CLEAN DEVELOPMENT MECHANISM
SIMPLIFIED PROJECT DESIGN DOCUMENT
FOR SMALL-SCALE PROJECT ACTIVITIES (SSC-CDM-PDD)
Version 02

CONTENTS

Revision history of this document

Version Number	Date	Description and reason of revision
01	21 January 2003	Initial adoption
02	8 July 2005	• The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document. • As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at <http://cdm.unfccc.int/Reference/Documents>.

SECTION A. General description of the small-scale project activity

A.1. Title of the small-scale project activity:

India-FaL-G Brick and Blocks Project No.1

A.2. Description of the small-scale project activity:

The purposes of this project activity are:

(1) To reduce GHG emissions by introducing an energy efficient brick making technology to manufacture FaL-G (fly ash-lime-gypsum) bricks and blocks as alternative building materials to the commonly used burnt clay bricks, which use fossil fuel for their production;
(2) To reduce air pollution by avoiding the use of fossil fuel; and
(3) To enhance the use of fly ash, an industrial by-product, as an ingredient of building material.

Burnt clay bricks are predominantly used as walling material by the construction sector in India. The process of producing these bricks involves consumption of fossil fuel and denudation of fertile topsoil. FaL-G bricks and blocks are alternative building materials to the traditional burnt clay bricks and are substitutes to the traditional burnt bricks used for construction. Production process of FaL-G bricks and blocks does not involve sintering and thus completely eliminates the burning of fossil fuels as required in the clay brick production, ultimately contributing to the reduction of greenhouse gas emissions.

This Project Design Document is applicable to the 14 FaL-G plants that have been set up at various locations in the state of Andhra Pradesh since January, 2003.

Each FaL-G plant qualifies as a small scale CDM project as per the definition of small scale CDM projects contained in Appendix B to the simplified modalities and procedures for small scale projects. In order to reduce the transaction cost, a bundling approach is being followed in compliance with the rules prescribed by the Executive Board for bundling small scale projects.

Contribution to Sustainable Development

The project promotes an eco-friendly technology for production of alternative building materials. By avoiding use of fossil fuel in the production process, the project contributes to conservation of energy and fossil fuel (coal). By displacing burnt clay bricks in the walling materials market, the project contributes to protect the environment by minimising eco-hostile activities such as topsoil denudation leading to land degradation and air pollution caused by emission of unprocessed flues. Furthermore, since the alternative building material is manufactured using industrial wastes and byproducts as raw materials, the environmental impacts associated with improper disposal of such industrial wastes are also mitigated by the project. On social front, the project creates business opportunities for the small and micro enterprises. In contrast to the seasonal production-operations in the clay brick industry, FaL-G plants have the advantage of continuous year-wide operation, and hence provide yearlong employment opportunity for the skilled artisans and create self-help livelihood opportunities for the illiterate poor. The intrinsic environmental and social benefits of the project are further enhanced by a specific community benefit program, particularly the health and accident insurance schemes that are implemented to meet the requirements of the Community Development Carbon Fund (CDCF) of the World Bank. The project thus contributes to sustainable development in many ways.

A.3. Project participants:

Name of Party involved (*) ((host) indicates a host Party)	Private and/or public entity(ies) project participants (*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
Government of India (Host)	Eco-Carbon Private Limited (ECPL), on behalf of individual entrepreneurs listed in Annex- 3	No
Government of Italy	International Bank for Reconstruction and Development as the Trustee of the Community Development Carbon Fund (CDCF)	Yes
(*) In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

Eco Carbon Pvt. Ltd. (ECPL): A private company, which is committed for promoting FaL-G technology as CDM activity on commercial principles. ECPL will provide the technological and operational support to the individual entrepreneurs for implementing the FaL-G plants. ECPL represents the individual entrepreneurs and is responsible for organising the entrepreneurs in order to promote the project activities for carbon transactions.

The Community Development Carbon Fund (CDCF): Trust fund maintained and operated by the World Bank in its capacity as trustee of the CDCF on behalf of the public and private participants. CDCF will purchase the emission reductions generated by the project from ECPL and supervise the implementation of community benefit program.

The official contact for the CDM project activity is the Community Development Carbon Fund (CDCF) of the World Bank.

A.4. Technical description of the small-scale project activity:

A.4.1. Location of the small-scale project activity:

A.4.1.1. Host Party(ies):

India

A.4.1.2. Region/State/Province etc.:

Different districts in the State of Andhra Pradesh, India.

A.4.1.3. City/Town/Community etc:

The clusters and cities in which the project activities implemented are as follows.

States	District	No. of Plants	Aggregate Capacity - m3/year
Andhra Pradesh	Krishna	4	18000
	West Godavari	5	21600
	East Godavari	1	3600
	Visakhapatnam	2	9000
	Vizianagaram	2	9000
Total		**14**	**61,200**

A.4.1.4. Detail of physical location, including information allowing the unique identification of this small-scale project activity(ies):

The FaL-G plants are located in those clusters and geographical areas, which are characterised by easy availability of the key raw materials such as fly ash, gypsum and stone dust, and also proximity to the brick markets. A typical FaL-G plant is located near an urban growth centre where brick demand exists. Each plant requires at least a 2000 square meters of land. The plants included in the project are identified by a unique code/serial number for records and administrative convenience. The code consists of identity of the State, followed by identity of the district, Bundle No. in roman, and Serial Number of the plant in that bundle. For example, the ninth Plant in bundle No. I in the state of Andhra Pradesh in Visakhapatnam District is represented by the code: AP/VSP/I/9

A.4.2. Type and category(ies) and technology of the small-scale project activity:

The activity proposed in the project falls under type II – Energy Efficiency Improvement Projects. The FaL-G brick/block plant completely avoids the sintering process and associated coal consumption. Some of the machines in a FaL-G plant require either electricity or diesel for their operation. The consumption of such forms of energy (diesel or electricity) however is much lower compared to the thermal energy consumed for production of burnt clay bricks. The project activity thus falls under Type II.D. "Energy efficiency and fuel switching measures for industrial facilities".

Clay brick manufacturing involves two key processes: i) producing green bricks (clay bricks before firing are called 'green bricks'), and ii) sintering/firing the green bricks in a kiln. The sintering process requires thermal energy inputs. Production of FaL-G bricks and blocks in contrast, does not involve any thermal energy inputs. Significant amount of thermal energy is therefore saved through the use of FaL-G technology. The mechanical equipments/machineries used in a FaL-G plant use electricity or diesel. But the amount of such energy consumed is much lower compared to the thermal energy used in production of clay bricks, resulting in substantial energy savings in brick manufacturing. Type II, and category II.D. is therefore considered appropriate[1] for the project activities.

The total amount of energy saving to be achieved by the project is estimated as the difference between the energy consumed for production of certain volume (m^3) of bricks and blocks produced in the project and the energy that would have been consumed for production of an equal volume of clay bricks.

The aggregated energy saving by the 14 FaL-G plants included in the project, with an aggregated production capacity of 61200 m^3 bricks/-5.8(s( )4T isf)6((estim56.5(ated)]TJ0.8872 0 TD0.0037 Tc0.0275 Tw[(to)4.2d

Since there are no regulations[2] mandating the production and use of FaL-G bricks and blocks in construction, use of FaL-G technology is not expected to gain popularity in light of the several barriers it faces as discussed in section B.3. Production of burnt clay bricks using the conventional technologies is therefore expected to continue in the absence of the project, resulting in CO_2 emissions.

Emission reductions to be achieved by the project through promotion of the use of FaL-G technology at 14 different locations are estimated to be about 14162.3 tonnes of CO_2 equivalent annually.

A.4.3.1 Estimated amount of emission reductions over the chosen crediting period:

The project is expected to achieve GHG emission reductions of approximately 141623 tonnes of CO_2 equivalent in 10 years from operation of 14 FaL-G plants at different locations.

Years	Annual Estimation of Emission Reductions (tonnes CO_2 eq.)
Year-1	14162.3
Year-2	14162.3
Year-3	14162.3
Year-4	14162.3
Year-5	14162.3
Year-6	14162.3
Year-7	14162.3
Year-8	14162.3
Year-9	14162.3
Year-10	14162.3
Total estimated reductions (tonnes CO_2eq.)	**141,623**
Total number of crediting years	10
Annual average over the crediting period of estimated reductions (tonnes CO_2eq.)	14162.3

A.4.4. Public funding of the small-scale project activity:

No public funding from Parties included in Annex I is being received by this project.

A.4.5. Confirmation that the small-scale project activity is not a debundled component of a larger project activity:

The project activity is not a debundled component of a larger project activity as defined in appendix C to the simplified M&P for the small-scale CDM project activities. There are no other project activities registered or applying for registration as small-scale CDM projects with the same project participants and

[2] It is to be noted that although Government of India has been trying to increase fly ash use for construction material and has issued notification regarding use of fly ash in brick making, there are no mandatory requirements for the brick manufacturers in the country to shift to FaL-G technology..

in the same project category and technology/measure (FaL-G). All the FaL-G plants included in the project are independently owned and operated by different entrepreneurs, who are also listed as project participants in the project.

The characteristics of the individual FaL-G plants are provided below.

(i) Each FaL-G plant is independently owned and operated;
(ii) The FaL-G plants use same technology disseminated from the technological source, INSWAREB, acting as an intermediary; but have independent and one by one technological tie up with INSWAREB.
(iii) Each FaL-G plant enters into a contractual arrangement with INSWAREB for technical support.
(iv) No contractual arrangements exist among the bundled FaL-G plants.
(v) Each plant would be catering to different market segments, depending on transport, commercial and other logistical constraints; and
(vi) Each plant has specific boundary delineated by the physical and geographical site and equipments employed.

SECTION B. Application of a baseline methodology:

B.1. Title and reference of the approved baseline methodology applied to the small-scale project activity:

AMS-II.D (Version 07 : 28 November, 2005): Energy efficiency and fuel switching measures for industrial facilities

B.2 Project category applicable to the small-scale project activity:

The project category applied to this project activity is as follows:

- TYPE II - Energy Efficiency Improvement projects
- Category: II.D. Energy efficiency and fuel switching measures for industrial facilities.

The approved methodology AMS-II.D states that activities involving efficiency measures for specific industrial processes (such as steel furnaces, paper drying, tobacco curing etc.) do fall into the II.D. category. It also states that the measures may replace existing equipment or be installed at new facilities.

Manufacturing of burnt clay bricks is an industrial activity, which requires thermal energy inputs for the purpose of sintering. Fossil fuel and/or biomass are primarily combusted to provide the required amount of thermal energy for sintering the clay bricks, which results in CO_2 emissions. Production of FaL-G bricks and blocks however do not require combustion of fossil fuels or biomass as the FaL-G technology does not require any sintering. Instead, the strength is achieved through chemical reactions between the selected raw materials used, viz. fly ash, lime, gypsum and water. The products are then just air and/or solar dried and water cured for a specific period (curing time) to achieve the desired strength. The use of thermal energy from fossil fuels or biomass is completely avoided in the process. FaL-G plants are run either on electricity or on diesel. Consumption of such forms of energy (diesel or electricity) however is much lower compared to the thermal energy consumption for production of clay bricks. Use of AMS II.D is therefore considered appropriate[3].

The project introduces energy efficiency measure in form of FaL-G technology in brick making. The measure is introduced at 14 new brick production facilities. With full capacity utilization, the total energy savings to be achieved from the project is estimated to be about 43.73 GWh_{th} per year. This saving is less than the threshold of 45GWh_{th} per year applicable to this category of activities as defined in AMS II.D. The activity proposed thus meets all the conditions to use the methodology provided in AMS II.D.

B.3. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered small-scale CDM project activity:

A small scale CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would occur in the absence of the registered project activity, and the project activity is facing one or more barriers as defined in Attachment A to Appendix B of the simplified modalities and procedures for small scale CDM project activities.

The analysis in the following paragraphs documents a number of barriers for the FaL-G technology. It is expected that the burnt clay brick manufacturing using conventional technologies will continue to meet the walling material demand in the country resulting in substantial CO2 emissions, in the absence of the project activity. The project activity is therefore considered additional and would result in emission reductions below those that would have occurred if the equivalent amount of clay bricks were to be produced.

Barrier due to prevailing practice

Burnt clay bricks continue to be the most popular form of walling material in the country as it is cheap and has traditionally been believed to be the most suitable walling material for building construction. Although alternative building materials such as cement concrete block and fly ash bricks have been introduced in the recent past, burnt clay bricks account for more than 95% of the total market for walling material in larger parts of the country. This can be seen from the data presented below (Source : A study on "Cost Effective Building Materials & Technologies" undertaken by Holtec Consulting Private Limited in the year 2004 on behalf of Building Materials Technology Promotion Council, a Government of India Undertaking).

Table 2.1 : Market share of different walling materials

Type of walling material	Market size (Rs. Crores[4])	% of total market
Burnt clay bricks	32825	95.3
Cement Concrete Blocks	1135	3.3
Fly ash bricks incl. FaL-G	485	1.4
Total	34445	100

[3] The appropriateness of the category has been confirmed by the Small Scale Working Group (SSCWG) in response to the project participants' proposal to use a new category under category III. Recommendations of the SSCWG is on the subject is provided at Annex- 5

[4] 1 crore = 10 million

Clay brick production is a simple activity and is even practiced at the cottage sector level. Clay brick is a commonly used technological practice, which, even at the brink of 21^{st} century, is practiced as a family trait that has been passed on from generation to generation. Small fired clay brick producers have no incentives to introduce alternate technologies, which require new investments, training to stabilize the operation, and a different business practice in long term perspective. Production and use of burnt clay bricks is therefore considered to be the most common practice at present and is expected to remain a common practice in the future unless significant regulatory mechanisms are evolved and enforced.

Technological Barriers

FaL-G technology in particular, requires a recipe control of 3 main ingredients namely fly ash, lime/cement and gypsum plus water at the mixing step. This is followed by manual/mechanical casting and lining up the bricks on the platform or casting yard for drying for one or two days. The dried up bricks are stacked and cured with water for one to two weeks, depending on the ambient temperature upon which the product is ready for despatching to the market (See Annex 4 - Process flow chart).

FaL-G is a proven technology and has superiority in terms of the strength as a walling material. However, it requires building the capacity of the entrepreneurs and training of artisans to start up and maintain the production. These requirements are perceived as barriers by the burnt brick manufacturers.

Two important technical features that have led to high risk perception of FaL-G are discussed below.

Sourcing of raw material **:** In contrast to the clay brick industry, where the basic raw material is the soil available in and around the production sites, FaL-G technology and products require fly ash, lime and gypsum as key ingredients. These ingredients are required to be tested, selected and sourced from industrial facilities, where they are produced. FaL-G Plants are therefore required to be carefully located unlike the traditional clay brick plants, which require only the supply of adequate amount of soil.

Operating within the specified limits for right chemistry **:** FaL-G technology, unlike the traditional clay brick making, requires recipe control of 3 main ingredients namely fly ash, lime/cement and gypsum plus water at the mixing step. In case there are changes to the sources of the raw materials, the chemistry and hence the recipe needs to be reworked. This is perceived as an interruption to plant operation leading to production loss.

Other barriers: Market acceptance of FaL-G products

In spite of the various superiorities of the FaL-G brick, the grey color (imparted by the color of fly ash) of FaL-G products creates a barrier in terms of low consumer acceptance. This is the common observation made by consumers during various market surveys conducted by different FaL-G brick promoters. In addition to the colour, the presence of ash in the product also creates negative perception on the quality of the product.

B.4. Description of how the definition of the project boundary related to the baseline methodology selected is applied to the small-scale project activity:

In line with the definition for type II.D methodology, the boundary for the purpose of the proposed project is defined as the physical, geographical area affected by the project activity. Accordingly, the boundary of the project is defined to include the physical and geographical limits of the FaL-G plants included in the project. A figure showing the boundary of the typical project is attached in Annex [4]. The production sites typically include the following facilities:

- The storage yard for raw materials.
- Pan mixer for mortar preparation
- Casting machine
- Drying yard (natural drying in ambient temperature)
- Curing yard (water spray curing in ambient temperature)

The only source of CO_2 emission that occur within the project boundary is the CO_2 emission associated with consumption of diesel, where the mechanical equipments are run by diesel engines. In such cases diesel is burnt directly in the engine (not converted to electricity) to run the mechanical equipments such as the pan mixer. Wherever electricity is available the same is used to run the equipments. Emissions associated with the consumption of diesel and electricity is accounted for while estimating the emission reductions. The only other activity outside the project boundary that leads to CO_2 emissions is the transport of raw materials to the FaL-G plants. Since substantial transport activity (for soil and coal) also occurs in the baseline to support clay brick activity (the baseline activity), as well as to support waste disposal activity (for various kinds of wastes - fly ash, gypsum etc.), emissions associated with transport of raw materials is not included in the project emissions.

B.5. Details of the baseline and its development:

As per AMS II.D. "the energy baseline consists of the energy use of the existing equipment that is replaced in the case of retrofit measures and of the facility that would otherwise be built in the case of a new facility".
The project involves setting up new facilities for production of bricks and blocks by using the FaL-G technology, which is energy efficient. The energy baseline is therefore the energy use of the facilities that would otherwise be built in the absence of the project in order to meet the demand for walling material, comparable in quality and utility to that of bricks and blocks produced through FaL-G technology. The data on walling material market (provided in table 2.1) shows that burnt clay bricks represent more than 95% of the total walling material market. Production of burnt clay bricks is therefore considered the baseline scenario.

Energy Baseline
Based on the justifications provided in the previous paragraph, energy use of burnt clay brick making facilities is considered the energy baseline.

Production of burnt clay bricks employs different technologies with different levels of energy consumption. Since it is difficult to determine precisely a particular technology that would be used in the absence of project activity, a weighted average energy use of these technologies is considered to best represent the baseline energy consumption. The technologies, which are banned by regulation, have not been considered in calculating the weighted average energy use.

The different technologies that are used to produce burnt clay bricks include clamps, Movable Chimney Bull Tranche Kilns (MCBTK), Fixed Chimney Bull Tranche Kiln (FCBTK), High Draft Kilns (HDKs) and the recently introduced Vertical Shaft Brick Kiln (VSBK) technology. Concerned over the increasing pollution from brick industry, the Government of India has already banned the use of MCBTK and it does not issue any clearances/approvals to set up new brick units using MCBTK. Therefore, MCBTKs have not been considered in the energy baseline. The energy baseline (energy use for production of unit volume of bricks/blocks) is determined by considering the remaining technologies and their prevalence in the market using the data presented in the table 1.2 below (source[5] : Emission Standards for brick kilns-An opportunity for Technology upgradation by Sameer Maithel, The Energy Research Institute (TERI), India) .

Table 1.2 : Energy consumption of different types of brick kilns in India

Burnt clay brick technologies	Specific energy consumption (MJ/kg-brick) SECx		Production capacities (100000 kg - bricks/year) Qx		No. of Plants Nx
	Range	Average	Range	Average	
BTK- fixed chimney	1.0 – 1.5	1.25	83 - 275	179	25000
High draft/ zig zag	0.8 – 1.0	0.9	83 - 138	110	200
Clamps	2.0 – 3.0	2.5	1.4 – 27.5	14	60,000
Vertical Shaft Brick Kiln	0.8 – 1.0	0.9	14 - 110	62	30

The weighted average specific energy for burnt clay brick is thus calculated by using the following formulae.

$$SEC_{claybrick} = \frac{\sum_x SEC_x \bullet Q_x \bullet N_x}{\sum_x Q_x . N_x}$$

Where
SEC $_{\text{clay brick}}$ = Weighted average specific energy of clay brick (MJ/kg-brick)
SEC_x = Specific energy of brick produced using technology x (MJ/kg)
Q_x = Production capacity of brick plants using technology x (100000 kg-bricks/year)
N_x = No.of plants that use technology x in the country
X = different types of technologies

The weighted average energy consumption figure for clay brick production using the above equation and the data presented above works out to be 1.45 MJ/kg-brick. Considering the popularly practiced dimensions of length, breadth and height of burnt clay brick to be 22 cm, 10 cm, and 7 cm respectively, and weight of the brick to be approximately 2.77 kg/brick (at 1800 kg/m3), the specific energy consumption translates to be 0.00261 TJ/m^3bricks.

Emission Baseline

Coal is the main source of energy used for manufacturing burnt clay bricks in India. The second choice of fuel is biomass, including fuel wood. In one of the studies undertaken by the FAO[6] the annual use of fuel wood in the entire brick industry in the country is reported to be only 300,000 tons, while the use of coal

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[5] http://www.brickindia.com/articledetail.asp?id=36&cat=5

[6] Source: FAO Field Document No. 35, "Regional Wood Energy Development Programme in Asia", GCP/RAS/154/NET.

is reported to be about 14,000,000 tons. Thus use of fuel wood represents less than 2% in terms of energy inputs of the total energy requirement of the brick industry in all of India. Since the values reported in the FAO report do not distinguish between the renewable biomass and nonrenewable biomass, the actual fraction of renewable biomass (with zero emissions) is likely to be lower. Further the situation with biomass, which was earlier available as a cheaper fuel, is changing rapidly nation wide. The on going initiatives for biomass-based power plants have introduced competition in the market, increasing the cost of biomass. In the absence of any precise information on the use of biomass in brick industry, it is proposed to fix the biomass usage in brick production conservatively at 5% of the total energy input, for all the areas included in the project. This figure is higher than the national average figure of less than 2% reported in the FAO report. In order to account for the zero emissions from the use of biomass, the energy use in burnt clay brick production is adjusted appropriately by multiplying it with a "biomass adjustment factor" (0.95 = 1 - 0.05). The baseline emission thus derived would be conservative.

The amount of CO_2 emissions from burning of coal depends largely on the type of coal and its calorific value. Different types of coal are used in India for brick making. In order to address the variability in coal quality, the IPCC default carbon emission factor for Indian coal as 25.8 tC/TJ (IPCC) has been used to estimate the CO2 emissions associated with burning of coal in the baseline.

The total emissions from the baseline scenario is estimated to be 12085 tonnes of CO_2 equivalent per annum for the 14 plants included in the project. For details refer section E.1.2.4.

Date of Completion of the baseline : 5th April 2006.

Name of person/entity determining the baseline:

Institute for Solid Waste Research & Ecological Balance
FaL-G Mansion
35. Shri Venkateswara Colony
Visakhapatnam 530012

Name of Contact person:
N Kalidas
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The entity, Institute of Solid Waste Research and Ecological Balance is not a project participant.

SECTION C. Duration of the project activity / Crediting period:

C.1. Duration of the small-scale project activity:

C.1.1. Starting date of the small-scale project activity:

01/01/2003

C.1.2. Expected operational lifetime of the small-scale project activity:

15 Years.

C.2. Choice of crediting period and related information:

C.2.1. Renewable crediting period:

NA

C.2.1.1. Starting date of the first crediting period:

Not Applicable

C.2.1.2. Length of the first crediting period:

Not Applicable

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

01/04/2004

C.2.2.2. Length:

10 years

SECTION D. Application of a monitoring methodology and plan:

D.1. Name and reference of approved monitoring methodology applied to the small-scale project activity:

Type II – Energy Efficiency Improvement Projects

Type II.D. Energy efficiency and fuel switching measures for industrial facilities.

For new facilities, the approved methodology requires the following.

1. Metering the energy use of the equipment installed
2. Calculating the energy savings due to the equipment installed or alternate technology adopted.

D.2. Justification of the choice of the methodology and why it is applicable to the small-scale project activity:

The activities envisaged in the project are similar to those covered under the approved methodology II.D. The new FaL-G plants that are set up in the project consume lower energy to produce an equivalent out put of bricks and blocks compared to the production of burnt clay bricks in clay brick plants. The project thus contributes to energy saving. The approved methodology requires the energy consumption in new facilities to be monitored through metering. This is possible in FaL-G plants, where electricity is used as the main source of energy. For FaL-G plants where diesel is used as the main source of energy, it is possible to estimate the energy consumption by recording the diesel consumption.

The approved methodology II.D. requires the total energy savings of the project to be below 15 GWh_e or 45 GWh_{th}. The energy saving to be achieved by the 14 FaL-G plants included in the project is estimated to be about 43.73 GWh_{th}.

The choice of the methodology II.D is thus appropriate.

D.3 Data to be monitored:

ID number	Data type	Data variable	Data unit	Measured (m), calculated (c) or estimated (e)	Recording Frequency	Proportion of data to be monitored	How will the data be archived? (electronic/ paper)	For how long is archived data to be kept?	Comment
1	*Production rate*	$N_{FaL-G-i}$	*Bricks/blocks/day.*	*M*	*Daily*	*100%*	*Manual*	*Till 2 years after the end of the crediting period*	
2	*Product dimension*	$V_{FaL-G-i}$	*M^3/brick*	*M*	*Daily*	*sample*	*Manual*	*Till 2 years after the end of the crediting period*	
4	*Monthly Production*	Q_{FaL-G}	*M^3/Month*	*C*	*monthly*	*100%*	*electronic*	*Till 2 years after the end of the crediting period*	*Calculated monthly out of the daily production data.*
6	*Electricity/ diesel consumption*	$Q_{Electricity}$	KWh_e	*M*	*Monthly*	*100%*	*electronic*	*Till 2 years after the end of the crediting period*	
7	*Electricity/ diesel consumption*	Q_{diesel}	Litre	*M*	*Monthly*	*100%*	*electronic*	*Till 2 years after the end of the crediting period*	

The FaL-G plant owners will report the data to ECPL who will archive the data.

D.4. Qualitative explanation of how quality control (QC) and quality assurance (QA) procedures are undertaken:

The data involved in the project will be monitored and recorded by the FaL-G plant operators. The plant owners (entrepreneurs) will provide the data on production of FaL-G bricks/blocks and the consumption of diesel and electricity on a monthly basis to ECPL.

The following quality control measures are included. Upon receipt of data on brick/block production and fuel use (electricity or diesel), from the plants on a monthly basis, ECPL will review the data. Depending upon the production capacity of individual plants, and raw materials used, certain benchmark figures are developed by ECPL for different parameters. In case significant deviations are noticed in the data provided by the entrepreneurs, ECPL will visit the site and correct the data in discussion with the entrepreneur. In addition, the Carbon Inspectors (officials of ECPL) of ECPL will also make surprise visits to FaL-G plants to check whether the process and FaL-G recipe used by the plant operators are within the acceptable range to ensure that quality of the products is not affected. Thus they would also tally the FaL-G recipe to the consumption of raw materials in order to check the diligence of record keeping and accuracy for ultimate diligence of emission computations.

By calculating the key parameters based on the daily data collected at the plant site and sorting out the data gaps every month, the potential for large discrepancies is avoided. The purchase registers of different raw materials are also referred to in case of large discrepancies and the one that represents the lowest is accepted for conservative estimates.

ECPL also suggests individual entrepreneurs to test the strength of the FaL-G twice a year by sending the product to testing facilities/labs or by sending the product to INSWAREB lab.

D.5. Please describe briefly the operational and management structure that the project participant(s) will implement in order to monitor emission reductions and any leakage effects generated by the project activity:

As discussed above.

D.6. Name of person/entity determining the monitoring methodology:

Institute for Solid Waste Research & Ecological Balance
FaL-G Mansion
35. Shri Venkateswara Colony
Visakhapatnam 530012

Name of Contact person:
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The entity, Institute of Solid Waste Research and Ecological Balance is not a project participant.

SECTION E.: Estimation of GHG emissions by sources:

E.1. Formulae used:

E.1.1 Selected formulae as provided in appendix B:

The approved methodology II.D. requires each form of energy used in the baseline to be multiplied by an emission coefficient. This is described in the following sections.

E.1.2 Description of formulae when not provided in appendix B:

E.1.2.1 Describe the formulae used to estimate anthropogenic emissions by sources of GHGs due to the project activity within the project boundary:

The approved methodology II.D requires each form of energy used to be multiplied with corresponding emission coefficient (kg-CO_2 equ/KWh) to determine the CO_2 emissions. Different forms of energy used in a FaL-G plants include either electricity or diesel. Wherever electricity is available, the same is used in the plant. In places, where electricity is not available diesel is used to run the plant. Therefore in a given plant either electricity or diesel is used as the source of energy not both. The emission coefficient of electricity and diesel are therefore used to estimate the project emissions.

Estimating emissions from electricity consumption

For those plants, which run on electricity, the project emissions are calculated using the formulae

$E_{p,x} = E_{x,elec} = (Q_{x, FALG} \text{ x } SEC_{x, FALG}) \text{ x } EF_{elec}$.

$Q_{x,FALG} = Q_{x, bricks} + Q_{x, blocks}$

$SEC_{x, FALG} = Q_{x, elec}/Q_{x,FALG}$

$E_{p,x}$ = Project emissions for plant x (tCO_2/year)
$E_{x, elec}$ = Annual CO_2 emissions from a plant x associated with annual consumption of electricity (tCO_2/year)
$Q_{x, FALG}$ = Annual production of FAL-G bricks/blocks from the plant x (m^3/year)
$Q_{x,brick}$ = Annual production of FaL-G bricks in plant x (m^3/year)
$Q_{x,block}$ = Annual production of FaL-G blocks in plant x (m^3/year)
$SEC_{x, FALG}$ = Specific energy consumption of FaL-G product in plant x (KWh_e/m^3)
$Q_{x, elec}$ = Annual consumption of electricity in the plant x (KWh_e/year)
EF_{elec} = Emission factor of electricity (tCO_2/KWhe)

Estimating emissions from diesel consumption

Wherever electricity supply is not available, diesel is used to run the equipments and machineries in the plant. Consumption of diesel in the plant is monitored and recorded on a monthly basis, from which the annual consumption is calculated. Emission associated with such consumption of diesel is calculated by multiplying the quantity of diesel consumed with the IPCC emission factor for diesel. The project emission is thus represented by the formulae

$E_{p,x} = E_{x,diesel} = Q_{x, FaLG} \text{ x } SEC_{FALG} \text{ x } EF_{diesel}$

$SEC_{x,FALG} = Q_{x, diesel}/Q_{x, FALG}$

Where,
Ex_{diesel} = CO_2 emissions due to direct consumption of diesel in the plant x (tCO_2/year)
$SEC_{x\ prod}$ = Specific energy consumption of FaL-G product in plant x (litre/m^3)

$Q_{x\ diesel}$ = Quantity of diesel used in the plant x per year (litres/year)
EF_{diesel} = CO_2 emission factor for diesel (tCO2/litre), IPCC default value

The total project emissions E_p due to the project activities within the project boundary is represented by the formulae

$$E_p = \sum_x E_{p,x}$$

E.1.2.2 Describe the formulae used to estimate leakage due to the project activity, where required, for the applicable project category in appendix B of the simplified modalities and procedures for small-scale CDM project activities

According to II.D., leakage consideration is applicable if the energy efficient technology is equipment transferred from another activity or the existing equipment is transferred to another activity. None of these occur in the project. Therefore, leakage calculation is not applicable for this project.

E.1.2.3 The sum of E.1.2.1 and E.1.2.2 represents the small-scale project activity emissions:

Since no leakage is considered for the project, the total project emissions within the project boundary E_p, as calculated in section 1.2.1 represents the total project activity emissions.

E.1.2.4 Describe the formulae used to estimate the anthropogenic emissions by sources of GHGs in the baseline using the baseline methodology for the applicable project category in appendix B of the simplified modalities and procedures for small-scale CDM project activities:

The emissions $E_{b,x}$ from the baseline activity for the plant x is calculated as

$$E_{b,x} = (1 - PER_{biomass}) \bullet SEC_{claybrick} \bullet Q_{x,FALG} \bullet CEF \bullet CC$$

where,

$PER_{biomass}$	=	biomass correction factor for the baseline = 0.05
$SEC_{clay\ brick}$	=	Specific energy consumption of burnt clay bricks (MJ/m^3 clay brick)
$Q_{x,FALG}$	=	Quantity of clay bricks (m^3/year) equal in quantity to that of FaL-G bricks and blocks produced in plant x (m^3 clay bricks/year)
CEF	=	Carbon Emission Factor for fuel used (bituminous coal)
	=	25.8 tC/TJ (IPCC default value for India)
CC	=	Carbon to CO_2 conversion factor

The total emissions E_b in the baseline is represented by the formula

$$E_b = \sum_x E_{b,x}$$

The emissions in the baseline scenario are 141341 tonnes of CO_2 equivalent over 10 years for the 14 FaL-G plants included in the project, assuming a production capacity of 61200 m^3 FaL-G bricks/blocks per year.

E.1.2.5 Difference between E.1.2.4 and E.1.2.3 represents the emission reductions due to the project activity during a given period:

Emission reduction generated by the project consisting of 14 plants (x=14) is represented by the formula

$ER = \sum(E_{b,,x} - E_{p,.x})$

E.2 Table providing values obtained when applying formulae above:

The various assumptions and values used in the calculation are provided in the table below.

Sl. No.	Parameter	Variable	Values	Units	Remarks
	Project related parameters				
	Emission factor of diesel	EF_{diesel}	0.0032	tCO_2/litre	IPCC default
	Emission factor for electricity	EF_{elec}	0.9	tCO_2/MWh_e	IPCC default
	Baseline related parameters				
	Density of conventional clay brick	$D_{clay\ brick}$	1.80	$Tons/M^3$	
	Specific energy of clay bricks	$SEC_{clay\ brick}$	0.000725	GWh_{th}/m^3 brick	
	Carbon Emission Factor for Coal	CEF_{coal}	25.8	tC/TJ	IPCC default
	Fraction of energy supplied by biomass in brick kilns	$R_{biomass}$	0.05		
	Carbon to CO_2 conversion factor	CC	3.67	tCO_2/tC	

Emission reductions have been estimated applying the values mentioned in the above table in the formulae presented earlier. The results for each plant included in the project are summarized in the following table.

SECTION F.: Environmental impacts:

F.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity:

FaL-G plants, being very small industrial activities, do not require any environmental impact assessment study. However, the sponsors have carried out an environmental and social review of the project. The analysis reveals that FaL-G activity is environmentally benign and has several positive impacts. The principal beneficiaries of the project include

- Local communities: due to reduced negative environmental impacts from the traditional clay brick manufacturing process, such as land degradation and heavy air pollution, as well as reduced waste from better fly ash utilisation options.
- The global community, due to the expected reduction in GHG emissions and contribution for reduction to climate long-term change.
- Industrial and utility sectors, which would benefit from the reduced cost of waste disposal due to increased off-take by the FaL-G manufacturers.

The significant positive impacts on environment associated with the project largely outweigh the few negative impacts, which are mostly linked to the simple operational practices that are followed in small and micro scale FaL-G plants. These impacts are however manageable. The sponsors have developed an Environment Management Plan/Good Practice Manual, which will be implemented at all the FaL-G plants. In addition, a specific Community Benefit Program has also been designed for the benefit of the workers.

SECTION G. Stakeholders' comments:

G.1. Brief description of how comments by local stakeholders have been invited and compiled:

The yardsticks adopted in seeking stakeholders' comments on environmental impacts for scheduled industries in medium and large-scale sector are of different dimension. This project being an agglomeration of tiny sector units scattered over a large geographical area, no special process has been adopted to invite the comments at National level.

However, Extensive consultations in various forms of promotional workshops have been carried out during the past years by INSWAREB on FaL-G, covering a wide range of stakeholders.

Notwithstanding these workshops, the project sponsors carried out several formal and informal consultations at different sites, targeting a range of stakeholders since 2003. The range of stakeholders consulted include:

a) The entrepreneurs
b) The brick consumers
c) The local residents
d) The workers, manufacturing FaL-G blocks at FaL-G plants.
e) The suppliers of raw materials.

G.2. Summary of the comments received:

It may be noted that brick entrepreneurs, brick consumers, the local residents, the brick workers and the raw material suppliers are the principal stakeholders associated with the FaL-G activity. The response by the stakeholders has been generally positive about the product and the technology. However, certain concerns of these stakeholders are summarised below.

FaL-G Entrepreneurs

These entrepreneurs felt that carbon credits would help them in giving discounts in order to face stiff price competition from clay bricks.

They consider that the credits would be certainly an incentive to enthuse them in order to produce more FaL-G bricks and blocks and abate more CO_2.

Some of them wondered and got elated by realising the magnitude of their activity in contributing to the environment at global perspective.

Some of them questioned the authenticity of price and striking the deal at specified price.

FaL-G consumers

The consumers wondered whether they would get reduction in price of FaL-G blocks to the extent of credits received by their supplier. They argued that consumers were equally responsible for the generation of credits and, hence, it would be fair that the entrepreneurs share the benefits with them.

Some of them admitted that, whether they get carbon benefits or not, FaL-G bricks were their product of choice for avoiding at least 10-15% wastage, which is unavoidable with clay bricks produced with poor quality of clay and insufficient sintering.

Some of the builders hoped that, encouraged by carbon credit mechanism, more and more entrepreneurs would take up the production to increase the supply position so that their projects do not suffer scarcity, more so while their construction project based on FaL-G were halfway through.

Local residents:

Local folks desired that the raw materials in bulk, such as fly ash and stone dust, be handled in wet state so that there would not be dust emanation.

Some of them wished to get more and more plants so that employment potential to the youth would brighten up.

Giving reference to the proximity of the plant, many of them ascertained that they would be getting more qualitative product over clay brick for their constructions with least transportation cost.

Some of them have shown interest to become entrepreneurs and get into FaL-G activity, if they were assured of the technology support and carbon credit incentive.

Brick Workers:

Some of the workers argued that they are part of the production process and, thereby, they deserve to get a portion of the carbon benefit?

One section of the workers expressed that, as long as they get wages promptly with no interruption of work, they would wish their employer to get more and more such incentives.

Raw material suppliers:

All most all of them hoped that carbon incentive would ease the financial crunch of entrepreneurs and, in turn, may help in resolving undue payment-delays, which is a menace in construction industry.

G.3. Report on how due account was taken of any comments received:

As can be seen from the previous section, the comments received from various stakeholders are largely positive. The concern on dust emanation from FaL-G units will be addressed by requiring the FaL-G units handle fly ash and stone dust in wet condition. The thermal plants do operate hydra-mixers so that the fly ash is delivered into the trucks of entrepreneurs without dust emanation. It is same with stone dust also.

With regard to workers' comments, FaL-G offers them continuity of work and wage-earnings, which is the basic need of a worker that could not be made possible with clay brick industry. In addition, a Community Benefit Plan comprising of welfare measures such as group insurance for accidents and death, and safe sanitation for workers will be implemented to enhance the workers' benefits.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Eco Carbon Pvt. Ltd.	
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FAX:	++91-891-2517429	
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Represented by :	
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Department:	ENVCF
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

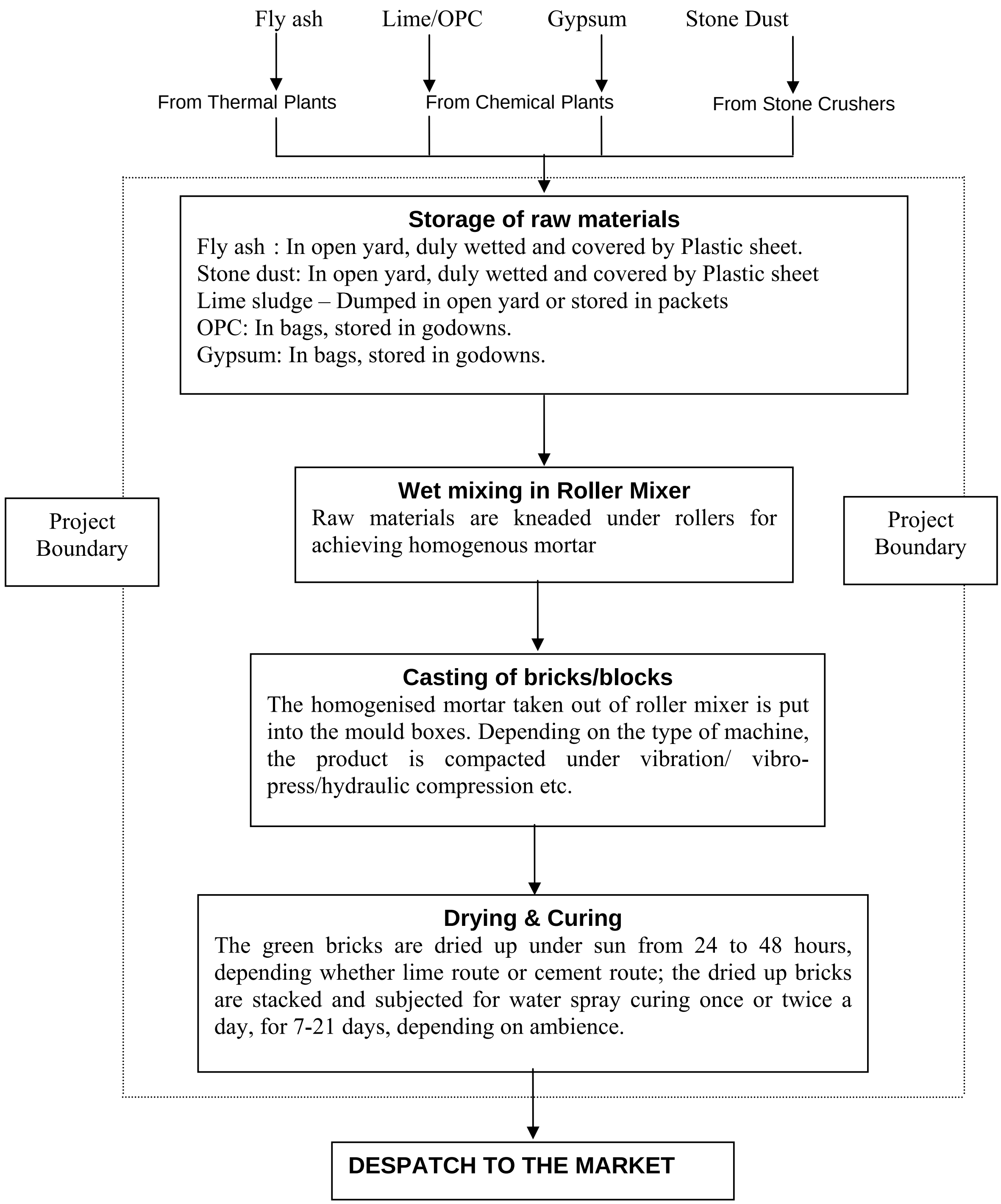
No public funding is availed.

Annex 3 : List of FaL-G Entrepreneurs

No.	Name & Address of the Entrepreneurs	Name and relation of Authorised Signatory	Identification Number	Established in
	Krishna District, Andhra Pradesh			
1	Kodali Fly ash Products	K Srinivasa Rao	AP/KRIS/I/1	Feb-04
	7-60. Endowments Colony,	Proprietor		
	Nagarjuna Hospital Road, Kamayyatopu	94401-72433		
	Vijayawada, Krishna Dt. AP			
2	Srinivasa Fly ash Bricks	G Bhaskar Reddy	AP/KRIS/I/2	Jun-03
	Nunna, Vijayawada Rural Mandal	Proprietor		
	Krishna Dt. AP	9392103229		
3	Sri Sai Fly ash Products	K Padmavathi	AP/KRIS/I/3	Jan-04
	D.No. 3-56. Kodalivari Street	Proprietrix		
	Enikepadu, Krishna District, AP	93929-41458		
4	Saiteja Brick Products	K Krishna Kishore	AP/KRIS/I/4	Jun-04
	Chilkar, Ibrahimpatnam	Proprietor		
	Krishna Dist. AP	98489-49409		
	West Godavari District, Andhra Pradesh			
5	Srinivasa Fly ash Bricks	M Srinivasa Rao	AP/WG/I/5	Nov-03
	Pangidi Road, Besides FCI Godowns	Mg. Partner		
	Nidadavole, West Godavari Dist. AP	94400-25786		
6	Sri Kanakadurga FaL-G & Cement Works	Satti Venkata Ramarao	AP/WG/I/6	Nov-03
	opp. Kakatiya Kalyana Mandapam	Proprietor		
	4-257. Chivatam Village	98852-94239		
	Undrajavaram Mandal, West Godavari Dt. AP			
7	Kodandarama Fly ash Brick Industries	Alluru Usharani	AP/WG/I/7	Sep-03
	Venkayalapalem Road	Proprietrix		
	Vissakoderu Post, Palakoderu Mandalam	98484-33688		
	West Godavari Dist. AP			
8	Sri Lakshmi Vasavi FaL-G Brick Industry	Ms. Satti Sri Varalakshmi	AP/WG/I/8	Oct-03
	Door No. 16-145 Canal Road	Proprietrix		
	Ramachandrarao Peta, Penugonda 534320	94407-49959		
	West Godavari Dist. AP			

9	Sridevi Fly ash brick Industries	B Ramakrishna	AP/WG/I/9	Feb-04
	Mustabad, Purushottapatnam	Proprietor		
	Gannavaram Mandal, Krishna Dist. AP	98853-57555		
	East Godavari District-Andhra Pradesh			
10	Sri Satyasai Sri Anjaneya FaL-G Brick Industry	KVK Satyanaranaya Murty	AP/EG/I/10	Jan-03
	NH 214 Road, Sompalle Village-533242	Proprietor		
	Razole Mandal, East Godavari Dist. AP	94405-11257		
	Visakhapatnam District-Andhra Pradesh			
11	Hemanth FaL-G Industry	Ms R Prasannakumari	AP/VSP/I/11	Aug-03
	Door No. 27-1-171. Srinagar	Proprietrix		
	Gajuwaka, Visakhapatnam 530026	98493-33849		
12	Vijayanagar FaL-G Brick Products	Y. V. Rao	AP/VSP/I/12	Feb-03
	Muddapeta Jn. Dakamarri Post	Partner		
	Bheemunipatnam Mandal	98661-93624		
	Visakhpatnam Dist. AP			
	Vizianagaram District-Andhra Pradesh			
13	Vijayanagar FaL-G Brick & Block Products	Y.V. Rao	AP/VZM/I/13	Feb-03
	Gorle Seetharampuram Post	Partner		
	Bibbili Mandal, Vizianagaram Dist. AP	98661-93624		
14	Vijayanagar FaL-G Products	Y. V. Rao	AP/VZM/I/14	Aug-03
	Ambativalasa Post, Bondapalle Mandal	Partner		
	Vizianagaram Dist. AP	98661-93624		

Annex – 4 : Schematic Process Flow Chart for FAL-G Brick/Block Production


Fly ash
Lime/OPC
Gypsum
Stone Dust
From Thermal Plants
From Chemical Plants
From Stone Crushers
Storage of raw materials
Fly ash : In open yard, duly wetted and covered by Plastic sheet.
Stone dust: In open yard, duly wetted and covered by Plastic sheet
Lime sludge – Dumped in open yard or stored in packets
OPC: In bags, stored in godowns.
Gypsum: In bags, stored in godowns.
Wet mixing in Roller Mixer
Raw materials are kneaded under rollers for achieving homogenous mortar
Project Boundary
Project Boundary
Casting of bricks/blocks
The homogenised mortar taken out of roller mixer is put into the mould boxes. Depending on the type of machine, the product is compacted under vibration/ vibro-press/hydraulic compression etc.
Drying & Curing
The green bricks are dried up under sun from 24 to 48 hours, depending whether lime route or cement route; the dried up bricks are stacked and subjected for water spray curing once or twice a day, for 7-21 days, depending on ambience.
DESPATCH TO THE MARKET

Annex – 5 : Recommendation of the Small Scale Working Group on Methodology

F-CDM-SSCwg ver 01 SSC_014

CDM: Recommendation Form for Small Scale Methodologies (version 01)

(To be used for presenting questions/proposals/amendments to the simplified methodologies for small-scale CDM project activity categories)

Date of SSC WG meeting:	26 - 27 January 2006
Title/Subject (give a small title or specify the subject of your submission, maximum 200 characters):	Avoidance of thermal energy input in the production of alternative building materials
Indicative methodology to which your submission relates (refer the items of Appendix B of the Simplified Modalities and Procedures), if applicable.	New category
Name of the authors of the query:	Mr. Lasse Ringius, Mr. Kirtan Chandra Sahoo

Summary of the query:

Please use the space below to summarize the query related to SSC methodologies/categories SSC Modalities and Procedures provide recommendation/analysis of the SSC WG.

Mr. Lasse Ringius and Mr. Kirtan Chandra Sahoo submitted the following answers and further clarifications required by the SSC WG in its recommendation dated 16/09/2005:

Discussion of proposed baseline alternatives.

The SSC WG suggests expanding the set of baselines to cement bricks, fired clay bricks, and opened air-dried clay or ordinary soil bricks. We have considered this recommendation in detail but for the reasons given below these building materials do not constitute actual alternatives to the project activity. For that reason, the proposed methodology has not been modified to include these scenarios. However, fired clay bricks constitute the baseline for the proposed methodolog

Cement Concrete blocks

The cement concrete block market is a separate market and thus not a plausible alternative to fly-ash bricks. Fly-ash bricks/blocks are not penetrating this market, and consumers who need cement bricks generally do not switch to fly ash bricks. Fly-ash bricks do not penetrate the market for cement concrete bricks, but the fired clay bricks market.

Fired Clay Bricks

The baseline for the proposed methodology is fired clay bricks, which are also called sintered clay bricks.

Opened Air-Dried Clay or Ordinary Soil Bricks

Application of air-dried clay brick is in Economically Weaker Section (EWS) housing, mostly in a rural scenario, for thatched-roof houses and other semi-pucca or kutcha (raw) houses. Those who depend on these products cannot afford even sintered clay brick. Those who cannot afford sintered clay bricks cannot afford to purchase fly-ash bricks. Hence opened air-dried clay or ordinary soil bricks do not constitute a plausible baseline alternative to fly-ash bricks.

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Recommendation by the SSC WG : Please use the space below to provide amendments /change (in your expert view, if necessary).
Answer to authors of query by the SSC WG : Please use the space below to provide an answer to the authors of the above query

The reference is made to your query dated 28 November 2005. The small scale working group (SSC-WG) of the CDM Executive Board would like to thank you for submitting further clarifications on proposed baseline alternatives in response to the recommendation of the SSC WG dated 16/09/2005.

As a result of the discussion of related submissions including your query, the SSC-WG agreed on the following matters:

- According to the *Technology/measure* section as below (Para A), the proposed methodology is applicable to projects which introduce equipments at facilities manufacturing building materials including bricks, and reduce or eliminate completely the use of thermal energy from fossil fuels, and possibly from renewable biomass. The targeted projects are apparently energy efficiency improvement projects. So the proposed methodology must belong to Type II and not to other types.

A. *Technology/measure in the proposed new methodology*

This project category comprises equipment that would reduce or eliminate completely the use of thermal energy from fossil fuels, and possibly from renewable biomass, by implementing the equipment at many facilities manufacturing building materials. The equipment may replace equipment at existing facilities or be installed at new facilities. Equipment may be implemented small-scale brick manufacturing plants, etc. The project activity shall both reduce anthropogenic emissions by sources, and directly emit less than 15 kilotonnes of carbon dioxide equivalent annually.

- For the energy efficiency improvement projects in factories, category II.D. "Energy efficiency and fuel switching measures for industrial facilities" of the Appendix B of the simplified modalities and procedures for small-scale CDM project activities is applicable. It covers not only the energy efficiency improvement in electricity but also thermal energy. So project participants do not need to propose a new methodology.

B. *Technology/measure: category II. D.*

This category comprises any energy efficiency and fuel switching measure implemented at a single industrial facility. This category covers project activities aimed primarily at energy efficiency; a project activity that involves primarily fuel switching falls into category III.B[1]*. Examples include energy efficiency measures (such as efficient motors), fuel switching measures (such as switching from steam or compressed air to electricity) and efficiency measures for specific industrial processes (such as steel furnaces, paper drying, tobacco curing, etc.). The measures may replace existing equipment or be installed in a new facility. The aggregate energy savings of a single project may not exceed the equivalent of 15 GWhe per year. A total saving of 15 GWhe per year is equivalent to a maximal saving of 45 GWhth per year in fuel input.*

The activity replacing the equipment at many facilities manufacturing building materials would also reduce or eliminate the use of thermal energy from renewable biomass. However, this component of the activity may not result in emission reductions. .

[redacted]

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Signature of SSC WG Chair ……………………………………………
Date: 27 / 01 /06 *(Gertraud Wollanksy)*

Signature of SSC WG Vice-Chair ……………………………………………
Date: / / *(name)*

Information to be completed by the secretariat	
SSC-Submission number	SSC_014
Date when the form was received at UNFCCC secretariat	13 February 2006
Date of transmission to the EB	13 February 2006
Date of posting in the UNFCCC CDM web site	13 February 2006