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

CONTENTS

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

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

>>
Generation of thermal energy utilizing renewable biomass by GIL, Uttaranchal, India
Version 01
22nd June 2006

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

>>
The proposed project deals with the generation of thermal energy by utilizing locally available biomass (eg. agro-based + bagasse etc.) at Greenply Industries Ltd. (**"GIL"**), District Udham Singh Nagar in the state of Uttaranchal, India. The Steam generation is carried out through sustainable means without causing any adverse impact on the environment and in the process supports climate change mitigation.

Greenply Industries Limited is planning to set up a plywood and pre-laminated particleboard unit at Udham Singh Nagar, Uttaranchal. The steam requirement for manufacturing the plywood and particleboard will be met by burning the biomass in the boiler. The project activity involves the replacement of the fossil fuel by locally sourced biomass.

The proposed project, was made possible by the fact that it was eligible for generating carbon credits under the Clean Development Mechanism of the Kyoto Protocol, as it results in the reduction of green house gas emissions on account of the fossil fuel used in the baseline scenario.

The additional revenue, together with the enhanced project profile was a critical factor responsible for convincing the management of GIL to consider investing in the proposed project. Details to establish this can be verified from documents available for inspection to the Operational Entity.

The project boundaries for mitigation of GHG due to the biomass utilisation for generating the process steam will be the physical boundaries of the process plant. The generated energy will help for sustainable economic growth, conservation of environment and Green House Gas (GHG) emission reduction.

The project, apart from mitigating the emission of GHG, reduces the local emissions of sulphur and other pollutants like smoke/soot, etc associated with the burning of fossil fuels. The project is in line with the development priorities of the local government, to encourage the use of renewable sources of energy. The project leads to generation of employment at the local levels for collection and supply of biomass, thus increasing the income of the local farmers (as they are now able to get money for their surplus agro-residue which was hitherto being burnt in the fields / land filled).

The installed (and operational) capacity of the project is 11 million Kcal/hr of thermal energy for the production process within the site. The rated energy output from the boiler is 12.79 MW. The project thus qualifies for the use of Small Scale CDM Modalities and Procedures.

The project expects to generate approximately 41,104 CERs per annum.

Project's contribution to sustainable development
Coal and Oil has been / is the traditional source of fuel to meet the thermal energy requirements of Indian industry. This practice has negative environmental impact both locally and globally, due to the emissions of greenhouse gases, SOx and NOx emissions.

Ministry of Environment & Forests is the Designated National Authority for CDM in India, which has stipulated the following indicators for sustainable development in the interim approval guidelines for Indian CDM projects. The project complies with the stipulations as under:

- ***Social well-being:***
    - The CDM project activity quite clearly leads to the alleviation of poverty by generating additional employment of 100 direct as well as indirect job opportunities to the local population for various activities involved in transportation, loading, unloading and stacking of biomass in the plant etc. This will also improve the income generation of the persons involved with biomass collection, transportation and handling, resulting in to betterment of their livelihoods. Further the project activities also cater to the growing power demand of the country.
    - Setting up of the project is going to benefit the area for better infrastructure and would have positive effect on landscaping.

- ***Economic well-being***
    - Conserving coal and other non-renewable natural resource;
    - Saving the scarce fossil fuels and allowing it to be diverted to other needy sections of the economy, thereby reducing the import of oil (currently 70%).
    - Helping to abridge the gap of electricity demand and supply at local level.

- ***Environmental well-being***
    - Eliminating the generation of heat using conventional fuel
    - Mitigating emission of GHG (CO_2), as the biomass used is carbon neutral;
    - The project will use biomass that is abundantly available in the region and which otherwise gets accumulated, leading to possible environmental hazards.

- ***Technological well-being***
    - Adopting an advanced and sustainable technology for long-term benefits.
    - This project will generate steam to cater its in-house requirement (thereby replacing the coal based heat generation) is in itself clean project as they replace the fossil fuel based energy (steam) by renewable biomass fuel based energy. Since, this project uses biomass, a carbon neutral fuel, which, in itself, has no negative environmental

impact and its use is in line with state government's priorities. However, there is no law enforcing the use of these biomass fuels.

Each of the above indicators has been studied in the context of the project activity to ensure that the project activity contributes to the sustainable development.

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 Country)	Greenply Industries Limited (Private entity, project participant)	No

GIL will be the sole owner of the CERs generated. The contact details of the owner and the official contact for the CDM project activity are in Annex 1.

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.:

>>

Uttaranchal State

A.4.1.3. City/Town/Community etc:

>>

Rudrapur, Udham Singh Nagar District

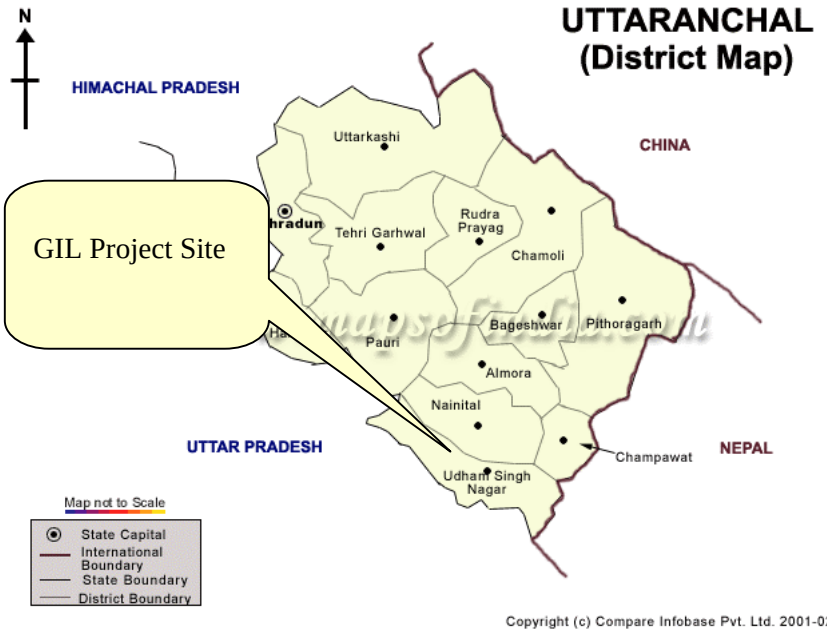
A.4.1.4. Detail of physical location, including information allowing the unique identification of this small-scale project activity(ies):

>>

The CDM project involves the generation of thermal energy by utilizing the biomass available in the surrounding areas of Rudrapur in Udham Singh Nagar District of Uttaranchal, instead of fossil fuel.

The site is well connected with road and railway routes to all the major cities in the Northern region of the country. The nearest airport Pantnagar, is only 11km away. Udham Singh Nagar (Rudrapur) railhead is well connected to Delhi, Lucknow and Kolkata by direct broad gauge line. The physical location of the project is 27.34 N Latitude and 76.38 E Longitude.

Location of the state Uttaranchal in India



Location of Udham Singh Nagar district in the state of Uttaranchal

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

>>

The project falls under the Appendix B of the simplified modalities and procedures for small-scale CDM project activities as per the Version 08: 3rd March 2006.

Project Category: Renewable Energy Projects (Type I)
Sub category: Thermal Energy for user (Type I C)

The project falls under the "Type I: Renewable energy projects" and "Category I C: Thermal energy for the user". The total capacity of the project is about 12.79 MW, which is less than 15MW.

Technology employed:
The proposed project activity is setting up of a biomass (agro-based + bagasse) based manufacturing unit. The heat production from the biomass used in the project is 11million kcal/hr. The total annual biomass requirement is around 34,650 tonnes (which replaces 23,100 tonnes of coal per annum).

The primary technology proposed for the project activity involves direct combustion of biomass in the FBC boilers and Manual fired boilers to generate steam. The generated steam will then be utilized in

- Drying veneer
- Seasoning of timber
- Plywood pressing
- Logs dipping etc.

The technology employed for steam generation is converting the chemical energy available in the fuel into thermal energy by burning the renewable biomass. The generated heat will be used in the process to cater their thermal energy needs within the site.

Brief technical details of the project design

Boiler capacity	: 6 TPH
Number of boilers	: 4
Biomass requirement	: 117Tons/day
Generation Pressure	: 17.5 Kg/cm^2
Generation Temperature	: 240˚C
Type of boiler	: Two Fluidised Bed Combustion boilers & Two Manual Fired Boilers

A.4.3. Brief explanation of how the anthropogenic emissions of anthropogenic greenhouse gas (GHGs) by sources are to be reduced by the proposed small-scale project activity, including why the emission reductions would not occur in the absence of the proposed small-scale project activity, taking into account national and/or sectoral policies and circumstances:

>>

The project reduces anthropogenic GHG emissions by using the renewable biomass to generate thermal energy. The use of biomass is considered to be 'carbon neutral'. This CDM project generates / supplies about 11million Kcal/hr of thermal energy that is to be used for the production process within the site.

The expected CO_2 emission reductions from the project are as under:

1. Methane emissions reduction on account of the biomass being used in the plant instead of being burnt in the fields / land filled. However, as a matter of abundant caution credit for the same has not been claimed in this project document, as it is difficult to estimate the actual quantity.

2. Fuel switch: In the absence of the project activity, the fuel used to meet the energy requirements for the project would be coal, which results in CO_2 emissions in to the atmosphere. Therefore the emission reductions by using the biomass as the fuel for the proposed project acitivity are of approximately 41,104 tones of CO_{2e} per annum.

It should be pointed out that:

1. There is no regulatory / other regulations requiring plywood manufacturers to use biomass as fuel;
2. Uncertainty with regards to biomass supply and its availability (largely dependant on the monsoons), and setting up a new system for aggregating the same was and remains a key operational concern, as the losses due to any fuel storage could be significant;

Owing to the above, it can be concluded that biomass based thermal energy generation project is NOT the business as usual scenario in Indian Plywood industry.

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

>>

The project activity started generating emissions reduction from April 2006. The total emissions reduction for the first crediting period (7years) is expected to be as under:

Years	**Annual estimation of emission reductions in tonnes of CO2 e**
April 2006	30,828
2007	41,104
2008	41,104
2009	41,104

2010	41,104
2011	41,104
2012	41,104
2013	10,276
Total estimated reductions (tonnes of CO2 e)	2,87,728
Total number of crediting years	21 years (7 x 3)
Annual average over the crediting Period of estimated reductions (tones of CO2 e)	41,104

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

>>

No public funding is involved in the project activity

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

>>

As per the Appendix C, paragraph 2 of the latest version of Simplified Modalities and Procedures for Small-Scale CDM project activities states:

"A proposed small-scale project activity shall be deemed to be a debundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity:

- With the same project participants;
- In the same project category and technology/measure; and
- Registered within the previous 2 years; and
- Whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point.

As there is no registered CDM project currently at the site either large scale or small scale, it is confirmed that the small-scale project activity is not a de-bundled component.

SECTION B. Application of a baseline methodology:

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

>>
Title: Indicative simplified baseline and monitoring methodologies for selected Small-Scale CDM project activities.

Reference of project categories: appendix B of the simplified modalities and procedures for small-scale CDM project activities.

Type I: Renewable Power Projects
Type I C: Thermal Energy for the user

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

>>
This project falls under the "Type I: Renewable energy projects" and "Category I C: Thermal energy for the user".

This project involves the installation of biomass-fired boilers, which replaces the fossil fuel (coal) based system in the baseline for the generation of thermal energy.

The heat generated in the project boundary will be used for steam generation and consumed internally. Therefore, the applicable categories for this project is I.C-Thermal energy for user under 'Type 1- Renewable Energy Projects' as mentioned in appendix B of the simplified M&P for small-scale CDM project activities.

The choice of the methodology is accurate for the project and is justifiable since the project activity meets all the applicability conditions:

Justification of the choice of the methodology

The Methodology	The proposed project activity	Justification
As per the Technology/Measure specified in the methodology this category comprises renewable energy technologies that supply individual households or users with thermal energy that displaces fossil fuels or non-renewable sources of biomass.	The project activity utilizes thermal energy in their industrial unit that displaces fossil fuel (coal) with a renewable source of biomass and eligible.	YES
Where the manufacturer specifies generation capacity, it shall be	The project activities capacity as specified by the manufacturer is 12.79	YES

less than 15MW.	MW (e) which is below 15 MW and eligible	
For co-generation systems and/or co-fired systems to qualify under this category, the energy output shall not exceed 45 MWthermal	As project only utilizes thermal energy from the boiler this will not be applicable.	YES

Baseline:
Baseline for renewable energy technologies that displace technologies using fossil fuels, the simplified baseline is the coal consumption of the technology that would have been used in the absence of the project activity times an emission coefficient.

Leakage:
Leakage is not considered because there is no transfer of energy generating equipment from another project activity and no transfer of existing energy equipment to another activity.

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:

>>
The additionality of the project activity is assessed and demonstrated based on the stipulations contained in Attachment A to Appendix B of the Simplified Modalities and Procedures for small-scale CDM project activities.

Step 0: Starting date of the project activity:
The said project will start the activity from September 2005 and the starting date of the crediting period is April 2006. Since the project participant does not wish to have crediting period starting prior to the registration of their project activity the Step 0 is satisfied.

Sub step 1 a: Identification of alternatives to the project activity
In absence of the proposed project activity, the use of coal for the thermal applications in the manufacturing unit perhaps would have been the most likely and economically feasible option.

The key advantage with the coal (fossil fuel) based thermal generation system is the assured quantity and quality of the fuel supply (and thus the related project and operation risk) is very low. This is a key factor under consideration by the project developers.

Sub step 1 b: Legal compliance:
There was/is no regulatory requirements for GIL to invest in the biomass based plant, nor are there any (to the best of GIL's knowledge) planned regulations that will require it to implement the project activity within the crediting period.

The alternative to the project activity would be the generation of the thermal energy using fossil fuel, as this meets all the applicable legal requirements. Being a lower cost and risk option, this was the preferred option for the company.

The implementation of this biomass based project activity was a voluntary step undertaken by GIL with no direct or indirect mandate by law. At the point of time where the decision to take up the said project was being discussed, GIL had very seriously considered the possible incremental revenue from the sale of carbon credits generated by the project. The additional revenue together with the fact that it would be new to the sector to secure registration under the CDM, thus enhancing its environment friendly profile were the key factors that convinced the management of the company to undertake the said project.

In addition, the project activity would also result in the generation of lively hood for over 100 unemployed men and women residing near the project site, by enabling them to collect the biomass debris and sell it to GIL (directly / indirectly) for economical value.

The perceived risk and the barriers for the project activity are discussed in the sequential order as explained in the Attachment A to Appendix B

Investment barrier:
GIL has been one among the leading units in the plywood sector and in the case of the project activity. The project promoters have made the investment to achieve relatively more efficient steam production, which is not the natural course of action for a company whose core business is manufacture and sale of plywood.

GIL by investing in higher cost, high efficiency renewable energy project is taking an additional investment risk by deciding to implement the project activity. GIL management took the decision to pursue with the project activity amidst the uncertainties, keeping in mind the transaction under the CDM, rate of CER and other technological and operational risks associated with the project implementation.

Hence, GIL has borne a financial risk and taken a pro-active approach by showing confidence in the Kyoto protocol and therefore the CDM system. Besides the direct financing risk, GIL is also shouldering the additional transaction costs related to the preparation of project documents, supporting CDM initiatives and also developing and maintaining M&V protocol to fulfill CDM requirements.

Technological barrier:
The biomass boiler is more laborious/onerous than fossil fuel based in terms of fuel handling, fuel segregation, and proper fuel supply and requires employment and training of new workers (as this is the first plant of its kind in the industry).

Use of biomass based thermal energy generation is not a time-tested proposition. There are certain known risks associated with this using the biomass as fuel because the fuel has tendency to stick in the boiler tube surfaces.

An unexpected frequent fluctuation in the quality of the biomass affects the life of the equipment and increasing the cost of the maintenance.

Fuel characteristics:
GIL is aware of the serious technological issues associated with the combustion of biomass residues namely:

- The fuel has lot of dust, fine particles, scaling, fouling and corrosion that in turn results in poor PLF, which is a detrimental factor while investing in the boiler.
- The boiler also provided with additional over-fire nozzles with high investment to increase the residence time of the fuel in the boiler to ensure complete combustion
- A special alloy on the super heater surface is also provided to ensure that there would be less fouling in the surface of the tubes.

It should be mentioned that additional revenues through carbon credits were considered essential to counterbalance the risks.

Barrier due to prevailing practice
The project activity is one of its kinds in the state and is not a common practice adapted for thermal energy generation till date. This further justifies that the project is not a part of the baseline scenario.

The use of biomass as fuel will result in higher maintenance and operational costs, like biomass storage operations, biomass handling operations, payment of, hiring of new workers, training of operators and maintenance technicians.

Other barriers:

Storage of biomass:
Since biomass residues are only available for three to six months a year, adequate storage facilities are required, which in turn occupied lot of space in the unit. The characteristics of biomass fuels will also change quickly within short time. Most importantly, the calorific value decreases due to the loss of volatiles and deterioration of biomass, which affects the performance of the plant equipment. Hence, biomass materials cannot be stored for long periods.

The proposed project activity involves the following additional barriers and uncertainties.

a) The success of the biomass power plant mainly depends on the availability of biomass materials. Biomass availability is highly subject to seasonal fluctuations due to the vagaries of the nature.
b) Biomass prices continuously fluctuate depending on seasonal variations, making the cost of generation unstable.
c) Biomass is widely dispersed in small quantities. Hence, collection and transportation of biomass materials to the project site become a constraint. In addition, the cost of collection and transportation charges will increase every year due to the increasing trend in the cost of labor and cost of fossil fuels used for transportation (mainly diesel).

d) Since biomass power generation was a relatively new technology, the effects of combusting biomass fuels on the life cycle of the plant equipment were not established the cost of maintenance is one indicator on the life cycle of the plant and machinery.
e) The biomass conversion efficiency is very low compared to fossil fuel energy conversion efficiencies.

Biomass availability: The availability of biomass depends, to a large extent on the climate and monsoons. The availability and price of the biomass used, is thus uncertain. The additional risk being that, in case of a biomass fuel shortage, the plant stops production, causing immense losses to the company. In addition, escalation of biomass prices due to increase in demand in the future as biomass based power plants coming up in the state and region cannot be ignored.

Biomass procurement risk: Procuring biomass from the biomass suppliers is a new exercise for GIL. In order to operate the new biomass based energy system, GIL had to develop infrastructure in terms of manpower and financial resources so as to ensure continuous fuel availability. This would be a daunting task as it involved the setting up of a system for the collection of biomass from a large number of sellers, since one single supplier cannot supply the quantity of biomass required for the project activity. This requires experience in managing rural and not necessarily educated sellers. Also the continuous supply of fuel for the project activity requires good managerial skills, commitment and resources.

It should be pointed out that since there is lot of biomass available, the success of the project will attract more investment in the region in terms of more biomass based plants, but this will further push the prices of the biomass. In absence of the CDM credits the price increase may act as a driver for switching over to other fossil fuels as primary fuels.

The incremental returns from sale of carbon credits was expected to be sufficient to meet the additional expenses required for sourcing the biomass, in addition to subsidizing the cost of the project.

Impact of CDM Registration:
It can be concluded that, but for the additional revenue (and marketing mileage) on account of successfully registering the project under the CDM, the said project activity would not have occurred, as the costs and risks involved were disproportionately high when compared to its benefits.

As per the above mentioned step the project activity is additional and the anthropogenic emission of the GHG by the sources will be reduced below those that would have occurred in the absence of the project activity or in other words the approval and registration of the CDM project activity will alleviate the identified barriers by providing additional revenue to plant from the sale of emission reductions.

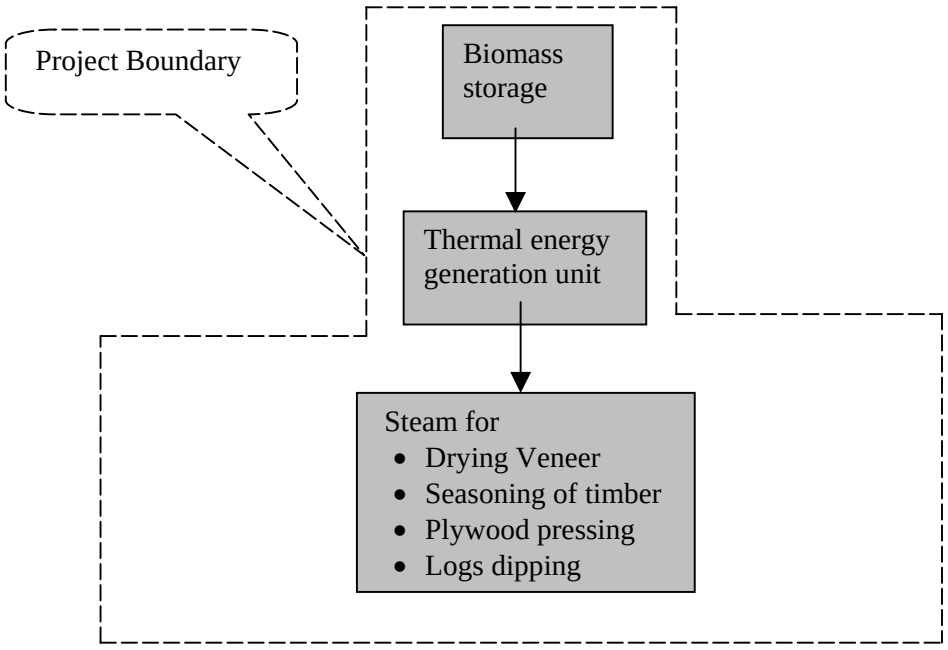
This adequately demonstrates that the project activity cannot proceed on a business-as-usual basis. Therefore, all measures adopted by GIL are over and above any requirement under national law or regulation.

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:

>>

As mentioned in the Appendix B of simplified modalities and procedures for small-scale projects, the project boundary encompasses the physical, geographical site of the renewable energy generation.

For the proposed project the project boundary is from the point of fuel storage to the point of thermal energy supply to the plant. Thus the project boundary includes the fuel storage, steam generator and all other accessory equipments. Project boundary is illustrated in the diagram:



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

>>

Date of completing the final draft of this baseline section *(DD/MM/YYYY)*: 01/03/2006

Name of person/entity determining the baseline: Greenply Industries Ltd

The detailed contact address of the above entity is given in Annex 1.

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:

>>

September 2005

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

>>

30y-0m

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

>>

The project activity has chosen renewable crediting period

C.2.1. Renewable crediting period:

>>

(7 x 3) years

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

>>

01/04/2006

C.2.1.2. Length of the first crediting period:

>>

10y-0m

C.2.2. Fixed crediting period:

>>

C.2.2.1. Starting date:

>>

Not Applicable

C.2.2.2. Length:

>>

Not Applicable

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:

>>

Title: Indicative simplified baseline and monitoring methodologies for selected small- scale CDM project activities.

Reference of project categories: Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

Type I: Renewable Power Projects
Type I C: Thermal Energy for the user

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

>>

This project falls under the "Type I: Renewable energy projects" and "Category I C: Thermal energy for the user".

This project involves use of biomass which is a renewable source for the thermal energy generation and it displaces the use of fossil fuel i.e. coal. The steam generated in the project boundary is being used for heat generation and will be consumed internally. Therefore, the applicable categories for this project is I.C-Thermal energy for user under 'Type 1- Renewable Energy Projects' as mentioned in appendix B of the simplified M&P for small-scale CDM project activities.

The choice of the methodology is accurate for the project and is justifiable since the project activity meets all the applicability conditions:

Biomass fuel consumption by the boiler will be monitored and the equivalent coal replaced by the project activity times an emission coefficient for the fossil fuel displaced gives the emission reductions.

Leakage is not considered because there is no transfer of energy generating equipment from another project activity and no transfer of existing energy equipment to another activity.

The combustion of coal in boiler is considered as the baseline and corresponding emissions will be evaluated. Only additional data, which needs to be monitored, is any oil/coal consumption by biomass-fired boiler in case of any emergency such as non-availability of biomass. With above data, a reliable and accurate estimation of the amount of emission reduction can be made.

D.3 Data to be monitored:

>>

ID number	Source of data	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)
1	Steam generated by the boiler	TPH	m	Continuous	100%	Data will be recorded in the electronic and will be archived according to internal procedures, until 2years after the end of the crediting period.
2	Quantity of Biomass	Tons	m	Monthly	100%	Data will be recorded in the paper and will be archived according to internal procedures, until 2years after the end of the crediting period.
3	Calorific value of biomass	Kcal/kg	m	Monthly	100%	Data will be recorded in the paper and will be archived according to internal procedures, until 2years after the end of the crediting period.

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

>>

Data	Uncertainty level of data (High/Medium/Low)	Explain QA/QC procedures planned for these data, or why such procedures are not necessary.

1	Low	Steam generated from the biomass-fired boiler will be measure by using the flow meter. The data will be accurately measured and recorded.
2	Low	The amount of biomass fed into the boiler will be monitored and recorded in plant logbooks.
3	Low	This data is used for calculation of emission reductions by project activity

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:

>>

GIL has maintenance and operations procedures, which include the monitoring of process variables, instruments calibration and quality control, in accordance with company policies, engineering best practices and ISO9001 certification, For this reason, no major changes in monitoring and QA/QC procedures will be required for the CDM project activity related variables and parameters.

Particularly for the project activity, the only monitored variable is the consumption of biomass, in volume units. The plant through purchasing receipts and local inspection of trucks controls it.

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

>>

Greenply Industries Limited

The detailed contact address of the above entity is given in Annex 1.

SECTION E.: Estimation of GHG emissions by sources:

E.1. Formulae used:

>>

E.1.1 Selected formulae as provided in appendix B:

>>

As per category I.C, the small scale simplified modalities and procedures do not indicate a specific formula to calculate the GHG emission reduction by sources.

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

>>

For emission reduction due to avoidance of burning of coal in boilers:

CO_2 emission reduction (tonnes)/year
= (Tonnes of coal saved per year) X (Carbon Emission Factor of coal)

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:

>>

There is no emission of GHG from the project activities. The project activity uses renewable biomass as energy source. The net balance of CO_2 emissions from renewable biomass is considered zero because the emissions would be useful for the carbon recycling. Hence, Project Emissions are considered zero.

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

>>

The project will not give rise to any leakage. Leakage is not considered because there is no transfer of energy generating equipment from another project activity and no transfer of existing energy equipment to another activity.

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

>>

Zero 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 amount of fuel that would have been used in the baseline is multiplied by the respective Emission Factor to calculate the baseline emissions.

CO_2 emission reduction (tonnes)/year
= (Tonnes of coal saved per year) X (Carbon Emission Factor of coal)
The emission factor of coal is 1.77943 tonnes of CO2/ ton of coal, is the IPCC default factor.

BE = C EF* tCO2

Where,

- BE is the baseline emissions, in tCO2.
- C is the consumption of Coal in tons that would be required in each year to substitute biomass
- EF is the carbon emission factor of Coal, in tCO2/tons of coal.

$C = BIO * CV_{Biomass} / CV_{Coal}$

Where,

- BIO is the amount of biomass consumed in each year of the crediting period, in tons.
- $CV_{Biomass}$ is the Calorific value of biomass, in kcal/kg. $CV_{Biomass}$ = 3000 kcal/kg
- CV_{Coal} is the calorific Value of the Coal, in kcal/kg. CV_{Coal} = 4500 kcal/kg

The biomass consumption in the proposed project is 117tons per day, where 10% of the biomass is being sourced from the industry generated waste. Therefore, only 90% of the total biomass is considered for estimating the baseline emissions.

C = 105*330*3000/4500

Therefore C = 23,100 tons /year

*BE = C * EF* tCO2

BE = 23100 * 1.77943 = 41,104 tCO_2/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:

>>
Total emission reductions are the net baseline emissions from the project activity; no project emissions and leakage are accounted.

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

>>
Emissions Reductions during the crediting period

Year	April 2006	2007	2008	2009	2010	2011	2012	2013
Baseline emissions, tCO_2	30,828	41,104	41,104	41,104	41,104	41,104	41,104	10,276
Project emissions, tCO_2	0	0	0	0	0	0	0	0
Leakage tCO_2	0	0	0	0	0	0	0	0
Emissions Reductions, tCO_2	30,828	41,104	41,104	41,104	41,104	41,104	41,104	10,276

SECTION F.: Environmental impacts:

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

>>

The project does not fall under the purview of the Environment Impact Assessment (EIA) notification of the Ministry of Environment and Forest, Government of India. As the biomass waste will be used for energy production with an efficient combustion and emission control. There are therefore no significant environmental impacts of the project activity.

SECTION G. Stakeholders' comments:

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

>>

Since the project activity is the biomass based thermal energy generation, it has no significant negative environmental impacts to air, noise and water pollution outside the facilities. The project is located in the existing plant of GIL at Udham Singh Nagar. The major stakeholders identified are:

- Ministry of Environment and Forest (MOEF)
- Uttaranchal Pollution Control Board
- Gram Panchayat / Municipal Board
- Boiler Inspectorate
- Employees of the company

The entire process of stakeholder consultation is done in a participatory manner to assess the views and needs of the stakeholders on and from the project activity. GIL is a proactive entity on the stakeholder front and uses formal and informal ways of gathering stakeholder opinion on activities that might affect any of them. The project during its operations has tried to adhere, as far as possible and relevant, to the requirements of the stakeholders.

G.2. Summary of the comments received:

>>

Name of the Stakeholder	Summary
Ministry of Environment and Forest (MOEF)	Provides Host country endorsement for the CDM project. GIL had been invited by MOEF for the Host Country Approval presentation, DNA on 31st May 2006.
Uttaranchal Pollution Control Board (UPCB)	UPCB, a regulatory body to monitor environmental impacts and environmental management of industries. Accords clearances for setting up of industries in the state after ensuring adherence to the statutory regulations. Also gives consent to start the operation of the project if satisfied with the environmental management and pollution control measures. The project has received the necessary clearances from UPCB.

Gram Panchayat	Accords permission for setting up of the project under the jurisdiction of the village. The local elected body of representatives administering the local area is a true representative of the local population in a democracy like India. Hence the public comments received from the Gram Panchayat / elected body of representatives administering the local area give a proper reflection of the opinions of the local people. There will be no major concerns raised by the local people, since the project activity is implemented in the GIL factory premise, it will not cause any displacement of local population. Furthermore it is creating a significant job opportunities for the local people. Thus, the project will not cause any adverse social impacts on local population. Instead, it will help in improvising the quality of life. Furthermore the project has environmental benefits. Hence the local population will have no objection on its implementation. GIL has received consent for the project from the Gram Panchayat, a representative of the local people.
Equipment Suppliers	Supplied the equipments as per the specifications finalized for the project and are responsible for successful erection and operation of the same at the site.
Employees of the company	One of the most important stakeholders and beneficiaries of the project activity are the employees of GIL. The project activity has positive local environmental impacts and the GIL employees benefit from improved environmental surroundings. They appreciated GIL management's contribution towards energy conservation and reducing greenhouse gases, which contribute to global warming.

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

>>

The project proponents are expecting that there will be positive comments from stakeholders for implementing the project.

Annex 1
CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Greenply Industries Limited (GIL)
Street/P.O.Box:	Shakespeare Sarani
Building:	16A
City:	Kolkata
State/Region:	West Bengal
Postfix/ZIP:	700 071
Country:	India
Telephone:	+91-33-3051 5000
FAX:	+91-33-3051 5010
E-Mail:	mahabir@greenplymail.com
URL:	www.greenply.com
Represented by:	
Title:	Vice President
Salutation:	Mr.
Last Name:	Agarwal
Middle Name:	
First Name:	Mahabir
Department:	Finance
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

There is no funding from Annex- I parties

- - - - -