:	Stratified random sample survey was conducted.
Purpose of data:	Not used for Emission Reduction calculations Confirmation of replacement of non-renewable biomass
Additional comment:	In addition, for non-usage biogas days, it is assumed that biomass has been used and emission reductions are not accounted for those days of non-usage.

Data / Parameter:	**Non-usage of biogas plants**
Unit:	Days
Description:	Number of non-operational days due to structural or operational reasons for each of the operational biogas units
Measured/ Calculated / Default:	Measured
Source of data:	As and when the biogas units are not functional, the beneficiary reports to the village level volunteer/Biogas worker, for the repair of the unit. A log book is maintained in each of the village for the days non-functional, the reason, the repair done and the date of repair. And the data from log book is entered in to the monitoring database. From December 2013, village level Biogas Workers (or business women) were appointed to look after an average of 60 units each They were trained and supplied with tools, implements and spare parts. These women are operating on business mode for repair and maintenance of the units.
Value(s) of monitored parameter:	The excel sheet *BCS_III_Biogas Breakdown_Log.xls* shows the details of non-operational days for each of the biogas unit, that is extracted from the monitoring solution.

Reason for Non-usage	**Total Number of biogas days[5] the units were not used for which ERs were not calculated**
Empty and Replaster Dome	1,00,177
Dung Dried	41,991
Dung Too Watery	2,601
No Dung	60,327
Nozzle Blocked	321
Rain Water in Dome	652
Repair Stove - 2 Burners	6,702
Replace Stove	155

[5] This is the total number of days in a month all the biogas units under repair were not operational. Thus for a month of 30 days, the total biogas days are 3000 x 30 days = 9,000 days

	Unit Demolished: 11,175 **Grand Total**: 2,24,101
Monitoring equipment:	There are no monitoring equipment for this parameter. This is based on on-field record by the Village Health Workers/ Balakendra teacher/Biogas worker, which is entered into the monitoring database for the project activity.
Measuring/ Reading/ Recording frequency:	It is monitored on a day to day basis by the Village Level Volunteers/Biogas field workers at village level, which is entered into the monitoring solution for all the biogas units.
Calculation method (if applicable):	The operational days in a year for a biogas unit are 365 days minus non-operational days.
QA/QC procedures:	-As per the I.E methodology, monitoring consists of an annual check of all the appliances or a representative sample thereof to ensure that they are still operating. -For efficient monitoring, continuous day to day monitoring is being done to check for non-usage. -A user friendly survey sheet for each of the biogas user is maintained at the village level by the village health worker or the Bal Kendra Teacher. Hence continuous monitoring of the operational units is being done. -CERs are calculated for only the functional days, not accounting for non-operational days.
Purpose of data:	To calculate emission reductions for only the operational days for each biogas unit.
Additional comment:	This information is included in the excel ER calculations sheet (see BCS_III_Biogas Breakdown Log.xls) for each of the unit

Data / Parameter:	**Annual hours of operation of an average system**
Unit:	Hours
Description:	Hours of operation of biogas unit/day
Measured/ Calculated / Default:	Measured
Source of data:	Sample survey conducted yearly once as described in section D
Value(s) of monitored parameter:	Average of 3.48 hours/day/family
Monitoring equipment:	Based on stratified annual sample survey as described in section D
Measuring/ Reading/ Recording frequency:	An annual stratified sample survey was conducted to assess the annual hours of operation of a biogas system. The number of samples surveyed was calculated using the latest guidelines as described in section D of the report.
Calculation method (if applicable):	Calculated as the average hours of operation from all the systems surveyed during the sample survey
QA/QC procedures:	Random stratified sample was taken without any bias for selection of families by the FCN.

Purpose of data:	- The data is not be used for emission reduction calculations. - As required by methodology I.C and mentioned in the PDD
Additional comment:	

Data / Parameter:	**Diversion of non-renewable biomass saved under the project activity by non-project households**
Unit:	Tonnes/year
Description:	Diversion of non-renewable biomass saved under the project activity by non-project households
Measured/ Calculated / Default:	Measured using stratified annual sample survey
Source of data:	Leakage data is based on sample survey of non-biogas users. To be conservative, it is based on latest version of the methodology.
Value(s) of monitored parameter:	By is multiplied by a net to gross adjustment factor of 0.95 to account for leakages.
Monitoring equipment:	Based on sample survey of non-biogas users, there was no diversion of non-renewable biomass saved under the project activity by non-project households. But to be conservative in calculations, B_y is multiplied by a net to gross adjustment factor of 0.95 to account for leakages (based on the latest version of I.E methodology, Version 4)
Measuring/ Reading/ Recording frequency:	Annual stratified sample survey.
Calculation method (if applicable):	B_y * 0.95
QA/QC procedures:	Though the survey does not imply diversion of non-renewable biomass saved under the project activity by non-project households, to be conservative, B_y is multiplied by a net to gross adjustment factor of 0.95 to account for leakages.
Purpose of data:	To calculate leakage from the project activity.
Additional comment:	

D.3. Implementation of sampling plan

>>

(a)The data monitored for the project activity is as follows:

I. Biogas Units Constructed
II. Number of biogas plants operating
III. Non-usage of biogas units
IV. B_y – Confirmation that non-renewable biomass has been substituted
V. Hours of operation of an average biogas system
VI. Diversion of non-renewable biomass saved under the project activity by non-project households

The parameters I to III have been collected for all the biogas units constructed and operating. For the parameters IV and V, an annual stratified sample survey of biogas users

was conducted, while for parameter VI, a sample survey of non-biogas users or households using traditional cook stoves was conducted.

(i) **Objectives and Reliability Requirements:** The objective of the sampling effort is to;

a) assess or confirm that non-renewable biomass has been substituted by biogas users and

b) To assess if there is any diversion of non-renewable biomass saved under the project activity by non-project households.

The sample size was determined to obtain 90/10 confidence/precision levels.

(ii) **Target Population**: The target population is 11,633 rural households for which biogas were constructed in 5 Taluks of Chickballapur district for parameter (a) above. The target population for parameter (b) above are the non-biogas users within the project boundary.

(iii) **Sampling Method:** The sampling method chosen for the project area is stratified random sampling, wherein each taluk is a stratum. It is easy to implement as the sampling frame (household details for which biogas were implemented) was collected and stored in the monitoring database. Each of the five Taluks - Bagepalli, Chickballapur, Chintamani, Gudibanda and Siddalaghatta was treated as a stratum. Thus sampling was done for each of the taluk to ensure that all the areas were well represented.

(iv) **Sampling Frame:** The sampling frame is the complete listing of all rural households for which biogas was built under the project activity in Bagepalli, Chickballapur, Chintamani, Gudibanda and Siddalaghatta taluks Chickballapur District, Karnataka. Each of the household has a unique identification number with all the required details of the family.

(v) **Determination of sample size:** Determination of sample size is in accordance with Annex 06, EB 67, "Guidelines for sampling and surveys for CDM project activities and programme of activities", which specifies the reliability requirements and describes appropriate sampling methods applicable to small-scale projects.

The sample size required to achieve a required level of reliability was calculated based on the following formula:

$$n \geq \frac{1.645^2 \times N \times V}{(N-1) \times 0.1^2 + 1.645^2 \times V}$$

Where:

$$V = \frac{SD^2}{mean^2}$$

n Sample size
N Total number of households (11,633 total no units commissioned till 30th June 2014)
1.645 Represents the 90% confidence required
0.1 Represents the 10% relative precision
SD Standard Deviation of the interested parameter (Cooking Hours)
Mean Mean of the interested parameter (Cooking Hours)

Based on the survey conducted during the previous year, the mean and standard deviation for the daily hours of cooking is as follows:

Taluks	Daily hours of cooking/day (hrs)	Standard deviation of daily hours of cooking/day (hrs)	Number of Biogas Units Installed as on 30th June 2014
Bagepalli	2.94	1.05	2,637
Chickballapur	2.99	0.79	2,063
Chintamani	2.91	0.84	3,565
Gudibanda	3.41	1.10	936
Siddalaghatta	2.83	0.68	2,432
Grand Total			**11,633**

Overall Mean = $$\frac{\sum_{region} \text{Re}\,gion.size \times mean}{N}$$

$$= \frac{[(12.94 * 2637) + (2.99 * 2063) + (2.91 * 3565) + (3.41 * 936) + (2.83 * 2432)]}{11633}$$

=2.95

Considering the total units installed as of 30th June 2014

Overall Standard Deviation =

$$= \frac{2637 \times 1.05^2 + 2063 \times 0.79^2 + 3565 \times 0.84^2 + 936 \times 1.10^2 + 2432 \times 0.68}{11633}$$

=0.88

Sample size calculation is as follows;

$$n = \frac{11633 \times 1.645^2 \times \frac{0.88^2}{2.95^2}}{(11633 - 1) \times 0.1^2 + 1.645^2 \times \frac{0.88^2}{2.95^2}}$$ =23.87 ≈ 24

By considering the response rate from the sampled households to be only 80%, the sample size is 24/80% = 30

Apportioning to all the taluks, the number of households to be sampled is as follows:

Taluks	Apportioning of households for sampling	Total Number of Households
Bagepalli	$\frac{2637}{11633} \times 30$	7
Chickballapur	$\frac{2063}{11633} \times 30$	6
Chintamani	$\frac{3565}{11633} \times 30$	9
Gudibanda	$\frac{936}{11633} \times 30$	2

Siddalaghatta	$\frac{2432}{11633} \times 30$	6
Grand Total		**30**

For parameter (IV) and (V), sample survey was carried out during the monitoring period as follows:

Taluks	Number of Villages	Total number of households Surveyed
Bagepalli	9	31
Chickballapur	5	16
Chintamani	9	31
Gudibanda	3	13
Siddalaghatta	6	24
Grand Total	**32**	**115**

For parameter (VI), a sample survey of non-biogas users was also conducted in biogas implemented villages to assess if there is diversion of non-renewable biomass saved under the project activity by non-project households.

The sample size was determined as follows (Bill Godden, 2004)[6]:

Sample size of infinite population (where the population is greater than 50,000)

$$SS = \frac{z^2 \times (p) \times (1-p)}{C^2}$$

Where

SS = Sample size
Z = Z value (e.g. 1.645 for 90% confidence level)
P = Percentage of population picking a choice, expressed as decimal
C = Confidence interval, expressed as decimal (0.1 - 10% confidence interval)

$$SS = \frac{1.645^2 \times (0.5) \times (1-0.5)}{0.1^2}$$

= 67.65
= 68

The sample survey conducted during 2013 to study the diversion of non-renewable biomass saved under the project activity by non-project households was stratified as follows:

Taluks	Number of Villages	Total number of households Surveyed
Bagepalli	9	76
Chickballapur	5	43
Chintamani	9	80
Gudibanda	3	27

[6] http://williamgodden.com

Siddalaghatta	6	56
Grand Total	**32**	**282**

Thus it can be seen that the number of households covered for the sample surveys is more than adequate to represent the parameters in the project area. Oversampling was done as a good practice to compensate for any attrition, outliers or non-response associated with the sample.

The data collected was entered into excel sheet for data storage and analysis

(b) Data:

i. ***Field Measurements:*** A household level questionnaire was designed to collect information for the parameters of interest. The frequency of measurement was once a year during the monitoring period. Data was collected for the monitoring year.

ii. ***Quality Assurance/Quality Control:*** The QA/QC procedure was to achieve good quality data through field measurements. The household level questionnaire was designed and field tested before administering the actual questionnaire survey. The survey was done by the FCN Technical Team. Oversampling was done to replace non-respondents, if any. The data collected was entered by and further cross-checked by the FCN Team.

iii. ***Analysis:*** The data entry was done in Microsoft excel sheet. The data was cross checked with the filled in questionnaire by FCN as QA/QC procedure. The data was analysed for responses to the parameters.

(d) Implementation:

Implementation Plan: The implementation of sampling effort was done by the FCN Technical Team. The FCN has the skill and resources to implement the sampling procedure. The team is experienced with rural energy CDM projects implemented for the rural poor. The collected data was analysed by the FCN for inclusion in the monitoring report.

D.3.1 Description of implemented sampling design

All the monitoring parameters i.e. (I) Number of installed 2 m^3 systems (II) Number of operating 2 m^3 systems and (III) Non-usage days of installed and operational biogas plants were monitored on a day to day basis for all the installed units for the monitoring period. These parameters which are required for calculations of emission reduction has no sampling plan as 100% units were monitored for all the parameters. Thus, the data used to calculate emission reduction has high precision and less uncertainty.

D.3.2 Collected data:

All the monitoring parameters i.e. (I) Number of installed 2 m^3 systems (II) Number of operating 2 m^3 systems and (III) Non-usage days of installed and operational biogas plants were monitored on a day to day basis and data collected for all the installed units. The data collected was entered into the monitoring solution. For the parameters (IV), (V) and (VI), the collected data was analysed.

D.3.3 Analysis of Collected data:

The data collected and entered into monitoring solution was exported to excel sheet for data analysis and to calculate the emission reductions of the project activity (*BCS_III_CER Calculations_V1.xls*).

(i) **Number of Biogas Units Constructed***:* Of the 18,000 units that were to be constructed under the project, 11,633 units were constructed till 30th June 2014.

(ii) **Number of Biogas Plants operating***:* The analysis of all the operating systems for each day consolidated for each month is shown in *BCS_III_CER Calculations_V1.xls.* The emission reductions are calculated only of units for operational days.

(iii) **Non-usage days of installed and operational biogas plants***:* The non-usage days or non-operating units were monitored on a day to day basis for all the constructed units. Based on the data, which is collected and entered into the monitoring solution, there were repairs, overhaul and maintenance of constructed biogas units. The reasons for the breakdown and total non-operational biogas days for the monitoring period (1st January 2013- 30th June 2014) are as follows:

Reason for Non-usage	No. of days	Number of Units
Empty and Replaster Dome	1,00,177	917
Dung Dried	41,991	348
Dung Too Watery	2,601	84
No Dung	60,327	482
Nozzle Blocked	321	53
Rain Water in Dome	652	15
Repair Stove - 2 Burners	6,702	140
Replace Stove	155	7
Unit Demolished	11,175	71
Grand Total	**2,24,101**	**2117**

A detailed breakdown time for each of the biogas unit is shown in excel sheet (*BCS_III_Biogas Breakdown Log.xls*).

There have been no events or situations that occurred during this monitoring period which has impacted the applicability of the methodology.

D.3.4 Demonstration on whether the required confidence/precision has been met:

All the parameters which are required for calculations of emission reductions were monitored for all the installed units. Thus these results of the data has very high confidence and precision level, with very low uncertainly levels.

The mean hours of biogas use is 3.48 hours/day, standard deviation is 0.79 and standard error of the mean is 0.07. The precision of the mean average cooking hours, assuming 90% confidence is ± (t-value x standard error of mean). i.e. (1.6559x0.07) = ±0.115913.

The ratio of this relative to the mean average cooking hours is $\frac{0.115913}{3.48}$ = 0.033308

So the relative precision is 3% which is therefore within the required specification. Thus the required confidence/precision has been met.

SECTION E. Calculation of emission reductions or GHG removals by sinks

E.1. Calculation of baseline emissions or baseline net GHG removals by sinks

>>

According to the methodology, it is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs. According to the methodology, Para 5, the specific equations for calculations of Baseline emissions, Project emissions or Leakage is not provided, but only for emission reductions as follows:
The emission reductions are calculated as:

$ER_y = B_y * f_{NRB,y} * NCV_{Biomass} * EF_{projected\_fossilfuel}$

Where:

ER_y	=	Emission reductions during the year y in tCO_2e
B_y	=	Quantity of biomass that is substituted or displaced in tonnes
$f_{NRB,y}$	=	Fraction of biomass used in the absence of the project activity in year y that can be established as non-renewable biomass using survey methods
$NCV_{biomass}$	=	Net calorific value of the non-renewable biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)
$EF_{projected\_fossilfuel}$	=	Emission factor for the projected fossil fuel consumption in the baseline. The fossil fuel likely to be used by similar consumers is taken: 71.5 tCO_2/TJ for Kerosene.

Emissions reductions from displacement of use of Non-renewable biomass by biogas for the monitoring period		
Activity Data	**Value**	**ID Ref**
Quantity of Biomass that is substituted (t)	**48,962**	*B_y (For calculations refer to BCS_III_CER Calculations_V1.xls). Calculated for the number of days of operation @ 3.0733 t/family/yr.*
Fraction of NRB	80%	*$f_{NRB,\ y}$ (Registered PDD)*
NCV Biomass (TJ/t)	0.015	*$NCV_{biomass}$ (Methodology)*
Emission factor Kerosene (tCO_2/TJ)	71.5	*$EF_{projected\ fossilfuel}$ (Methodology)*
Emission Reductions (tCO_2)	**42,009**	*ER_y (Calculated)*
Emissions reduction from displacement of Kerosene by biogas for the monitoring period		
Family level kerosene consumption reduction (litres/year)	**9,70,550**	*PDD (For calculations refer to BCS_III_CER Calculations_V1.xls. Calculated for the number of days of operation @ @60.92 l/family/yr)*
Density of Kerosene (kg/l)	0.7782	*PDD*
Kgs of Kerosene (kgs)	755,282	Calculated
Net Calorific value of kerosene (MJ/kg)	43.8	PDD
Carbon emission factor for kerosene (tCO_2/TJ)	75.1	PDD
Emission reduction (tCO_2)	**2,484**	Calculated
Total CO_2 emission reduction (tCO_2)	**44,493**	

The total emission reductions for the third monitoring period **1st January 2013 to 30th June 2014** for the installed and operational **11,633** biogas units are **44,493 tCO_2.** The unit-wise calculations of emission reduction are as enclosed in the excel sheet – *BCS_III_CER Calculations_V1.xls*

E.2. Calculation of project emissions or actual net GHG removals by sinks

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There are no project emissions in the project activity.

E.3. Calculation of leakage

>>

1. Leakage relating to the non-renewable biomass was assessed by doing surveys of users and areas from where biomass was previously being sourced. The following potential sources of leakage as specified in the methodology were monitored:

a) *According to the methodology, leakage has to be accounted from use/diversion of non-renewable biomass saved under the project activity by non-project households /users who previously used renewable energy sources. If this leakage assessment quantifies an increase in the use of non-renewable biomass used by the non-project households/users attributable to the project activity then By is adjusted to account for the quantified leakage.*

Data on the amount of biomass saved under the project activity that is used by non-project households or users was collected through a stratified sample survey conducted in the project area as detailed in section C. In the project area, renewable biomass energy sources such as crop residue, fallen twigs and branches though low are still the easiest to collect. Comparatively, collection of fuel wood from forests involves time and effort as they are beyond the village and agricultural lands. Thus the quantity of non-renewable wood used by the families has remained the same and not increased due to the project activity. Thus the nearest and easily available source of biomass is collected first, which are the renewable sources of energy. Thus all the 100% respondents of the survey continue to use the same quantity of crop residue and fallen twigs and branches even after the project activity and is not getting replaced by non-renewable wood.

b) *Leakage has to be accounted from use of non-renewable biomass saved under the project activity to justify the baseline of other CDM project activities can also be a potential source of leakage. If this leakage assessment identifies/quantifies a portion of non-renewable biomass saved under the project activity that is being used as the baseline of other CDM project activity then B_y is adjusted to account for the quantified leakage.*

Based on web check of UNFCCC and national DNA website, there were no CDM project activities in the region under validation/registration after the registration of BCS Biogas Project. Thus there are no project activities to justify the baseline of other CDM project activities to be a potential source of leakage. Thus there is no portion of non-renewable biomass saved under the project activity that is being used as a baseline of other CDM project activity to adjust B_y to account for leakage.

Also to be conservative, B_y is multiplied by a net to gross adjustment factor of 0.95 to account for leakages (based on the latest version of I.E methodology, Version 4)

c) Increase in the use of non-renewable biomass outside the project boundary to create non-renewable biomass baselines can also be potential source of leakage. If this leakage assessment quantifies an increase in use of non-renewable biomass outside the project boundary and this is being used as a baseline for another CDM project, then B_y is adjusted to account for the quantified leakage.

Based on web check of UNFCCC and national DNA website, there were no CDM project activities in the region under validation/registration after the registration of BCS Biogas Project. Thus there is no increase in the use of non-renewable biomass outside the project boundary to create non-renewable biomass baselines to account for potential source of leakage. Thus there is no use of non-renewable biomass outside the project boundary which is being used as a baseline for another CDM project to adjust B_y to account for leakage.

Also to be conservative, B_y is multiplied by a net to gross adjustment factor of 0.95 to account for leakages (based on the latest version of I.E methodology, Version 4)

2. No equipment is being transferred to another activity and hence is not monitored.

According to the sample survey, the project activity does not lead to leakage. But to be conservative, B_y is multiplied by a net to gross adjustment factor of 0.95 to account for leakages based on latest version of I.E methodology. The emission reduction considering leakage is shown below.

Emissions reductions from displacement of use of Non-renewable biomass by biogas for the first monitoring period		
Activity Data	**Value**	**ID Ref**
Quantity of Biomass that is substituted (t)	**48,962**	*B_y (For calculations refer to BCS_MR_V1.xls). Calculated for the number of days of operation @ 3.0733 t/family/yr as per PDD.*
B_y after considering Leakage (B_y x 0.95) (t)	**46,514**	*Adjusted B_y*
Fraction of NRB	80%	*$f_{NRB,\,y}$ (PDD)*
NCV Biomass (TJ/t)	0.015	*$NCV_{biomass}$ (Methodology)*
Emission factor Kerosene (tCO_2/TJ)	71.5	*$EF_{projected\ \ fossilfuel}$ (Methodology)*
Emission Reductions (tCO_2)	**39,909**	*ER_y (Calculated)*
Emissions reduction from displacement of Kerosene by biogas for the first monitoring period		
Reduction in Kerosene consumption (lts)	**9,70,550**	*PDD @60.92 l/family/yr)*
Density of Kerosene (kg/l)	0.7782	*PDD*
Kgs of Kerosene (Kg)	755282	Calculated
Net Calorific value of kerosene (MJ/kg)	43.8	PDD
Carbon emission factor for kerosene (tCO_2/TJ)	75.1	PDD
CO_2 emission from kerosene (tCO_2)	**2,484**	Calculated
Total CO_2 emissions reductions (tCO_2)	**42,393**	

E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks

Item	Baseline emissions or baseline net GHG removals by sinks (t CO_2e)	Project emissions or actual net GHG removals by sinks (t CO_2e)	Leakage (t CO_2e)	Emission reductions or net anthropogenic GHG removals by sinks (t CO_2e)
Total	44,493	0	2,100	42,393

E.5. Comparison of actual emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period

Item	Values estimated in ex-ante calculation of registered PDD	Actual values achieved during this monitoring period
Emission reductions or GHG removals by sinks (t CO_2e)	79,038	42,393

E.6. Remarks on difference from estimated value in registered PDD

>>

There was no increase in the actual emission reductions achieved during the current monitoring period.

There was a decrease in the emission reductions achieved during the current monitoring period to that projected in the PDD as only 11,633 biogas units are commissioned and operational against a target of 18,000 units. The biogas units are also being constructed in a phased manner. Further, there was downtime of biogas units due to repair and maintenance, which accounts for 4% of operational days.

E.7. Actual emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Item	Actual values achieved up to 31 December 2012	Actual values achieved from 1 January 2013 onwards
Emission reductions or GHG removals by sinks (t CO_2e)	0	42,393

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Appendix 1. Contact information of project participants and responsible persons/ entities

Project participant and/or responsible person/ entity	☒ Project participant ☐ Responsible person/ entity for completing the CDM-MR-FORM
Organization name	Bagepalli Coolie Sangha
Street/P.O. Box	-
Building	ADATS Campus
City	Bagepalli
State/Region	Karnataka
Postcode	561207
Country	INDIA
Telephone	+91 (8150) 282375, 282376
Fax	-
E-mail	cooliesangha@gmail.com
Website	http://www.adats.com/cs
Contact person	
Title	BCS President
Salutation	Mr.
Last name	Venkatanarasappa
Middle name	-
First name	-
Department	-
Mobile	+91 (94489) 452477
Direct fax	-
Direct tel.	-

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Document information

Version	*Date*	*Description*
04.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from *F-CDM-MR* to *CDM-MR-FORM*; • Editorial improvement.

Version	*Date*	*Description*
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net anthropogenic GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01	28 May 2010	EB 54, Annex 34. Initial adoption.

Decision Class: Regulatory
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