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

CONTENTS

Annexes

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:

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Biomass based cogeneration at a solvent extraction plant in Uttar Pradesh.
Version: 01
Date : 6th March 2007

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

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Raghuraji Agro Industries Pvt Ltd (RRAPL) at Akbarpur currently comprises of one solvent extraction plant with a capacity of 200 TPD and one refinery plant with a capacity of 50 TPD. Recent developments in the industry's activity have brought the need for setting up a second 50 TPD refinery plant.

Pre Project Scenario:
In pre project scenario there were two rice husk-fired boilers, which were meeting steam requirement of the 200TPD solvent extraction and 50TPD refinery units. Total steam requirement of manufacturing unit was met from biomass fed boilers of 8TPH (6TPH for the 200TPD solvent and 2TPH for the refinery unit). The total biomass consumption for meeting the steam requirements of the solvent as well as the refinery units was 2.5 TPH. The electricity requirement of the solvent extraction and refinery plant was met by two diesel fed generators.

Unit	Steam generation	Power generation	Boiler data
Solvent	Biomass based	Diesel based	6TPH
Refinery	Biomass based	Diesel based	2TPH

Post project scenario:
The CDM project activity involves in setting up a 1.125 MW rice husk based co-generation power plant to meet the heat and power requirements of the solvent and refinery plants. The company was already utilizing rice husk in its boilers to meet the plant's thermal needs. As for power generation, the unit was using diesel for its two generators. Substituting diesel with rice husk for its captive requirements will reduce the carbon emissions. Thus, the use of renewable resources to generate power will contribute to GHG emission reduction. The cogeneration is carried out through sustainable means without causing any negative impact on the environment and in the process supports climate change mitigation.

Unit	Steam generation	Power generation	Proposed equipments
Solvent	Biomass based	Biomass based	Boiler capacity: 20TPH Pressure: 44 kg/cm^2 Temperature: 485 +/- 5 ^{O}C Turbine: 1.125MW Type: Extraction cum condensing turbine
Refinery	Biomass based	Biomass based	

Project's Contribution to Sustainable Development.
The sustainable development indicators stipulated by the Government of India in the interim approval guidelines for CDM projects are as follows:

Social Well Being:

- The project activity creates employment opportunities during the project stage and operation and maintenance of the plant.
- It also helps in conservation of fossil fuel i.e. diesel and helping in diverting its usage to other users.
- This will provide necessary drive for industries to come up with more such projects in the area.
- Use of biomass residues in the region has provided a distinct source of revenue to the people in the region.

Economic well being:

- Use of biomass residues in the region has provided a distinct source of revenue to the people in the region.
- The project activity will help provide a livelihood for the people living in the vicinity by providing them with employment opportunities.
- A huge number of unskilled labour would be contracted for the procurement of rice husk from the adjoining areas.

Environmental well being:

- It helps in reduction in Green House Gases (GHG) emissions in power generation.
- It also helps in conservation of fossil fuel i.e. diesel and helping in diverting its usage to other users

Technological well being:

- The plant will use environment friendly technology of renewable energy sector.
- The project will encourage technology providers in putting more research and development efforts towards new technology development.

A.3. Project participants:

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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)**
Ministry of Environment and Forest, Government of India	Raghuraji Agro Industries Private Ltd (Private entity, project developer)	No

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

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

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A.4.1.1. Host Party(ies):

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India

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

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Uttar Pradesh

A.4.1.3. City/Town/Community etc:

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District: Ambedkar Nagar
Village: Akbarpur

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

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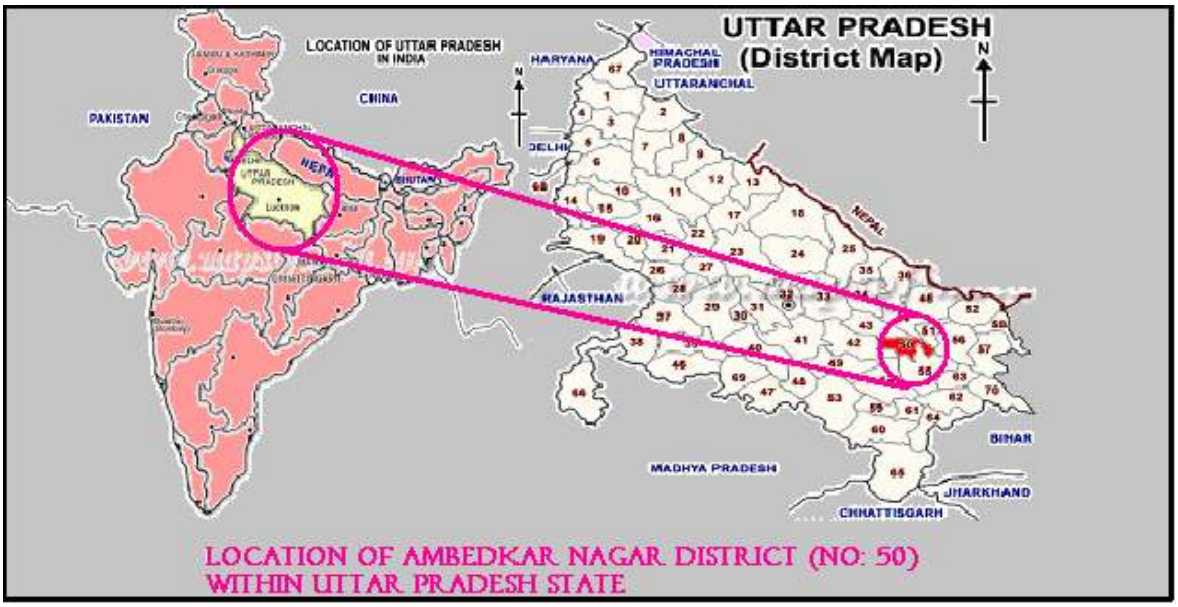
The CDM project is co-generation facility situated in the district of Ambedkar Nagar of the Uttar Pradesh state. Ambedkar Nagar district is well connected to important towns & cities of the country and near by area. The physical location of the project Akbarpur is 26.26ºN Latitude and 52.33ºE Longitude. The location map of the project is furnished below:



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

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The project activity is a small scale project activity and confirms to Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

The project activity is categorized under Sectoral Scope 01 "Energy Industries" (renewable / non-renewable sources).

TYPE I – RENEWABLE ENERGY PROJECTS
CATEGORY I.C. - THERMAL ENERGY FOR THE USER, Version 09, dated 23rd December 2006

Technology in the project activity

Prior to the project activity, steam was being generated in two boilers of 6 TPH and 2 TPH using biomass as fuel and were withdrawing 7TPH of steam. The power requirements were met by two diesel engine operated generators of 500 KVA and 365 KVA.

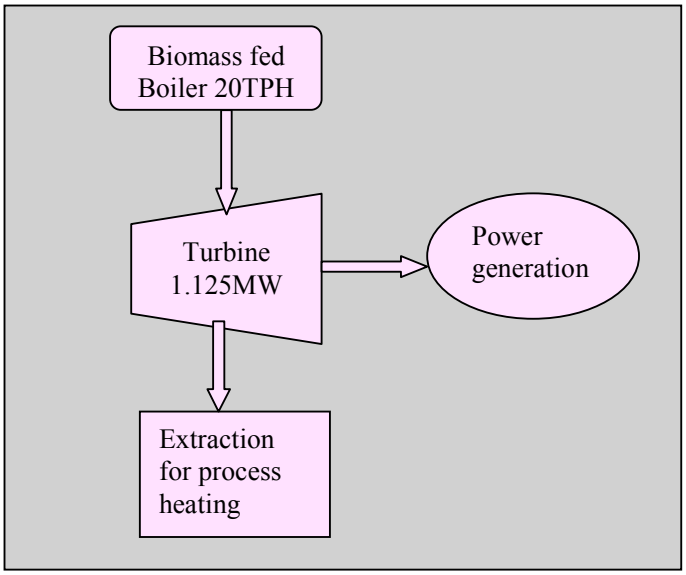
The CDM project activity involves in setting up of 1.125MW cogeneration unit, with boiler of capacity 20TPH capable of firing biomass such as rice husk. This will meet both the heat as well as the power requirements of the entire solvent extraction and the refinery units. The primary technology employed for the project activity involves direct combustion of rice husk in the boiler to generate high pressure steam and the generated steam will be utilized for power generation.

The cogeneration power plant envisages the installation of a single 20 TPH nominal capacity boiler with the super heater outlet steam parameters of 44 kg/cm^2 and 485±5^{0}C and extraction cum condensing steam turbo-generator of 1.125 MW nominal capacity. The boiler and the turbo generator will meet the entire energy process power requirement for the solvent extraction and the refinery units.

Brief technical details of the project design
Boiler Configuration: 20 TPH
Steam Pressure at outlet: 44 kg/cm^2
Temperature at Steam outlet: 485^{0}C

Steam Consumed: 17 TPH.
Maximum Amount of Rice Husk Consumed: 5 TPH
Type of turbine used: steam extracting cum condensing type.

The scheme of the technology which is being used in the plant is as follows:



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

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Years	Estimation of annual emission reductions in tonness of CO2e
2007	5,577
2008	5,577
2009	5,577
2010	5,577
2011	5,577
2012	5,577
2013	5,577
2014	5,577
2015	5,577
2016	5,577
Total estimated reductions (tCO2e)	**55,770**
Total number of crediting years	10
Annual average over the crediting period of estimated reductions (tCO_2 e)	**5,577**

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

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No public funding as part of project financing from parties included in Annex I of the convention is involved in the project activity.

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 the indicative simplified modalities and procedure for small scale CDM project Activity, a project activity is considered to be a debundled component of large project activity if there is a registered small scale CDM project or request for registration by another small scale project activity

· By 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.

Since above points are not applicable in case of RRAPL project activity, it can be said that the small scale project activity of RRAPL is not a debundled component of a large project activity, hence eligible to use simplified baseline and monitoring methodology.

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:

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The project activity is a small scale project activity and conforms to Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

TYPE I: RENEWABLE ENERGY PROJECTS
CATEGORY IC: "THERMAL ENERGY FOR THE USER", Version 9, 23rd December, 2006.

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

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This methodology is applicable as per definition in the Appendix B of the simplified methodologies for selected small-scale CDM project activity categories, Type I.C:

Justification of the choice of the methodology

Category	Applicability criteria	Project activity
TYPE IC: Thermal Energy for the user	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 cogeneration systems that produce heat and electricity for use on-site are included in this category.**	The project activity is a renewable biomass based co-generating system that produces heat and electricity for use on-site at RRAPL's Solvent Extraction and refinery Plant The project would be replacing the carbon intensive diesel fed to the DG sets with a cogeneration system to produce heat and electricity for captive purposes only.
	Where the manufacturer specifies generation capacity, it shall be less than 15MW.	The power generating capacity is 1.125 MW (< 15 MW)
	For co-generation systems and/or co-fired systems to qualify under this category, the energy output shall not exceed 45 $MW_{thermal}$	The boilers total output capacity is less than 45 MWthermal.

B.3. Description of the project boundary:

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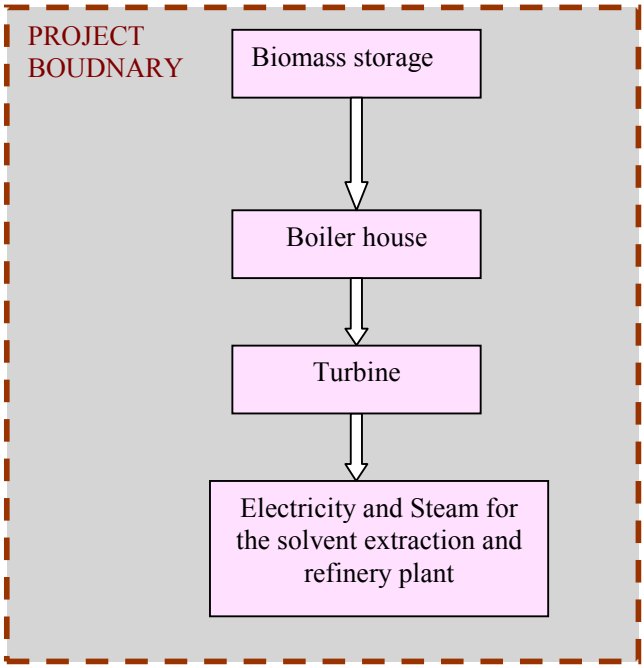
"The project boundary is the physical, geographical site of the industrial facility, processes or equipment that is affected by the project activity".

This project boundary includes the production facility, steam generating boilers, turbine, and fuel storage area, auxiliary equipments & allied systems.

Project boundary is illustrated in the following diagram:



B.4. Description of baseline and its development:

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The baseline for the proposed project activity has been arrived at using the methodology specified in the applicable project category for small-scale CDM projects. According to paragraph 7 of I-C, for renewable energy technologies that displace electricity the simplified baseline is the electricity consumption times the relevant emission factor calculated as described in category I.D.

For steam generation:

The simplified baseline is the fuel consumption by the technologies (DG sets) that would have been used in the absence of the project activity times an emission coefficient for the fossil fuel displaced. In the absence of the CDM project activity, RRAPL would have continued meeting its thermal requirements from the rice husk fired boilers. It is being stated that although the boiler have been included in the project boundary; any emissions from it are not accounted for. It follows from the simple fact that the boilers that were used in the baseline situation were already operating on biomass and rice husk.

For power generation:

The baseline for power generation through renewable sources is the MWh produced by the renewable generating unit multiplied by an emission coefficient (measured in kg tCO2equ/MWh) calculated. In the absence of the CDM project activity, RRAPL would have continued meeting its power requirements from burning diesel in diesel based generators. Thus the baseline emissions comprise solely of the emissions emanating from the usage of diesel for power generation.

Estimation of emission reductions:

Thus the baseline emissions would be the emissions emanating from the usage of diesel for power generation. RRAPL produces an estimate of 6.885 MU of electricity per annum with 7200 hours of

operation and a plant load factor of about 85 %. Taking into consideration the auxiliary consumption of 10% and a carbon emission factor for diesel at 0.9 (default values); the project is expected to reduce nearly 5576.85 t CO_2 e per year.

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:

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Proposed project activity is eligible to use simplified methodologies as it conforms to project category in Appendix B of the simplified modalities & procedures for small scale CDM-project activities under **TYPE IC– "Thermal energy for the user"**

- The project activity is a renewable biomass based co-generating system that produce heat and electricity for use on-site as required by the methodology.
- The total thermal output from the boiler in the project activity is less than 45 MWth.
- It is not a debundled component of a larger project activity, as it qualifies guidelines in "Appendix C to the simplified M&P for the small-scale CDM project activities for guidance on how to determine whether the proposed project activity is not a debundled component of a larger project activity"

The proposed project activity will reduce anthropogenic GHG emissions by using renewable fuels like biomass instead of fossil fuel. In the absence of the project activity, RRAPL would have continued with earlier system of burning biomass only for its steam requirement and usage of diesel power for meeting electricity demand in the plant. Absence of CDM project activity would have led to continuation of the old practice causing GHG emissions. Now it has started using rice husk (biomass) both for its thermal energy requirement along with power generation.

Additionality Analysis

The Attachment A to appendix B mentions various barriers and requires explanation to show that the project activity would not have occurred due to at least any one barrier in the following category:

(a) Investment barrier
(b) Technological barrier
(c) Prevailing practice and
(d) Other barriers

a) Investment Barriers

The solvent extraction and refinery plants, prior to this CDM project activity, were running on diesel for meetings its power requirements. The abnormal market fluctuations and drastic increase in diesel prices had already cast a big uncertainty in regular functioning of the plants. Secondly, the management was also skeptical at the time of the conception of this project as there was a considerable amount of uncertainty regarding the locally available biomass on account of not only its stable supply but also its increasing price.

Far from the general assumption that such biomass for the purpose of the project would be easily available and procurable, a lot of additional effort was required by the management to ensure sustained and regular supply of biomass. Therefore, there was and still is a considerable risk regarding the usage of biomass for project purposes on account of its availability, supply and the pricing. Various other difficulties that were encountered while managing investments and cash flows are given below.

- Changes in IRR, changes and the fluctuations in the prices of raw material, drastic increase in the fuel prices.

- Uncertainties in prices for purchase of biomass from local farmers and costs for transportation up to plant site due to informal and unorganized markets
- Irregular supply of biomass to the unit sometimes led to frequent startups and shut downs resulted in variable costs of power generation.
- Facing the investment risk while retrofitting existing facilities with new equipment and totally dismantling existing units is a major barrier crossed by the project activity which is demonstrated through additional costs incurred.

In view of the above factors the project is economically unviable without CDM revenues. When discussing the project with the investors with the objective of financing, the revenues from CDM were taken into account to alleviate the risks associated with the project activity.

b) Technological Barriers

Biomass fired, low pressure boilers were used for steam generation at RREPL prior to project activity. The boilers have been replaced with latest technology multi-fuel fired, higher pressure, and water tube bi-drum boiler. In addition to this, a turbine is being put up for power generation purpose. Operating and maintaining low pressure biomass fired boilers is simpler as the technology is proven. In the project activity operation of multi-fuel fired, higher pressure boiler need comparatively higher degree of technical expertise in its operation and maintenance. These are summarized as follows -

- Use of biomass residues such as rice husk in combustion poses serious operational problems. Rice husk ash contains high percentage of silica, which may lead to rapid erosion of the equipments. Due to this high silica content and the pointed nature of the rice husk (biomass) particles which makes it worse for combustion at higher temperature leading to low boiler efficiency due to more resistance to heat transfer in the boiler tubes and erosion of tubes which may lead ultimately to the failure of the boiler. To avoid this scenario, more frequent cleaning of tube bank and other parts of the boiler is required.
- Pre-project activity unit employed a low pressure boiler operating at 12 kg/cm^2 which required moderate skills to operate it. As against this, the new boiler is configured to operate at 44 kg/cm^2, necessitating better operating skills. Hence in order to have smooth operation of the power plant, skilled manpower is required.
- Water tube boilers are required to be operated with appropriate feed water and boiler water conditions. In order to maintain the pH, iron content, copper content, TDS and such other parameters it requires treatment of the feed water before its use in boiler. This requires more attention towards water treatment and hence expenses in water treatment plant.
- Synchronization of boiler, steam demand in the plant and turbine operations require high degree of technical skills and experience.

RRAPL had perceived the above-mentioned technological risks associated with biomass utilization and is still embarking on setting up the new cogeneration facility. The project proponents were aware of the difficulties associated with the usage of rice husk in boilers (mainly erosion of equipments) since they were utilizing the same to meet the thermal requirements for their existing 200 TPD solvent extraction plant. This inspite, the project proponent had taken up this biomass power project for the new Cogeneration plant. This reflects the fact that the project proponents have gone for rice husk cogeneration projects only for environmental concerns.

c) Prevailing practice:

The law either from the Centre or the State does not mandate the project activity. Although the Ministry of Non Conventional Energy Sources (MNES) and the state government are promoting such renewable energy endeavors, there is no legal binding on either the state or the promoter to come up with such biomass based power plant.

Not many industrial plants generate steam and/ or power based on biomass residues in the area. RRAPL were one among the very few Solvent Extraction plants in the state to run its plant on biomass residues. Other players have not gone for similar projects due to various barriers as discussed above.

There are about two solvent extraction manufacturers in Uttar Pradesh (Edible Oil Manufacturers) namely[1]:
H.B.Oil Industries, Kanpur and Raghuraji Agro Industries Private Limited, Akbarpur and of this only RRAPL have gone in for the cogeneration activity. This shows that this is not a Business As Usual Case and the project proponents have taken in risks with the project.

d) Other Barriers

Biomass Availability and Price Risk

There are various factors which may impact availability of biomass residue. These are,

- The cultivation and crop yield depends on many factors like monsoon, demand in the market, prices of other crops, etc. This makes an impact on overall production of crops. All these factors are not in control of the project proponent. There is risk involved in using such kind of fuels.
- Lack of proper logistics network for collection and delivery of biomass residues have not created much of its use as fuel in industrial applications. In normal practice it is burnt inefficiently or left to rot in the field. To ensure continuous & economical fuel supply project proponent will have to develop a viable fuel collection mechanism.

Energy is not a core business of RRAPL. They are mainly manufacturers' of soyabean oil and are into solvent extraction and refining business. The rice husk based cogeneration project activity is a steep diversification from the core business fields to power sector economics, where the project proponent has to meet challenges of techno-commercial problems associated with the project activity. RRAPL had to overcome the managerial resource barrier because of lack of trained manpower to operate the cogeneration plant, considering that the plant is located in a rural area.

Summary:
The project activity is additional to the baseline scenario as it reduces emissions below baseline level and faces many barriers which prohibit its implementation. Carbon credits will help bridge the profitability gap, as well as provide financial support for investing in development of dedicated biomass residual fuels.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

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[1] http://www.indianindustry.com/edibleoils/10475.html

Project Emissions:
Essentially there is no GHG emission due to the project activity within the project boundary because the fuel being used is rice husk. The GHG emission due to the burning of rice husk is negated by the sequestration done during the growth of rice, thereby making it a carbon neutral fuel. Thus there are no anthropogenic emissions due to the project activity within the project boundary.

Baseline Emissions:
The baseline emissions arise from the usage of diesel for generating electricity.

The baseline emissions is the annual kWh generated by the renewable unit times an emission coefficient for a modern diesel generating unit of the relevant capacity operating at optimal load.

$BE_y = EG_y * COEF_{\text{diesel at optimal load}}$

Where,
BE_y: Baseline Emissions in year y (t CO_2)
NE_y : Net electricity generated after taking into consideration consumption by auxiliaries.
COEF: Carbon emission factor for diesel at optimal load (the emission factor is taken as 0.8 kg CO_2 equ /Kwh).

As a conservative approach the emissions from the transportation of diesel (in the baseline) as well as the transportation of rice husk (project activity within the project boundary is not considered. The baseline emissions arising from the transportation of carbon intensive diesel to the site is assumed to be countered by the project emissions arising from transportation of biomass on to the project site.

Leakage Emissions:

According to I-C, leakage emissions are considered if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity.

Neither the equipment used for this project has been transferred from another activity nor has there been any transfer of any equipment from this project to another activity. Thus no leakage is considered.

The only source of considerable GHG emissions which are attributable to the project activity lying outside the project boundary will be the emissions arising during the transportation of rice husk (This would also not be very significant as rice husk as provisions have been made to avail this biomass from the vicinity of the RRAPL unit, thereby significantly reducing the transportation distance of rice husk is for the project activity). Similar GHG emissions also occur during the transportation of diesel for the grid connected power plants in the baseline. Hence the net direct offsite GHG emissions on account of transportation have been neglected.

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

(Copy this table for each data and parameter)

Data / Parameter:	$COEF_{diesel\ at\ optimal\ load}$
Data unit:	Kg CO2/Kwh
Description:	Cabon Emssion Factor from Diesel
Source of data used:	IPCC default values.
Value applied:	0.9
Justification of the choice of data or description of measurement methods and procedures actually applied :	Since diesel was used for electricity generation prior to the implementation of the project, the $COEF_{diesel}$ would be required for calculating the baseline emissions and the emission reductions for the project.
Any comment:	

B.6.3 Ex-ante calculation of emission reductions:

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Baseline Emissions:

$BE_y = EG_y * COEF_{diesel\ at\ optimal\ load}$
(Kwh) (KgCO2/Kwh)

=6196500 * 0.9 = 5576.85 T CO2e per annum.

Project Emissions: The project activity emissions are considered to be negligible.

Leakage: Leakage is not considered because no energy generating equipment is transferred from another activity nor existing equipment is transferred to another activity.

$\mathbf{ER_y = BE_y - PE_y - LE_y}$

$\mathbf{ER_y}$ = 5576.85 t CO_2 e per annum.

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

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Year	Baseline Emissions (tCO_2)	Project Emissions (tCO_2)	Emission Reductions (tCO_2)
2007	5,577	0	5,577
2008	5,577	0	5,577
2009	5,577	0	5,577
2010	5,577	0	5,577
2011	5,577	0	5,577
2012	5,577	0	5,577
2013	5,577	0	5,577
2014	5,577	0	5,577
2015	5,577	0	5,577

2016	5,577	0	5,577
Total	**55,770**	**0**	**55,770**

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

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B.7.1 Data and parameters monitored:

(Copy this table for each data and parameter)

Data / Parameter:	**EG_y**
Data unit:	KWh
Description:	**Total power supplied to the process plant.**
Source of data to be used:	Project records and log books maintained by the plant authorities.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	6,196,500
Description of measurement methods and procedures to be applied:	This will be measured from the data recorded in the logbooks on a continuous basis. The data will be archived either electronically or in papers and will be available upto two years after the crediting period. The project activity will employ state-of-the-art monitoring and control equipments that will measure, record, report and control the net electricity generated from the project activity.
QA/QC procedures to be applied:	QA/QC procedures have been planned. The level of uncertainty level of data is low.
Any comment:	Meters at plant will automatically measure the data. The data will be recorded in project logbooks. The data holds a significant purpose for determining the baseline emissions and the emissions reductions accruing due to the project activity. This is calculated as the difference between the gross waste heat power generated for a year from the auxiliary power consumption during that year.

Data / Parameter:	**E_a**
Data unit:	kWh
Description:	**Auxiliary consumption**
Source of data to be used:	Project records and log books maintained by the plant authorities.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	688,500
Description of measurement methods and procedures to be applied:	This will be monitored and recorded on a continuous basis by the electronic power and energy meters. The data will be archived either electronically or in papers and will be available upto two years after the crediting period. The integrated readings will be recorded in manual log books. The total quantum of

	electricity consumed by the auxiliaries affects the total electricity supplied to the manufacturing facility and therefore the amount of GHG reductions. All instruments are calibrated and marked at regular interval to ensure accuracy.
QA/QC procedures to be applied:	QA/QC procedures have been planned. The level of uncertainty level of data is low.
Any comment:	Meters at plant will automatically measure the data. The data will be recorded in project logbooks.

Data / Parameter:	**EG_{total}**
Data unit:	Kwh
Description:	**Total Electricity generated by the cogeneration unit**
Source of data to be used:	Project records and log books maintained by the plant authorities.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	6,885,000
Description of measurement methods and procedures to be applied:	This will be measured from the data recorded in the log books on a continuous basis. The data will be archived either electronically or in papers and will be available upto two years after the crediting period. Total electricity generated by the power project will be measured in the plant premises, on continuous basis by the calibrated electronic power and energy meter. The integrated readings will be recorded on manual log book on a continuous basis. Another meter will be installed by the project proponents, which could be used for cross verification of energy generated by project activity.
QA/QC procedures to be applied:	QA/QC procedures have been planned. The level of uncertainty level of data is low.
Any comment:	The data will be monitored from flow meters at plant. Manager in-charge would be responsible for calibration of the meters

Data / Parameter:	**Q_y**
Data unit:	Metric tonne
Description:	Quantity of biomass (rice husk) used in the cogeneration facility
Source of data to be used:	Plant records
Value of data applied for the purpose of calculating expected emission reductions in section B.5	This data will not be used to calculate the emission reductions by project activity but is an important parameter for plant performance
Description of measurement methods and procedures to be applied:	Invoices from farmers and weigh bridge slips. This will be measured daily from the data recorded in the log books on a continuous basis. The data will be archived in papers and will be available upto two years after the crediting period.

	The amount of rice husk being used would be monitored daily during purchase and usage.
QA/QC procedures to be applied:	QA/QC procedures have been planned. The level of uncertainty level of data is low.
Any comment:	

B.7.2 Description of the monitoring plan:

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The Monitoring and Verification procedures define a project specific standard against which the project's performance (i.e. GHG emissions) and conformance with all relevant criteria will be monitored and verified. It includes developing suitable data collection methods including a computerised data capture system, and techniques for data interpretation for monitoring and verifying GHG emissions with specific focus on technical/efficiency/performance parameters. It also allows scope for review, scrutiny and benchmarking against established norms for monitoring and verification.

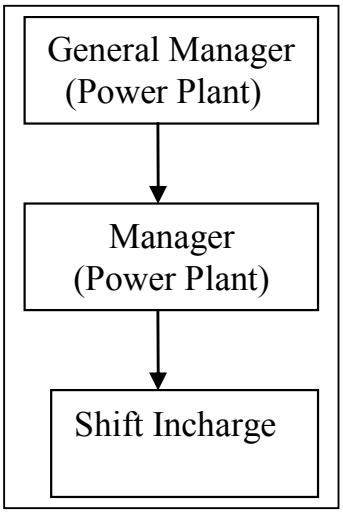
The M&V protocol provides a range of data estimation, measurement and collection options and techniques, in each case indicating preferred options consistent with good practice to allow project managers, and operational staff, auditors and verifiers to apply the most practical and cost effective measurement approaches to the project. The aim is to enable this project to have clear, credible and accurate monitoring, evaluation and verification procedures. The purpose of the procedures is to direct and support continuous monitoring of project performance and project indicators, to determine project outcomes and GHG reductions.

Monitoring methodologies / guidelines mentioned in the UNFCCC document of "Appendix B of the simplified modalities and procedures for small scale CDM project activities" for small scale projects (Type I: C) is considered as basis for monitoring methodology for the activity.

Description of monitoring plan

Gross power produced and auxiliary consumption is recorded for calculation of GHG emission reductions. The monitoring and verification system comprise of electricity recording meters as far as power supplied to the manufacturing facility is concerned. Quantity of rice husk has also been monitored. Monitoring and control functions are as per internally accepted standards of RRAPL. Instruments are calibrated and marked at regular intervals so that the accuracy of measurement can be ensured.

RRAPL would ensure accuracy of the measurement of different parameters through its CDM monitoring team which has been constituted as follows:



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

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Date of completion: 10th January, 2007.

Name of person/ entity determining the baseline: Raghuraji Agro Industries Private Ltd and its consultants

Detailed contact information of the above is given in Annex 1

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:

>>
1st April, 2006

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

>>
30y-0m

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:

>>
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:

>>
01/01/2007 (or after the registration of the project activity)

C.2.2.2. Length:

>>
10y-0m

SECTION D. Environmental impacts

>>

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

>>

The project being a renewable energy biomass based power project it does not fall under the purview of the Environmental Impact Assessment (EIA) notification of the Ministry of Environment and Forest, Government of India. As per the government of India notification based on environment protection rule, 1986, public hearing and EIA is required for those industries / projects which are listed in the predefined list of ministry of environment and forest. Thermal power projects with investment of less than Rs. 100 crores have been excluded from the list. Hence, EIA not mandatory by the project proponents

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:

>>

No negative environmental impacts will occur as a result of the project activity. The most significant positive environmental impact arising from the project activity is the reduction in carbon dioxide emissions from the replacement of fossil fuels that would be generated under the baseline scenario.

SECTION E. Stakeholders' comments

>>

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

>>

RRAPL will be organising stakeholder consultation meetings with individual village panchayat (elected body of representatives administering the local area) in the area with the objective to inform the interested stakeholders on the environmental and social impacts of the project activity and discuss their concerns regarding the project activity.

The other stakeholders identified for the project activity are as under:

- Uttar Pradesh Pollution Control Board.
- Village Panchayat

The village *Panchayat* /local elected body of representatives administering the local area are true representative of the local population in a democracy like India. Hence, their consent / permission to set up the project are necessary. RRAPL is in the process of completion of the necessary consultation and documented their approval for the project.

Local population comprises of the local people in and around the project area. The roles of the local people are as a beneficiary of the project. The local population will be involved in the supply of the biomass and hence the project would be a beneficial project for the local population. In addition to this, the project would also lead to local manpower working at the plant site. Since, the project will provide good direct and indirect employment opportunities the local populace is encouraging the project. The project does not require displacement of any local population.

The project is in the process of receiving its No Objection Certificate (NOC) from UPPCB to start the cogeneration unit which will be commissioned in December 2006.

E.2. Summary of the comments received:

>>

The project proponents are in the process of taking the necessary steps to cater to compliance with environmental standards and have invited stake holders' consultations for the same.

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

>>

RRAPL is anticipating positive feedback from the above identified stakeholders. The comments received will be taken due care of.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Raghuraji Agro Industries Pvt.Ltd
Street/P.O.Box:	Faizabad Road, Akbarpur
Building:	
City:	Dist:Ambedkar Nagar
State/Region:	Uttar Pradesh
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Telephone:	+91 (05271) 244001,245084, 246503
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URL:	
Represented by:	
Title:	Director
Salutation:	
Last Name:	Pandey
Middle Name:	
First Name:	Ashish
Department:	
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

There is no public funding from any Annex 1 countries involved in the project activity.

Annex 3

BASELINE INFORMATION

Details regarding baseline information are provided in Section B.4

Annex 4

MONITORING INFORMATION

Monitoring information is provided in Section B.7.2

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