CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-SSC-PDD)
Version 03 - in effect as of: 22 December 2006

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Annexure

Appendices

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>.
03	22 December 2006	• The Board agreed to revise the CDM project design document for small-scale activities (CDM-SSC-PDD), taking into account CDM-PDD and CDM-NM.

SECTION A. General description of small-scale project activity

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

>> Renewable biomass based thermal energy generation at Mahalaxmi Group of Companies, Ahmedabad
Version: 01
Dated: 08/08/2007

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

>>

Mahalaxmi Group is a multi product, multi location company headquartered in Ahmedabad. Mahalaxmi Group has operation in business segments like textile, organic pigments and emulsions, textile auxiliaries, speciality chemicals and rubber products.

Mahalaxmi Group has undertaken the project activity, which entails thermal energy generation using renewable fuels at two of its group companies namely Mahalaxmi Fabric Mills Private Limited (MFM) & Mahalaxmi Rubtech Limited (MRT). The project activity has resulted in replacing the use of non renewable high carbon intensive fuels (lignite etc.) with renewable fuels (waste wood, rice husk, saw dust etc.) in boilers, used for steam generation & oil heating[1], resulting in net green house gas emissions to atmosphere.

The four pillars of sustainable development have been addressed as follows:

Social well being

The project activity uses renewable fuels in boilers for steam generation & oil heating. The project activity has resulted in improved working conditions inside the plant premises as well as improving the local environment for people living in close proximity. The project activity has also resulted in generating additional business opportunities for local equipment & fuel suppliers.

Environmental well being

The project uses renewable fuels in place of non renewable fuels. Renewable fuels cause no net emissions to the atmosphere, as compared to non-renewable fuels which have net positive emissions to the

atmosphere. So the project activity has resulted in lower emissions to the surrounding environment contributing to environmental well-being on a regional as well as global level.

Economic well being

The project activity has created job opportunities for local people during operation period. The project activity provides business opportunity for local stakeholders such as suppliers, manufacturers, contractors etc. The project activity also helps to conserve the fast depleting natural resources like lignite, thereby contributing to the economic well being of country as a whole.

Technological well being

The project activity promotes the use of renewable fuels for meeting the process heating requirements of textile industry. With CDM revenues the project activity has potential to encourage other textile industries to adopt a cleaner technology for meeting the process heating requirements in textile sector.

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)
India	1. Mahalaxmi Fabric Mills Private Limited (MFM) (Private Entity) 2. Mahalaxmi Rubtech Limited (MRT) (Public Limited Company)	No

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

[1] The heated oil and steam are used to meet heating requirement in various processes like. Bleaching, dyeing, printing and sizing.

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

>> Ahmedabad, Gujarat

A.4.1.3.	City/Town/Community etc:

>> 1. Mahalaxmi Fabric Mills Pvt Limited, Narol.

2. Mahalaxmi Rubtech Limited, Sanand.

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

>>

1. Mahalaxmi Fabric Mills Private Ltd.,

Plot No. 317, National Highway No 8,

Isanpur Road, Narol,

Ahmedabad

2. Mahalaxmi Rubtech Limited,

UMA Industrial Estate, Phase III,

Village: Vasna Iyava,

Taluka: Sanand,

District: Ahmedabad.

Latitude: 22.9833, Longitude: 72.3833


TAJIKISTAN
AFGHANISTAN
PAKISTAN
C H I N A
TIBET
NEPAL
BHUTAN
BANGLADESH
I N D I A
ARABIAN SEA
BAY OF BENGAL
Banas Kantha
Kutch
Mehsana
Sabar Kantha
Gandhinagar
Ahmedabad
Panch Mahals
Surendranagar
Jamnagar
Rajkot
Kheda
Vadodara
Junagadh
Amreli
Bhavnagar
Banas Kantha
Surat
The Dangs
Valsad
Map of Gujarat

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

>>

The project activity meets the applicability criteria of small scale CDM project activity category, Type I, Renewable energy projects (C: Thermal Energy for user) of the 'Indicative simplified baseline and monitoring methodologies for selected small scale CDM project activity categories'.

Main Category: ***Type I –Renewable Energy Projects***

Sub Category: **C. *Thermal Energy for the user***

Technology to be employed by the project activity

The project activity has been implemented at 6 boilers in two group companies, Mahalaxmi Fabric Mills (MFM) & Mahalxmi Rubtech Limited (MRT), with MFM having two multi fuel fired steam generating boilers (9TPH each) and two multi fuel fired oil heating boilers and MRT having one multi fuel fired oil heating boiler and one steam generating boiler (1.5 TPH).

In the project activity the project proponent is using renewable fuels like waste wood, saw dust etc. in its boilers for thermal energy generation in the form of steam & oil heating.

The project activity involves no technology transfer. The technology used is environmentally safe and the project proponent is adhering on all safety norms used for boilers.

A.4.3 Estimated amount of emission reductions over the chosen crediting period:

>>

Year	Emission Reductions
	tCO_2/year
2007 – 2008 (1st October to 31st March)	18177
2008 – 2009 (1st April to 31st March)	36375
2009 – 2010 (1st April to 31st March)	36375
2010 – 2011 (1st April to 31st March)	36375

2011 – 2012 (1st April to 31st March)	36375
2012 – 2013 (1st April to 31st March)	36375
2013 – 2014 (1st April to 31st March)	36375
2014 – 2015 (1st April to 30th September)	18177
Total Emission	**254622**
Crediting years	**7**
Average Emission Reductions over the Crediting Years (7 Years)	**36375**

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

>> No public funding is available to the project activity from parties included in Annex I.

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

As per 'Appendix C of simplified modalities and procedures for Small Scale CDM project activities' occurrence of debundling is determined as follows:

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

The proposed CDM project activity is the first by the company and satisfies all the above conditions. Thus the project activity is not debundled component of a large project activity.

SECTION B. Application of a baseline and monitoring methodology

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

>> Main Category: **Type I – Renewable Energy Projects**

Sub Category: **I. C-Thermal Energy for the User, Version 11**

The reference has been taken from the list of the small-scale CDM project activity categories contained in 'Appendix B of the simplified M&P for small-scale CDM project activities'.

B.2 Justification of the choice of the project category:

>>

As per the methodology AMS I C version 11,

1. *This category comprises renewable energy technologies that supply individual households or users with thermal energy that displaces fossil fuels. Examples include solar thermal water heaters and dryers, solar cookers, energy derived from renewable biomass for water heating, space heating, or drying, and other technologies that provide thermal energy that displaces fossil fuel. Biomass-based co-generating systems that produce heat and electricity are included in this category.*

   The project activity is a co-fired system that uses renewable fuels (waste wood, agro waste etc.), for steam generation and oil heating for meeting the process requirements in textile industry, thereby displacing the use of fossil fuels like coal, lignite, thus satisfying the above condition.

2. *Where the thermal generation capacity is specified by the manufacturer, it shall be less than 45MW.*

   The project activity has a total aggregate capacity of 18.84 MW_{th}, which is less than 45 MW_{th}, satisfying the above condition.

3. *For co-fired systems the aggregate installed capacity (specified for fossil fuel use) of all systems affected by the project activity shall not exceed 45 MW_{th}. Cogeneration projects that displace/*

avoid fossil fuel consumption in the production of thermal energy (e.g. steam or process heat) and/or electricity shall use this methodology. The capacity of the project in this case shall be the thermal energy production capacity i.e. 45 MW_{th}.

The project activity has been implemented in 6 boilers, 4 in MFM & 2 in MRT, with an aggregate capacity of 18.48 MW_{th}, which is less than 45 $MW_{th,}$ satisfying the above condition.

4. *In the case of project activities that involve the addition of renewable energy units at an existing renewable energy facility, the total capacity of the units added by the project should be lower than 45 MW_{th} and should be physically distinct from the existing units.*

Prior to the project activity the project proponent didn't have any existing renewable energy facility at the project site, the project so the above condition is not relevant for the project activity.

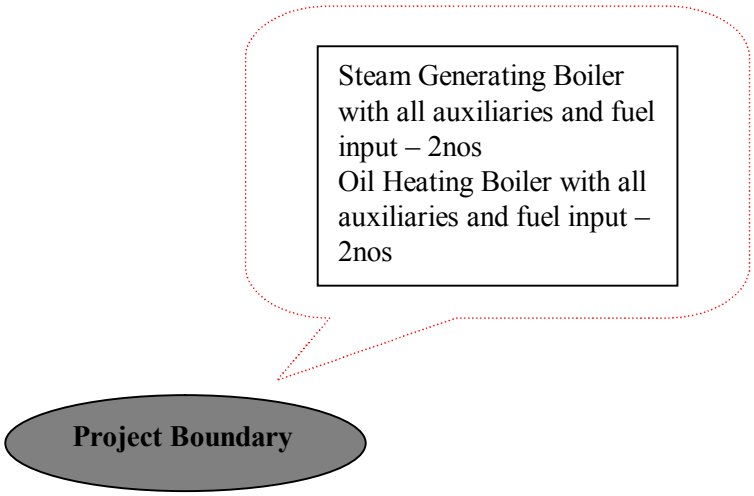
As demonstrated above the project activity satisfies the qualifying criteria Project Category: Type I (Capacity < 45 MW_{th}) and also of the selected methodology AMS IC. Hence the choice of project category and methodology is justified.

B.3. Description of the project boundary:

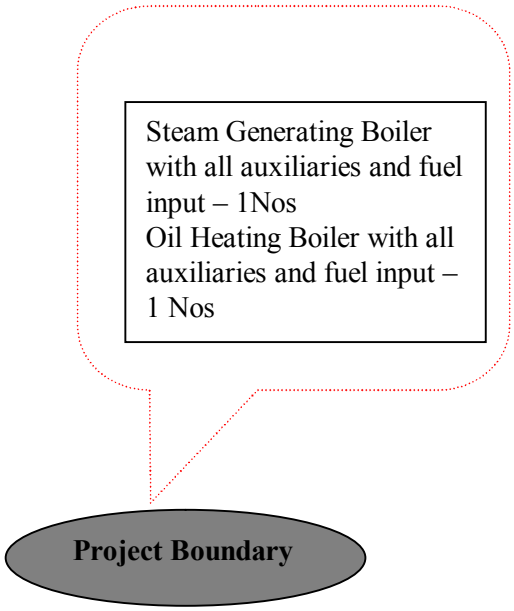
>> 'The physical, geographical site of the renewable energy generation delineates the project boundary', so the project boundary chosen would include the energy generation equipment for all the sites i.e. boilers.

The project activity has been undertaken at two locations of Mahalaxmi Group of Companies i.e. Mahalaxmi Fibres located at Narol and Mahalaxmi Rubtech located at Sanand.

Project Boundary at MFM



Project Boundary at MRT



B.4. Description of baseline and its development:

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The project proponent requires approx. 19.5 TPH of steam and 340 m^3 /hr of heated oil for their processes.

The project proponent had following alternatives sources of fuel in order to generate steam and heated oil:

1. Use of fossil fuels (Coal, Lignite etc.) as fuel source
2. Use of renewable fuels in the boiler (waste wood, agro waste) as fuel source

The financial analysis is done for all the options available for steam and oil heating with the different fuel used.

Particulars of Fuel Consumption for 4 Boilers						
A. Two Thermo Pac Boilers **B. Two Steam Boilers**						
Particulars	**Lignite**	**Saw Dust**	**Groundnut husk**	**Rice husk**	**Steam coal**	**Fire wood**
Consumption (In Tons) **	**110**	**110**	**100**	**150**	**70**	**154**
Total Cost per Ton (Rs.)	**2000**	**2340**	**2912**	**1924**	**3640**	**1500**
Cost of consumption(Rs. Per day)	220000	257400	291200	288600	254800	231000
Cost of Consumption (Lacs per annum)	660.00	772.20	873.60	865.80	764.40	693.00
Addl. Cost (Lacs)		112.20	213.60	205.80	104.40	33.00
** **The total consumption per day for 2 Thermo Pac Boilers and 2 Steam Boilers at MFM**						

As demonstrated above that lignite is the cheapest option for the steam and oil heating. Therefore lignite based steam and oil heating is the baseline scenario in absence of the project activity. Therefore the most plausible baseline scenario for the project activity is using lignite as a fuel in boilers, for steam generation & oil heating, for process heating requirements is used for baseline emission estimations.

According to approved methodology (AMS I. C. Version 11) 'Type – I.C: Thermal Energy for the user' of the "Indicative simplified baseline and monitoring methodologies for selected small scale CDM project activity categories", baseline of the project activity is selected as per paragraph 10. The project activity is using the fossil fuel in baseline case for generation of steam and heating oil therefore paragraph 10 "the steam/heat produced using fossil fuels the baseline emissions" as a baseline case is justified for the project activity.

According to the paragraph 10 baseline emissions are calculated as per the equation below:

$$BE_y = HG_y * EFCO2 / eff$$

Where:

BE_y = the baseline emissions from steam/heat displaced by the project activity during the year y in tCO_2e.

HG_y = the net quantity of steam/heat supplied by the project activity during the year y in TJ.

EF_{CO2} = the CO_2 emission factor per unit of energy of the fuel that would have been used in the baseline plant in (tCO_2/TJ), IPCC default emission factors are used.

η_{th} = the efficiency of the plant using fossil fuel that would have been used in the absence of the project activity.

Baseline data requirement and data source

S. No.	Parameter	Unit	Data source
1	Emission Coefficient of lignite	tCO_2/TJ	IPCC/ Plant
2	Thermal Energy generated by the boilers	TJ/annum	Plant
3	Boiler efficiency	%	Plant/supplier literature

B.5. 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:

In accordance with simplified modalities and procedures for small-scale CDM project activities, a simplified baseline and monitoring methodology listed in Appendix B may be used for a small-scale CDM project activity if project participants are able to demonstrate to a designated operational entity that the project activity would otherwise not be implemented due to the existence of one or more barrier(s) listed in Attachment A of Appendix. B. These barriers are:

- Investment barrier
- Technological barrier
- Barrier due to prevailing practice
- Other barriers

As mentioned above the project proponent has two alternatives to generate thermal energy required for the process; however it may be noted that alternative 2 *i.e* 'Use of renewable fuels in the boiler (waste wood, agro waste) as fuel source' faced following barriers which are detailed below:

Investment barrier

The additionality of the project activity will be demonstrated through investment barrier. The fuel cost analysis was done for the daily application based on the daily consumption in the plant (MFM). The average fuel consumption for meeting the demand is considered as per the calorific value of the fuels. A

comparative analysis of various fuels including renewable as well as non renewable fuels for average input for the day is shown below:

Particulars of Fuel Consumption for 4 Boilers						
A. Two Thermo Pac Boilers **B. Two Steam Boilers**						
Particulars	**Lignite**	**Saw Dust**	**Groundnut husk**	**Rice husk**	**Steam coal**	**Fire wood**
Consumption (In Tons) **	**110**	**110**	**100**	**150**	**70**	**154**
Total Cost per Ton (Rs.)	**2000**	**2340**	**2912**	**1924**	**3640**	**1500**
Cost of consumption(Rs. Per day)	220000	257400	291200	288600	254800	231000
Cost of Consumption (Lacs per annum)	660.00	772.20	873.60	865.80	764.40	693.00
Addl. Cost (Lacs)		112.20	213.60	205.80	104.40	33.00
** **The total consumption per day for 2 Thermo Pac Boilers and 2 Steam Boilers at MFM**						

As demonstrated above, all the alternative fuels involve an increased operational cost and use of lignite is the most cost effective option. It is evident from the table above that the renewable fuel is costlier with respect to non renewable fuel and hence the project activity is not the baseline scenario. The project proponent intends to bridge this gap with CDM revenue.

Other Barriers

Mahalaxmi group also face the risk of operational difficulties while implementing the project activity like increased maintenance and inconsistent quality of the fuel. The use of waste wood & agro waste based fuels has led to increased cleaning frequency of boiler tubes, resulting in additional costs to the company.
So the project activity is not the baseline scenario and is additional.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

>>

Emission Reduction Formulae

According to the approved methodology AMS. I.C, paragraph 10 is used for the baseline emission calculation. The baseline emissions emission calculation is given as equation 2 in the table below. The emissions due to fossil fuel used is considered as per paragraph 20 of approved methodology.

Steps	Description	Equation Used	Methodological Choices
1.	Procedure followed for calculating baseline emissions (BE,y)	The baseline emissions are calculated as per equation $BEy = BE_{MFM,y} + BE_{MRT,y}$ **(1)**	Baseline emissions for boilers both at MFM & MRT are being accounted.
		The emissions related with boilers in MFM has been calculated as $BE_{MFM,y} = \frac{HG_{MFM,Steam,y} + HG_{MFM,Oil,y} - HG_{MFM,FF,y}}{Eff.} \times EF_{Fuel}$ **(2)** $HG_{MFM,steam,y} = Q_{Steam,MFM,y} \times H_{Steam,T,P}$ $HG_{MFM,oil,y} = Q_{oil,MFM,y} \times SG_{Oil} \times C_{p,oil} \times (T_{out,MFM} - T_{in,MFM}) \times Hrs_{MFM}$ $HG_{MFM,FF,y} = Q_{MFM,FF,y} \times SFC_{FF}$	Emissions related with steam generation & oil heating boilers are considered after accounting for the fossil fuel consumption, as per para 20 of the methodology.
		The emissions related with boilers in MRT have been calculated as $BE_{MRT,y} = \frac{HG_{MRT,Steam,y} + HG_{MRT,Oil,y} - HG_{MRT,FF,y}}{Eff.} \times EF_{Fuel}$ **(3)** $HG_{MRT,steam,y} = Q_{Steam,MRT,y} \times H_{Steam,T,P}$ $HG_{MRT,oil,y} = Q_{oil,MRT,y} \times SG_{Oil} \times C_{p,oil} \times (T_{out,MRT} - T_{in,MRT}) \times Hrs_{MRT}$ $HG_{MRT,FF,y} = Q_{MRT,FF,y} \times SFC_{FF}$	Emissions related with steam generation & oil heating boilers are considered after accounting for the fossil fuel consumption, as per para 20 of the methodology.

2	Leakage	In the project activity crediting period it may happen that the surplus availability is less than the 25% then the leakage will be calculated as per equation below: $L_y = COEF_{CO2,j} * \{1.25 \times (Q_{P,B,MFM,y} + Q_{P,B,MRT,y}) - SA_{B,y}\} * NCV$ **(3)**	In case the surplus biomass availability is less than 25%, the difference would be counted as leakage and emission coefficient of the most carbon intensive fuel would be used to calculate leakage emissions.
3	Emission Reduction	Emission Reductions will be calculated as per the equation: $PE_y = BE_y - L_y$ **(4)**	Fossil fuel consumption has already been accounted in baseline

B.6.2. Data and parameters that are available at validation:

(Copy this table for each data and parameter)

Data / Parameter:	$EF_{Lignite}$
Data unit:	tCO_2/TJ
Description:	Emission Factor of lignite
Source of data used:	IPCC
Value applied:	101
Justification of the choice of data or description of	Default Value obtained from IPCC

measurement methods and procedures actually applied :	
Any comment:	-

Data / Parameter:	$NCV_{Lignite}$
Data unit:	TJ/kg
Description:	Net Calorific Value of lignite
Source of data used:	IPCC/Plant
Value applied:	0.0000119
Justification of the choice of data or description of measurement methods and procedures actually applied :	Default Value obtained from IPCC
Any comment:	-

Data / Parameter:	$C_{p,oil}$
Data unit:	$TJ/kg/^0C$
Description:	Specific Heat of oil
Source of data used:	Oil Supplier/Plant
Value applied:	2.355E-09
Justification of the choice of data or description of measurement methods and procedures actually applied :	Value obtained from literature provided by oil supplier
Any comment:	-

Data / Parameter:	SG_{oil}
Data unit:	kg/m^3
Description:	Specific gravity of oil
Source of data used:	Oil Supplier/Plant
Value applied:	778
Justification of the choice of data or description of measurement methods and procedures actually applied :	Value obtained from literature provided by oil supplier
Any comment:	-

Data / Parameter:	Eff
Data unit:	Dimensionless

Description:	Boiler Efficiency
Source of data used:	Default
Value applied:	0.89
Justification of the choice of data or description of measurement methods and procedures actually applied :	Conservative approach, best value chosen amongst all the boilers part of the project activity. Boiler Details: FBC steam boiler Make: Techno Pac Installed at: MFM Value obtained from literature provided by boiler supplier.
Any comment:	-

Data / Parameter:	SFC_{FF}
Data unit:	Kg/TJ
Description:	Specific fossil fuel consumption per unit of thermal energy produced.
Source of data to be used:	IPCC/Plant
Value of data	Lignite – 94420
Justification of the choice of data or description of measurement methods and procedures actually applied :	Value calculated from NCV of fossil fuel used and boiler efficiency.
Any comment:	The NCV values will be taken from the latest available IPCC data.

B.6.3 Ex-ante calculation of emission reductions:

>>

a) Baseline Emissions

i) Baseline Emissions at MFM

Baseline Emissions at MFM	**tCO_2**	**31271**
Steam Generating Boilers		
Boiler Capacity	TPH	9
No of Boilers	No	2
Operating Hours	hr/annum	8000
Steam Generated	kg per annum	144000000
Enthalpy	TJ/kg	0.000002779
Thermal Energy generated by Steam boilers	**TJ/annum**	**400**
Oil Heating Boiler		
No of Boilers	No	2

Oil Flow rate	m3/hr	150
Specific gravity	kg/m3	778
Oil Flow rate	kg/hr	116700
Operating Hrs	hr/annum	8000
Inlet Temp.	^{0}C	140
Outlet Temp.	^{0}C	160
Specific Heat	TJ/kg/^{0}C	0.0000000023
Thermal Energy Generated by Oil heating boilers	**TJ/annum**	**87**
Fossil Fuel consumption		
Fossil Fuel consumption		
Lignite	kg/annum	20000000
Specific lignite consumption per TJ of thermal energy generation	kg/TJ	94420
Thermal Energy Supplied by Lignite	**TJ/annum**	**212**

ii) Baseline emissions at MRT

Baseline emissions at MRT	**tCO_2**	**5104**
Steam Generating Boilers		
Boiler Capacity	TPH	1.5
No of Boilers	No	1.0
Operating Hours	hr/annum	8000
Steam Generated	kg per annum	12000000
Enthalpy	TJ/kg	0.000002779
Thermal Energy generated by Steam boilers	**TJ/annum**	**33**
Oil Heating Boiler		
No of Boilers	No	1
Oil Flow rate	m3/hr	40
Specific gravity	kg/m3	778
Oil Flow rate	kg/hr	31120
Operating Hrs	hr/annum	8000
Inlet Temp.	^{0}C	140
Outlet Temp.	^{0}C	160
Specific Heat	TJ/kg/^{0}C	0.0000000023
Thermal Energy Generated by Oil heating boilers	**TJ/annum**	**12**
Heat Supplied by Fossil Fuels		
Fossil Fuel consumption		
Lignite	kg/annum	0

Specific lignite consumption per TJ of thermal energy generation	kg/TJ	94420
Heat Supplied by Lignite	**TJ/annum**	**0**

iii) Total Baseline emissions

The total baseline emissions for the project activity are estimated to be **36375 tCO_2** per annum.

b) Leakage

The leakage emissions for the project activity are estimated to be **0 tCO_2** per annum.

c) Emission reductions

Emission reductions for the project activity are estimated to be **36375 tCO_2** per annum.

B.6.4 Summary of the ex-ante estimation of emission reductions:

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Year	Baseline Emissions (tCO_2)	Leakage (tCO_2)	Emission Reductions (tCO_2)
2007-2008 (1st October to 31st March)	18177	0	18177
2008-2009	36375	0	36375
2009-2010	36375	0	36375
2010-2011	36375	0	36375
2011-2012	36375	0	36375
2012-2013	36375	0	36375
2013-2014	36375	0	36375
2014-2015 (1st April to 30thSeptember)	18177	0	18177
Total	**254622**	**0**	**254622**
Total No of Crediting Years		**7**	
Average Annual Emission Reduction (tCO_2)		**36375**	

B.7 Application of a monitoring methodology and description of the monitoring plan:

B.7.1 Data and parameters monitored:

(Copy this table for each data and parameter)

Data / Parameter:	$Q_{MFM,Steam,y}$
Data unit:	Kg/year
Description:	Steam produced in MFM in year y
Source of data to be used:	Plant
Value of data	144000000
Description of measurement methods and procedures to be applied:	Data type: Measured Recording Frequency: Monitored daily & reported monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Flow meter totalizer will be used Calibration Frequency: annually
QA/QC procedures to be applied:	As per the existing data management system
Any comment:	-

Data / Parameter:	$Q_{MRT,Steam,y}$
Data unit:	kg/year
Description:	Steam produced in MRT in year y
Source of data to be used:	Plant
Value of data	12000000
Description of measurement methods and procedures to be applied:	Data type: Measured Recording Frequency: Monitored daily & reported monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Flow meter totalizer will be used Calibration Frequency: Annually
QA/QC procedures to be applied:	As per the existing data management system
Any comment:	-

Data / Parameter:	$T_{Steam,MFM}$
Data unit:	^0C
Description:	Steam Temperature at MFM
Source of data to be used:	Plant
Value of data	182
Description of measurement methods and procedures to be applied:	Data type: measured Recording Frequency: Monitored daily & averaged monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Online Temperature Indicator will be used. Calibration Frequency: Annually
QA/QC procedures to be applied:	Compared with boiler literature
Any comment:	-

Data / Parameter:	$T_{Steam,MRT}$

Data unit:	^0C
Description:	Steam Temperature at MRT
Source of data to be used:	Plant
Value of data	182
Description of measurement methods and procedures to be applied:	Data type: measured Recording Frequency: Monitored daily & averaged monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Online Temperature Indicator will be used. Calibration Frequency: Annually
QA/QC procedures to be applied:	Compared with boiler literature
Any comment:	-

Data / Parameter:	$P_{Steam,MFM}$
Data unit:	kg/cm^2
Description:	Steam pressure at MFM
Source of data to be used:	Plant
Value of data	10.5
Description of measurement methods and procedures to be applied:	Data type: measured Recording Frequency: Monitored daily & averaged monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Online Pressure indicator will be used. Calibration Frequency: Annually
QA/QC procedures to be applied:	Compared with boiler literature
Any comment:	-

Data / Parameter:	$P_{Steam,MRT}$
Data unit:	kg/cm^2
Description:	Steam pressure at MRT
Source of data to be used:	Plant
Value of data	10.5
Description of measurement methods and procedures to be applied:	Data type: measured Recording Frequency: Monitored daily & averaged monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Online Pressure indicator will be used. Calibration Frequency: Annually
QA/QC procedures to be applied:	Compared with boiler literature
Any comment:	-

Data / Parameter:	$Q_{oil, MFM}$
Data unit:	m^3/hr

Description:	Oil flow rate in boiler at MFM
Source of data to be used:	Plant
Value of data	150
Description of measurement methods and procedures to be applied:	Data type: Estimated Recording Frequency: Monitored daily & averaged monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Value will be estimated based on amperes drawn by the pump Calibration Frequency: Annually
QA/QC procedures to be applied:	Compared with pump literature
Any comment:	-

Data / Parameter:	$Q_{oil, MRT}$
Data unit:	m^3/hr
Description:	Oil flow rate in boiler at MRT
Source of data to be used:	Plant
Value of data	40
Description of measurement methods and procedures to be applied:	Data type: Estimated Recording Frequency: Monitored daily & averaged monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Value will be estimated based on amperes drawn by the pump Calibration Frequency: Annually
QA/QC procedures to be applied:	Compared with pump literature
Any comment:	-

Data / Parameter:	$T_{in,MFM}$
Data unit:	^0C
Description:	Inlet temperature of oil in oil boiler at MFM
Source of data to be used:	Plant
Value of data	140
Description of measurement methods and procedures to be applied:	Data type: measured Recording Frequency: Monitored daily & averaged monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Online Temperature Indicator will be used. Calibration Frequency: Annually
QA/QC procedures to be applied:	Compared with boiler literature
Any comment:	-

Data / Parameter:	$T_{in,MRT}$

Data unit:	^0C
Description:	Inlet temperature of oil in oil boiler at MRT
Source of data to be used:	Plant
Value of data	140
Description of measurement methods and procedures to be applied:	Data type: measured Recording Frequency: Monitored daily & averaged monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Online Temperature Indicator will be used. Calibration Frequency: Annually
QA/QC procedures to be applied:	Compared with boiler literature
Any comment:	-

Data / Parameter:	$T_{out,MFM}$
Data unit:	^0C
Description:	Outlet temperature of oil in oil boiler at MFM
Source of data to be used:	Plant
Value of data	160
Description of measurement methods and procedures to be applied:	Data type: measured Recording Frequency: Monitored daily & averaged monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Online Temperature Indicator will be used. Calibration Frequency: Annually
QA/QC procedures to be applied:	Compared with boiler literature
Any comment:	-

Data / Parameter:	$T_{out,MRT}$
Data unit:	^0C
Description:	Outlet temperature of oil in oil boiler at MRT
Source of data to be used:	Plant
Value of data	160
Description of measurement methods and procedures to be applied:	Data type: measured Recording Frequency: Monitored daily & averaged monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Online Temperature Indicator will be used. Calibration Frequency: Annually
QA/QC procedures to be applied:	Compared with boiler literature
Any comment:	-

Data / Parameter:	Hrs_{MFM}
Data unit:	Hr/annum

Description:	Oil heating boiler operating hours per annum at MFM
Source of data to be used:	Plant
Value of data	8000
Description of measurement methods and procedures to be applied:	Data type: Measured Frequency: Reported Monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Based on plant records
QA/QC procedures to be applied:	As per the existing data management system
Any comment:	-

Data / Parameter:	Hrs_{MRT}
Data unit:	Hr/annum
Description:	Oil heating boiler operating hours per annum at MRT
Source of data to be used:	Plant
Value of data	8000
Description of measurement methods and procedures to be applied:	Data type: Measured Frequency: Reported Monthly Data Archiving Policy: Paper/ Electronic Monitoring procedure: Based on plant records
QA/QC procedures to be applied:	As per the existing data management system
Any comment:	-

Data / Parameter:	$Q_{P,FF,MFM,y}$
Data unit:	Kg
Description:	Quantity of fossil fuel of type i used in year y in MFM
Source of data to be used:	Plant
Value of data	Lignite – 20000000, Steam Coal – 0
Description of measurement methods and procedures to be applied:	Data type: Measured Recording Frequency: Monitored daily, reported monthly and consolidated annually Data Archiving Policy: Paper/ Electronic Monitoring procedure: Based on cost audit records.
QA/QC procedures to be applied:	As per the existing data management system
Any comment:	-

Data / Parameter:	$Q_{P,FF,MRT,y}$
Data unit:	Kg
Description:	Quantity of fossil fuel of type i used in year y in MRT
Source of data to be used:	Plant
Value of data	Lignite – 0, Steam Coal – 0
Description of measurement methods and procedures to be applied:	Data type: Measured Recording Frequency: Monitored daily, reported monthly and consolidated annually Data Archiving Policy: Paper/ Electronic Monitoring procedure: Based on plant purchase records
QA/QC procedures to be applied:	As per the existing data management system
Any comment:	-

Data / Parameter:	$Q_{P,B,MFM,y}$
Data unit:	Kg
Description:	Quantity of biomass of type i used in year y in MFM
Source of data to be used:	Plant
Value of data	Waste wood – 40000000
Description of measurement methods and procedures to be applied:	Data type: Measured Recording Frequency: Monitored daily, reported monthly and consolidated annually Data Archiving Policy: Paper/ Electronic Monitoring procedure: Based on cost audit records.
QA/QC procedures to be applied:	As per the existing data management system
Any comment:	-

Data / Parameter:	$Q_{P,B,MRT,y}$
Data unit:	Kg
Description:	Quantity of biomass of type i used in year y in MRT
Source of data to be used:	Plant
Value of data	Waste wood – 450000

Description of measurement methods and procedures to be applied:	Data type: Measured Recording Frequency: Monitored daily, reported monthly and consolidated annually Data Archiving Policy: Paper/ Electronic Monitoring procedure: Based on plant purchase records
QA/QC procedures to be applied:	As per the existing data management system
Any comment:	-

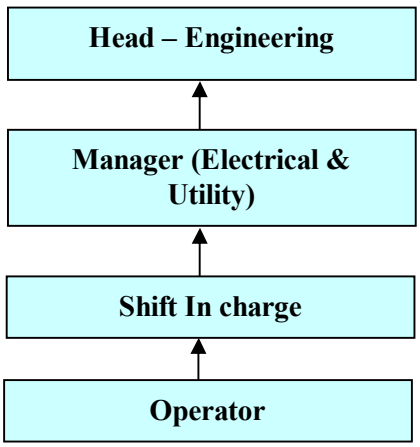
Data / Parameter:	$SFC_{Biomass}$
Data unit:	Kg/TJ
Description:	Specific biomass consumption per unit of thermal energy produced.
Source of data to be used:	Plant
Value of data	134209
Description of measurement methods and procedures to be applied:	Data type: Calculated Frequency: Annually Data Archiving Policy: Paper/ Electronic Monitoring procedure: As per methodology.
QA/QC procedures to be applied:	As per the existing data management system
Any comment:	-

Data / Parameter:	$SA_{B,y}$
Data unit:	Kg
Description:	Surplus biomass availability
Source of data to be used:	Plant
Value of data	
Description of measurement methods and procedures to be applied:	Data type: Estimated Recording Frequency: Annually Data Archiving Policy: Paper/ Electronic Monitoring procedure: Published data/ independent surveys.
QA/QC procedures to be applied:	As per the existing data management system
Any comment:	-

B.7.2 Description of the monitoring plan:

>> Emission monitoring and calculation procedure will follow the following organisational structure.

Organisational structure for monitoring plan



Monitoring and calculation activities and responsibility

Monitoring and calculation activities	**Procedure and responsibility**
Data source and collection	As per section B.7.1 of PDD
Frequency	Monitoring frequency should be as per section B.7.1 of PDD.
Review	All received data is reviewed by the Shift In charge in the production.
Data compilation	All the data is compiled and stored in electricity & utility department.
Emission calculation	Emission reduction calculations will be done annually based on the data collected. Manager (Electrical & utilities) will do the calculations
Emission data review	Final calculations is reviewed and approved by Head – Engineering

B.8 Date of completion of the application of the baseline and monitoring methodology and the name of the responsible person(s)/entity(ies)

>>

Mahalaxmi Group of Companies and their associate consultants.

Person Responsible:

Mr. Rajendra Mehta

Director

Mahalaxmi Rubtech Limited.

Contact information is available in annex 1.

Date of Completion: 08/07/07

SECTION C. Duration of the project activity / crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:

>> 05/09/2006

C.1.2. Expected operational lifetime of the project activity:

>> 25 years 0 Months

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

C.2.1. Renewable crediting period

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

>> Starting date will be the date of project registration. For estimation of emission reductions the starting date of the project activity has been taken as 1st October 2007.

C.2.1.2. Length of the first crediting period:

>> 7 Years 0 Months

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

>> Not Applicable

C.2.2.2. Length:

>> Not Applicable

SECTION D. Environmental impacts

>>

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

>> As per the latest EIA notification by Ministry of Environment & Forests, no EIA is required for the project activity. However project proponent has obtained the required permissions from the concerned authorities.

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

>> The project activity reduces the use of non renewable fuels with renewable fuels, thus conserving precious natural resources for the country and reducing net GHG emissions to the atmosphere. There are no significant environmental impacts due to the project activity.

SECTION E. Stakeholders' comments

>>

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

>>

Stake Holder Consultation Meeting
Dated: 15/03/07
Venue: Conference Room, MFM.

Mahalaxmi Group conducted meeting with stakeholder like employees, fuel suppliers, representatives of nearby housing societies, to review and assess the stakeholder concerns for the proposed project activity. Invitations were sent to the employees of MFM & MRT, housing societies & fuel suppliers & meeting was attended by 20 people including the management representatives.

E.2. Summary of the comments received:

>> Minutes of meeting attached as appendix 1.

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

>> No negative comments were received for the project activity.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Mahalaxmi Rubtech Ltd
Street/P.O.Box:	Ashram Road
Building:	5th Floor, Chanakya
City:	Ahmedabad
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E-Mail:	
URL:	
Represented by:	
Title:	Director
Salutation:	Mr.
Last Name:	Mehta
Middle Name:	
First Name:	Rajendra
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Organization:	Mahalaxmi Fabric Mills Pvt Ltd
Street/P.O.Box:	Ashram Road
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State/Region:	Gujarat
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E-Mail:	
URL:	
Represented by:	
Title:	Sr. Manager
Salutation:	Ms.
Last Name:	Kasa
Middle Name:	
First Name:	Rajshree
Department:	Cost Accounting

Mobile:	
Direct FAX:	
Direct tel:	+91 79 2657 5745
Personal E-Mail:	

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No public funding from countries included in Annex I is available to the project activity.

Annex 3

MONITORING INFORMATION

Monitoring plan will be as per section B.7.2.

Appendix 1

Minutes of the Stakeholder meeting held on Thursday, 15th March 2007 at 3:30 p.m. at the premise of Mahalaxmi Fabric Mills Pvt. Ltd. N.H. No. 8, Narol Ahmedabad

Present:

Mr. Anand J Parekh & Mr. Chandra Prakash R. Panwar – Directors of Mahalaxmi Fabric Mills Pvt. Ltd., Mr. Rajendra R Mehta – Director of Mahalaxmi Rubtech Ltd., 18 other persons were present which includes company employees, workers, staff, supervisor and residents of nearby society, boiler operator, fuel supplier, etc.

1. Mr. Rajendra R Mehta narrated in brief the purpose of this meeting, then he asked all the members present in the meeting about their grievances/problem due to use of coal/ lignite in the industries and any remedial measures to be taken in their opinion for use of alternate fuel like agro waste, saw dust, etc.

2. Mr. Mahendra Jain a resident of Ambica Tenaments, society nearby our unit told that they faces a lot of problems due to coal / lignite burning in boilers of factories. He showed lot of burnt coal dust in his hair.

3. Other persons present in the meeting also complained that everyday a lot of coal ash falls upon their terrace, so they face difficulty to sleep, to dry their clothes, to dry edible items on terrace. They even told that some times such dusting of burnt coal ash causes breathing problem also. They suggested to switch over to alternate and change fuel like agro waste, groundnut husk, rice husk, saw dust, etc. so they will face very little problem.

4. Mr. Mohanlal Tailor - a supervisor in company and resident of Samrat Nagar a colony nearby to our factory, said that small coal ash particles emitted from chimneys of factory falls upon their terrace and open compound of their residence causing a lot of dusting. They can't use their terrace for any household purpose. Even smaller plants

cannot grow in their house due to coal ash. In evening hours a lot of thick smoke causes breading problem to them. He advised to use bio fuel like GNH, saw dust, DOC etc. so such problems will be minimized.

5. A number of other persons also raised their voice against use of coal/lignite as fuel and told similar problem/reaction as stated above.

6. Mr. Satyanaran a resident of Pushp Tenament a nearby colony came up with a small packet of coal ash which he said was collected from his terrace. He informed that so much of coal ash is falling upon his terrace everyday and they are facing a lot of problem due to this. They cannot use their terrace for any useful purpose.

   Then Mr. Mehta asked Mr Mahesh Agrawal a supplier of fuel, whether agro based fuel is available in market in sufficient quantity and what will be the price, etc.

7. Mr Agrawal replied that he is selling about 250 MT of agro based fuel every day to various consumers and he can make available this to our unit also. As per his opinion people are hesitant in using such fuel because of high cost only otherwise there is no problem. He informed that G.N.H is a seasonal items as well as rice husk is a seasonal items otherwise he can supply other agro based fuel like Brecates, DOC, saw dust, etc. through out the year at prevailing market rates.

8. Thereafter Mr. Anand Parekh asked the supplier and boiler operators about their comments as usage of bio fuels instead of lignite /coal

9. Mr. Jetharam Engineer and Mr. R.R.Saneswar boiler operator replied that due to use of bio fuel like GNH/saw dust/DOC and other agro waste clinker formation takes place in boilers. Also find that from its deposited on tubes so cleaning the boiler has to be done frequently. Due to variation in moisture content, required pressure cannot be

maintained. They have to use more volume of fuel to get the repaired heat. Otherwise such fuels are good for environment.

Then the meeting was terminated with a vote of thanks to all the Directors and representatives.