

CDM Gold Standard Attachment

Gold Standard Requirements Additional Annex as required by the Gold Standard

This Annex provides information on how gold standards requirements have been met by the project activity to be eligible for Gold Standard. Compliance with some of the requirements has already been provided in the PDD under various sections.

Project Type Eligibility Screen

GS Manual for CDM Project Developers: Section 3.2

As per Appendix A of the Gold Standard project developer's manual, the project activity is eligible under the Gold Standard due to the following reasons:

- The project type corresponds to renewable energy technologies per AMS I.D and AMS III.E under CDM
- The resource for the project is poultry litter which is a residue from agro-processing industry.
- The resource is used for electricity production for a grid system that comprises fossil fuel energy
- Reduction of biomass waste is not possible at source and composting is a less feasible option
- Co-firing of fossil fuels is not permitted. Co-firing of non-renewable waste is also not envisaged

The project activity meets the criteria set in A.1.1.2.3 of the gold standard developers manual to use AMS III.E methodology, as follows:

The energy from biomass combustion is used to produce electricity that displaces grid electricity. Grid electricity is predominantly fossil fuel based.

The project is designed to use biomass only. As per the MNRE guidelines, the project is not allowed to use any fossil fuels. However, a small amount of other biomass fuels such as rice husk can be used.

Reduction of biomass at source is not possible and composting is a less feasible option, due to the following reasons.

- The sources of biomass (poultry litter and rice husk) are poultry farms and rice mills within the project region. Operation of both sources is not under the control of project participants as they are owned by others and depends mainly on market conditions of poultry products and rice. Hence, reduction of biomass at the sources is not possible.
- Composting is not a feasible option for the project developers, mainly due to lack of knowledge for composting the poultry litter. Also lack of market for the compost derived from poultry litter made the project developers to decide to go for power generation. There have been no evidences of composting using poultry litter in India.

Co-firing of non-renewable biomass is not proposed. As explained in the project documentation, the project is designed to use poultry litter and rice husk only. Use of poultry litter and rice husk is monitored ex post.

The usage of poultry litter and rice husk for power generation falls under the category of ecologically sound biomass project due to the following reasons:

- The resources poultry litter and rice husk are carbon neutral. Poultry litter is excretes of poultry birds (Chicken, both egg laying and broiler) generated at poultry farms. Rice husk is a residue of paddy processing mills (rice mills). Both resources are agro-industrial residues.
- Project developers do not use genetically modified organisms
- Poultry litter and rice husk do not have competing uses. They are available in abundance within 50 km radius of the project location. This would be demonstrated annually through common practice analysis and annual biomass surveys.

Gold Standard Additionality Screen

Previously announced projects screen

GS Manual for CDM Project Developers: Section 3.3.1

There has been no public announcement of the project going ahead without the CDM, prior to any payment being made for the implementation of the project.

Prior to the implementation of the project activity, the project developer has entered negotiations with potential CDM buyers (see also Step 0 of Additionality Tool). CDM funds are a key element in the finance structure of the project activity and it would not have happened without CDM.

UNFCCC Additionality Tool (EB 39 Report Annex 10, Version 05)

GS Manual for CDM Project Developers: Section 3.3.2

Application of UNFCCC CDM additionality is provided below.

Additionality Tool Steps	Additionality Assessment	Remarks & Conclusions
<i>Step 0: Preliminary screening based on the starting date of the project activity</i>		
<p>Does the crediting period start prior to the registration of the project activity?</p> <p>Is there verifiable evidence to justify that CDM was seriously considered at the start of the project?</p>	<p>Crediting period will not start prior to the registration of the project activity.</p> <p>Evidence to justify that the incentive from the CDM was seriously considered at the start of the project activity is available in the form of contracts and intention letters with CER buyers. Evidence has been submitted to the DOE for validation.</p>	<p>The project crediting period will not start prior to CDM registration. Furthermore, evidence based on legal documentation is available to demonstrate that CDM was considered prior to start of the project activity.</p>
<i>Step 1: Identification of alternatives to the project activity consistent with current laws and regulations</i>		
<i>Step 1a:</i> Define alternatives to the project activity	<p>Following scenarios have been considered as alternatives to the project activity</p> <p>✓ Continuation of existing situation, i.e. operation of existing grid connected power plants that include fossil fuel and non-fossil fuel based power plants at the margin of</p>	<p>First scenario, the continuation of existing situation represents a plausible baseline scenario. It does not generate any major additional investments for RPL. Since there are no</p>

	<p>southern region grid system For methane avoidance, dumping of poultry litter without any treatment or methane recovery is the continuation of current situation</p> <p>✓ The proposed project activity not undertaken as CDM project activity, i.e. Installation of the proposed 3.66 MW poultry litter fired power plant without CDM funds</p>	<p>regulations preventing of poultry litter the current situation is expected to continue during the crediting period.</p> <p>Second scenario is not a viable option because the project activity would not have taken place without consideration of CDM revenues in the project finance structure. Further details have been provided in section B.5.</p>
<p><i>Step 1b:</i> Enforcement of applicable laws and regulations</p>	<p>✓ All alternatives identified in step 1a are in compliance with all applicable legal and regulatory requirements.</p> <p>✓ There is no legal requirement or framework to obligate the use of biomass residues as fuel for power generation. Similarly there is no regulation exists that prevent dumping of litter in open areas.</p> <p>✓ The Indian Electricity Act of 2003 does not restrict the fuel choice for power generation.</p> <p>✓ The applicable environmental regulations do not restrict the choice of fuel for generation units located anywhere in India.</p> <p>✓ Also there is no legal requirement on the choice of a particular technology for power generation.</p>	<p>None of the alternatives identified in step 1a has to be excluded due to legal and regulatory requirements.</p>
<p><i>Step 2: Investment Analysis</i></p> <p>The additionality tool requires either an investment analysis or a barrier analysis. A barrier analysis has been conducted for the proposed project.</p>		
<p><i>Step 3: Barrier Analysis</i></p>		
<p><i>Sub-step 3a:</i> Identify barriers that would prevent the implementation of type of the proposed project activity</p>	<p>✓ <u>Investment barriers:</u> Investment barriers have already been presented in Section B.5</p> <p>✓ <u>Technological barriers:</u> Technological barriers have already been presented in Section B.5</p> <p>✓ <u>Prevailing practice barriers:</u> Prevailing practice barriers have already been presented in Section B.5</p>	<p>Conclusion: The project activity faces investment and technology barriers. In addition, barriers due to prevailing practice have been identified. These barriers prevent the project activity from being implemented without the CDM.</p>
<p><i>Sub-step 3b:</i> Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the</p>	<p>All barriers listed above do not apply to the existing situation, which is the most common technology in India for power generation plants.</p>	<p>None of the alternatives identified in step 1a have to be excluded due to the barrier test.</p>

project activity)		
<i>Step 4: Common practice analysis</i>		
<i>Sub-step 4a:</i> Analyze other activities similar to the proposed project activity	<ul style="list-style-type: none"> ✓ The vast majority of power generation plants operating in India are based on firing of fossil fuels like coal, heavy fuel oil or natural gas. ✓ Many projects are in operation that fire biomass residues. ✓ Such plants are based on firing of mainly high density biomass residues such as bagasse / wood waste and hence do not have the technological barriers related with firing of low density crop residues. ✓ Only a few projects were proposed, one similar project was registered with CDM. No similar project was operationalised so far. ✓ As such, the proposed project activity does not fall within common practice. 	There are no activities of comparable size implemented previously. Only a few projects were currently underway that are similar to the proposed project activity, but none of them has operational history.
<i>Sub-step 4b:</i> Discuss any similar options that are occurring	✓ Not applicable.	No similar activities of comparable size based on poultry litter have been implemented in the region.
<i>Step 5: Impact of CDM registration</i>		
Explain how the approval and registration of the project activity as a CDM activity will alleviate the economic and financial hurdles (Step 2) or other identified barriers (Step 3) and thus enable the project activity to be undertaken.	<ul style="list-style-type: none"> ✓ The project promoters intend to CDM funds against delivery of CERs. ✓ The above funds are required as the project promoters are not in a position to create investors' interest in common equity capital in view of the outlined investment risks / technology risks. ✓ Further, CER revenues will help alleviate higher unit generation costs and risks associated to technology and fluctuations of biomass prices in the future. 	RPL has already signed Emission Reductions Purchase Agreement with the buyer. The said revenues from sale of CERs enhances the economic viability compensating some of the barriers such as reduction in electricity export, increase in O&M costs etc.

ODA Additionality Screen

GS Manual for CDM Project Developers: Section 3.3.3

Project financing for this project activity will not use Official Development Assistance (ODA) Funds as defined in the Gold Standard Manual for Project Developers. There are no loans or grants being provided by International Finance Institutions, which include ODA.

The investment required for the project activity will be raised from Indian Renewable Energy Development Agency (IREDA). Total estimated cost of the project is Rs.168.5 millions. Project participants invest in the project to an extent of 35% of the total project cost and IREDA finances to an extent of 55% of the project cost. The remaining finance of 10% will be raised from commercial banks.

A separate financial analysis and documents related to the above financing means are available to the DOE to verify that the ODA is not utilized for the project activity.

Conservative Approach

GS Manual for CDM Project Developers: Section 3.3.4

The project activity results in lower GHG emissions than in the baseline scenario which is operation of fossil fuel dominated grid system. The baseline scenario is selected as part of the additionality demonstration using the most recent version of the additionality tool as approved by the CDM EB at its 39th meeting (version 05).

Project participants chose the approved small scale methodology AMS I.D and AMS III.E for grid electricity displacement and avoidance of methane production. Since, there were no other methodologies that are applicable to the project activity, the selection of a choice of a methodology that results in lowest emission reductions is not applicable.

As provided in the approved methodology AMS I.D, project participants selected option (a) of para 9 combined margin comprising operating margin and built margin. The emission factor is conservatively determined by Central Electricity Authority, which is publicly available at www.cea.nic.in. As indicated the guidance document of CEA on grid emission factors, The following approaches and assumptions contribute to the conservativeness of the database:

- The quality of station-level data was ensured through extensive plausibility testing and interaction with the station operators.
- In cases of data gaps at station level, standard data from CEA was used. For example, standard auxiliary power consumption was assumed for a number of gas-fired stations. Comparison with monitored values shows that these standard values are rather conservative, i.e. they lead to a somewhat lower heat rate and hence lower emissions than observed in many stations.
- Where required, the emission factors of thermal units were also derived from standard CEA values (design heat rate plus 5%). Again, these values are conservative (i.e. relatively low) compared to the heat rates observed in practice. See Section 4.3 for details on the build margin calculation.
- The fuel emission factors and oxidation factors used are generally consistent with IPCC defaults. For coal, the emission factor provided in India's Initial National Communication was used (95.8 t CO₂/TJ on NCV basis), being somewhat lower than the IPCC default for sub-bituminous coal (96.1 t CO₂/TJ)

For avoidance of methane production project participants considered AMS III.E methodology. Methane emissions in the baseline were estimated conservatively according to the methodological tool. To ensure conservativeness project participants considered only the poultry litter. Rice husk is excluded from methane emission calculations.

Technology Transfer and Knowledge Innovation

GS Manual for CDM Project Developers: Section 3.3.5

Power generation using poultry litter is a technology innovation in the country. Though the project activity is one of first few similar projects sanctioned in the country, only one project was commissioned recently and was registered as a CDM project activity. No similar project activity was operating before proposing this project activity. The

technology adopted for the project is direct combustion of poultry litter in the boiler to generate high pressure and high temperature steam for power generation using turbo generator. Since the poultry litter has different characteristics and properties than other conventional or non-conventional fuels, combustion of poultry litter was not tried. So, there were several barriers to use the poultry for power generation. However, project participants took initiatives to use the abundantly available poultry litter in the region and decided to implement power generation project using poultry litter as the main fuel.

Overcome some of the technological barriers, project participants implemented the several innovations in the boiler design to suit the properties and characteristics of the poultry litter. These innovations are a result of a series of combustion trials / tests conducted on poultry litter at one of the manufacturers of boilers in India. In other words, the boiler was custom designed to match the size of the project and the properties of poultry litter,

Poultry litter is a more challenging fuel for several reasons. The ultimate analysis indicates some of the reasons. The Chloride levels are comparatively high in poultry litter. High Chloride levels, in conjunction to high alkali levels, results in a high potential for slagging and fouling and corrosion, which would severely hamper the performance of the boiler under normal operating conditions in conventional designs. Further, high chloride and alkali levels in the poultry litter would lead to faster erosion and corrosion in superheater areas of the boiler.

Following are some of the key measures that have been employed to mitigate the above negative effects from the use of poultry litter to some extent.

The boiler proposed is a travelling grate combustion boiler specifically designed to burn poultry litter. While burning the poultry litter the Chlorine present in the litter mixes with air and causes acidic fumes in the furnace. The acidic fumes will result in the rapid corrosion of boiler tubes at high temperatures of 800 °C and leads to an early failure of tubes, within short time. To mitigate the above problem the furnace area is increased considerably and more air is inducted into the furnace above the grate. This modification in the boiler design helps in dilution of acidic fumes and also to contain the furnace temperatures to below 800° C. Due to the low furnace temperatures the steam temperature had to be restricted to 440 °C, while many of the boilers of conventional fuels generate steam at 490 °C and above. The restriction in the furnace temperature also resulted in lower steam pressure to 45 kg/cm² and thus a comparatively lower efficiency boiler.

Further, the high chloride concentration in the poultry litter requires special grade alloys for boiler construction and heavy gauge alloy steel tubes than conventional design requirements. Boiler furnace has to be lined with ultra low cement refractory materials, since conventional refractory materials containing calcium are rapidly attacked by Chlorine.

Increased furnace volume coupled with increased air flow and lower furnace temperature, resulted in increased boiler heating surface areas to improve the boiler efficiency to some extent. Further, the fuel distribution within boiler furnace and air feeding systems were completed redesigned to match the poultry litter combustion characteristics.

Poultry litter contains high ash content to an extent of 20% and above. High ash levels in poultry litter requiring higher volume ash handling equipment and more attention to particulate removal, slagging and fouling. Special provision has been made in the boiler for injecting lime into the furnace to alleviate alkali problem.

Poultry litter has very low calorific value between 2300 and 2800 kcal/kg. The low calorific value together with lower efficiency (due to lower pressure and lower temperature than conventional designs), required further increase of the furnace size to handle more volume of fuel for the same design capacity of the boiler.

Poultry litter absorbs moisture quickly and particularly in monsoon periods, poultry litter becomes moist quickly making it difficult to burn. This problem aggravates in the project region where the annual rainfall is high and is near to the sea coast. During these periods, other fuels such as coal have to be co-fired to sustain the fuel combustion, optimum operating parameters. Since the MNRE imposed restriction on the use of fossil fuels in the project, project participants considered other non-conventional fuels such as rice husk and other biomass wastes. This combination of poultry litter and rice husk/other biomass wastes triggered special design in the boiler and require special skills in operation and maintenance of the boiler.

Thus the above demonstrate that the project activity involves technology and knowledge innovation.

Sustainable Development

Sustainable Development Assessment

GS Manual for CDM Project Developers: Section 3.4.1

The sustainable development assessment presented in the table below is based mainly on experiences of biomass power projects that are presently in operation in Andhra Pradesh. The main difference lies in biomass power plants and the poultry litter based plant is only in the fuel fired. The experiences with these power plants have been very positive in terms of sustainable development, especially in regard to poverty alleviation and employment generation.

In terms of project concept, applied technology and biomass procurement both RPL project and other biomass projects were very similar, which allows for using the similar capacity project as a reference for this section. The Initial Stakeholder Consultation carried out in December 2006 showed also a very positive response from all sorts of stakeholders. Especially local villagers and farmers appreciated that one of the greatest assets of the Project will be the number of new jobs it will create and the avoidance of local environment pollution due to poling poultry litter. Stakeholders unanimously agreed that the project would create a market for presently unused poultry litter and that this would have a direct impact on their income, thereby helping to improve their lifestyles.

Using inputs from the Initial Stakeholder Consultation and additional information results in the following Gold Standard sustainable development assessment matrix:

Component • Indicators	Score (-2 to +2)	Rational
Local / Regional / Global Environment		
• Water quality and quantity	+1	There is a slight improvement in water quality due to decreased contamination of water resources through dumping of poultry litter in open areas near poultry farms, most of them are located near to the villages. For power generation, effects on water in terms of quality and quantity can be seen as equal to those in the baseline scenario.
• Air quality (emissions other than GHG)	+2	Air quality will be improved substantially as compared to the common practice of dumping litter in open areas near to the human habitats. Furthermore, SO _x and NO _x emissions of the biomass fired plant are significantly lower than the average (mainly coal fired) grid-connected power plant in the baseline.
• Other pollutants (including, where relevant, toxicity, radioactivity, POPs, stratospheric ozone layer depleting gases)	0	Apart from water and soil pollutants, no other relevant pollutants have been identified.
• Soil condition (quality and quantity)	+2	The project delivers a high quality organic fertiliser to farmers. The fertiliser, that mainly consists of ash from the power plant enriches the soil and contributes to organic farming practices, which further improve soil conditions as compared to conventional practices.
• Biodiversity (species and habitat conservation)	0	As compared to the baseline, no significant change in biodiversity is expected. Since the project uses only abundant and locally available biomass residues, there is no danger of biodiversity loss through unsustainable biomass use.

<i>Sub Total</i>	+5	
Social Sustainability and Development		
<ul style="list-style-type: none"> • Employment (including job quality, fulfilment of labour standards) 	+2	The project leads to employment generation in the power plant itself and in the waste supply chain. These jobs do have a significant impact on job quality, mainly because local farmers involved in the biomass supply chain are treated as individual entrepreneurs with a high flexibility and sovereignty.
<ul style="list-style-type: none"> • Livelihood of the poor (including poverty alleviation, distributional equity, and access to essential services) 	+2	The involved farmers in the biomass supply chain benefit from selling litter to the power plant, which was of no value before. This creates additional income in the region and helps alleviating poverty, especially among the poor rural community. Further, the involved farmers receive high quality organic fertiliser in return for their agricultural activities, which minimizes their expenses for chemical fertiliser. Project developers invest some of the CDM revenues for enhancement of living conditions prevailing in the livelihoods of local labourers, particularly those engaged in collection of poultry litter.
<ul style="list-style-type: none"> • Access to energy services 	+1	Being a captive cogeneration plant for a large electricity consumer, the project adds capacity to the regional power matrix, thus alleviating the power grid and improving electricity availability by some extent. However, the generated electricity is sold to the grid and not directly to local communities.
<ul style="list-style-type: none"> • Human and institutional capacity (including empowerment, education, involvement, gender) 	+1	Local labourers are trained to become entrepreneurs in the procurement of materials and in the power plant.
<i>Sub Total</i>	+6	
Economic and Technological Development		
<ul style="list-style-type: none"> • Employment (numbers) 	+2	The supply chain and the preparation of fuel are estimated to provide around 300 fulltime job equivalents. Another 60 jobs are created for power plant operation and maintenance. The labour intensive fuel procurement leads each year to at least 20 additional man-months / 1000 CERs, which is a high figure in comparison to other CDM projects. Furthermore, there were more job opportunities for highly qualified people per MW installed capacity in the power plant compared to the much larger power plants in the baseline scenario.
<ul style="list-style-type: none"> • Balance of payments (sustainability) 	+1	The project will have only a significant contribution to net foreign currency savings related to fossil fuel import since part of the fossil fuels used in the baseline is imported from foreign origin.
<ul style="list-style-type: none"> • Technological self reliance (including project replicability, hard currency liability, institutional capacity, technology transfer) 	+2	The project showcases an innovative way using poultry litter, combining power generation from renewable resources and sustainable development in rural areas. With more than 80% of India's population living in rural areas and considering the desolate power supply situation in these areas, the project has an immense replication potential. Further, the project presents technological innovations in boiler design and creates new

		models for institutional capacity related to biomass residue procurement schemes.
<i>Sub Total</i>	+5	
<i>Total</i>	+16	

As can be seen from the matrix above the project activity shows a very positive performance in all sustainable development components. The project activity fulfils all Gold Standard criteria since none of the indicators above have a score of -2, there is no negative sub-total, and the total score is positive.

EIA requirements

GS Manual for CDM Project Developers: Section 3.4.2

EIA Gold Standard Requirements according to section 3.4.2 in the Gold Standard Manual apply to the project activity as follows:

1. Host country EIA requirements
The project being a renewable energy biomass based power project 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 dated June 13, 2002 and its latest revision dated September 2006 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. As per information from the Ministry of Environment and Forest during the CDM host country approval, no EIA is required for the proposed project activity.
2. CDM Executive Board EIA requirements
The CDM Executive Board does not pose extra requirements for biomass power projects related to the EIA.
3. Gold Standard Initial Stakeholder Consultation
The Gold Standard Initial Stakeholder Consultation was held at Anaparthi village which is near to the project location, on 6 December 2006. The results of the Gold Standard Initial Stakeholders Consultation (see point 3.3 under this section) did not show any significant environmental and/or social impact.
4. None of the indicators in the Sustainable Development Assessment Matrix scores -1.
5. None of the above steps shows a requirement to conduct an EIA.

A description of environmental impacts of the project activity is featured in the detailed project report which can be validated by the DOE throughout the regular CDM validation process. Details of environmental management plan has been provided here.

1. Plant Construction Phase

- ✓ Construction contracts will be awarded to reputed contractors only and they will be expected to adhere to a safety manual that will be issued. This includes issuance of appropriate personal protective equipment (PPE) for workers' safety.
- ✓ During site preparation, dust will be controlled by spraying water regularly on-site and along roads as applicable.
- ✓ The clearing of existing vegetation will be kept to a minimum.
- ✓ Construction workers will be provided proper sanitation facilities, as well as drinking water and proper temporary accommodation.
- ✓ Heavy vehicles involved in construction will be appropriately maintained to minimise exhaust emissions and contamination of land through spillages and combustion.

- ✓ Appropriate disposal facilities will be provided for all types of waste generated on-site.

2. Plant Operating Phase

Management of Water Environment

- The liquid effluents mainly come from water treatment plant, cooling tower blow down and boiler blow down. This wastewater from plant operations will be collected in a neutralisation pit and treated (as required) to meet standards for recycling and reuse as prescribed by the Andhra Pradesh State Pollution Control Board (APSPCB).
- The treated effluent will be used for gardening, floor wash and dust suppression. Therefore no effluent is expected to be discharged from the power plant.
- Fuel and dry ash handling system will minimise effluent generation.
- There is no requirement for up-gradation of existing domestic effluent treatment systems.
- No condenser cooling water is proposed to be drawn from or discharged to any inland water bodies for the proposed plant.

Management of Air Environment

- The power plant and auxiliaries shall be designed to meet the emission norms within the National Ambient Air Quality Standards (NAAQS).
- Exhaust gases will pass through an electrostatic precipitator (ESP) where suspended particulate matter will be reduced to less than 115 mg/Nm³.
- Flue gases from the ESP will then be vented through a stack, the height of which shall be designed to provide a balanced draft. With the proposed fuel combinations the chimney height for balanced draft is estimated to be around 50m. This height is well above the prescribed minimum limit for the expected emissions of SO_x.
- The NAAQS for particulate matter emission for thermal power plants of less than 210 MW generating capacity is 350 mg/Nm³. However the equipment for the proposed plant shall be designed to meet an emission limit of 100 mg/ Nm³.
- The boiler design limits emissions of oxides of nitrogen (NO_x).
- Boilers are fired with biomass of low sulphur.
- No radioactive emission is expected from the proposed cogen plant.
- Appropriate facilities for sampling such as ports, work platforms, clearance zones etc. will be provided.

Management of Solid Waste

- Dry ash collected as bottom ash and from ESP hoppers will be collected and used to make organic compost.
- Ash will be stocked in a silo to minimise dust generation on-site and sprayed with water as required.

Management of Occupational Health and Safety

- Equipment for processes have been selected to minimise noise generation.
- Noise absorbing materials will be used in construction where appropriate.
- Plant personnel will be provided with all appropriate PPEs.
- Plant personnel will be regularly trained in on-site emergency procedures and emergency preparedness

Other

- Minimum 5m wide green belt shall be provided around the periphery of the power plant.

Fire Protection System

A fire protection system shall be designed based on Loss Prevention Association (LPA) guidelines and NFPA standards. The basic design parameters are listed below:

1. Control and extinguishing of only one fire at a time occurring through the whole power plant area.
2. Fire spreading is assumed not to exceed the fire area limits it arises from.
3. Design water demand shall generally not exceed the greatest amount of water required for each fire scenario.
4. For the purpose of system design, the entire power plant is considered as ORDINARY HAZARD risk as per the classification of TAC.
5. The various types of fire prevention/protection systems considered for fighting the fires in different plant areas/buildings are:
 - ✓ Fire Hydrant System
 - ✓ Fire detection
 - ✓ Portable Fire Extinguishers
 - ✓ Fire detection and alarm system

Public consultation procedures

GS Manual for CDM Project Developers: Section 3.4.3

Initial Stakeholder Consultation

The initial stakeholder consultation was held at Anaparthi village on 6 December 2006. The meeting was attended by representatives from the Raus Power, Southpole Carbon, independent experts, local farmers, biomass suppliers, local NGOs and rural entrepreneurs. In addition to the local stakeholder meeting, Gold Standard supporting NGOs in India have been invited by email to send their comments on the project activity.

The overall response to the project, from all invited stakeholders, was encouraging and positive. It appears that one of the assets of the project activity will be the number of new jobs it will create. At least 350 new jobs are expected to be available including those for power plant staff and labour and from the biomass supply chain. They unanimously agreed that the project would create a market for presently unused agricultural residues and that this would have a direct impact on their income, thereby helping to improve their lifestyles.

In all, no adverse reaction/comments/clarifications have been sought/received during the Initial Stakeholder Consultation process. The participants of the meetings and Gold Standard supporting NGOs have not raised any significant concerns related to potential impacts of the Project.

A detailed report on the Initial Stakeholder Consultation is available in **Attachment 1** to this document.

Main Stakeholder Consultation

The Gold Standard Main Stakeholder Consultation is based on a set of additional criteria in addition to UNFCCC requirements. Full documentation of the project activity will be made publicly available for two months prior to conclusion of validation at www.southpolecarbon.com/goldstandard.htm, including:

- The original and complete PDD
- A non-technical summary of the project design document (in appropriate local language)
- Relevant supporting information

During the consultation period, stakeholders are invited to submit their comments and questions related to the project activity. For this purpose an online comment form is available at www.southpolecarbon.com/goldstandard.htm.

The report on the Main Stakeholder Consultation process will be made publicly available and sent to the DOE for validation.

Gold Standard Monitoring Criteria

GS Manual for CDM Project Developers: Section 3.5.1

The Sustainable Development Assessment Matrix shows that there are no indicators, which would be critical for a positive contribution of the project to Sustainable Development or that are particularly sensitive. Further, the initial stakeholder consultation has not demonstrated any concerns, which would require special monitoring.

Upon guidance by the Gold Standard on a similar project (Gold Standard communication dated 8 December 2006), the Gold Standard has recommended to monitor particulate matter emission levels as additional measure to regular CDM monitoring procedures.

Regular CDM monitoring procedures as specified in the PDD of the project activity account for:

- Determination of project emissions and emission reductions during the crediting period
- Determination of project emissions due to transportation of biomass
- Determination of monitoring method (including data registration, monitoring, measurement and calibration) and the equipment applied
- Quality assurance and control procedures for the monitoring process
- Documentation of all relevant monitoring steps

Qualitative and to some extent quantitative conclusions related to indicators from the Sustainable Development Matrix, such as Employment Generation and Livelihood of the Poor for example, can be derived from data contained in the regular CDM monitoring procedures (biomass supply sheets). The same applies to monitoring of leakage effects in the biomass supply, which ensures that only ecologically sound biomass is used in the project activity. Environmental impacts (mainly air and water quality impacts) are not considered of major influence and are also under the control by Indian regulations and authorities.

Therefore, the project promoters propose to monitor the following parameters, in addition to regular CDM monitoring procedures.

Monitoring procedures for particulate emission levels

Data / Parameter:	<i>EL_{particulateemissions}</i>
Data unit:	ppm
Description:	Particulate emission levels measured periodically at the stack of the power plant
Source of data to be used:	Plant operational data
Measurement procedures (if any):	Particulate emission levels will be determined based on a stack gas analysis using calibrated analyzers. Measurements will be carried out according to international standards by qualified professionals with qualified equipment
Monitoring frequency:	Monthly measurements
QA/QC procedures to be applied:	Measurements will be conducted by qualified institutions, which guarantee for the accuracy of the measurements.
Any comment:	

Data / Parameter:	<i>Water quality</i>
Data unit:	
Description:	Water quality at the outlet of the effluent treatment system
Source of data to be used:	Plant operational data
Measurement procedures (if any):	Effluent water will be checked for pH. All liquid effluents generated by the plant will be neutralized in the plant's neutralization system, before letting out or before reusing for internal purposes such as watering green belts.
Monitoring frequency:	Monthly
QA/QC procedures to be applied:	Measurements will be conducted by qualified institutions, which guarantee for the accuracy of the measurements.
Any comment:	

Data / Parameter:	<i>Employment</i>
Data unit:	
Description:	Number of skilled and unskilled personnel directly employed by the project participants
Source of data to be used:	Plant operational data
Measurement procedures (if any):	
Monitoring frequency:	Monthly
QA/QC procedures to be applied:	Data can be directly obtained from the payrolls / registers of employees.
Any comment:	

Attachment 1 - Initial Stakeholder Consultation Report

(Only extracts of the report is furnished here. Full report can be found at www.southpolecarbon.com)

BACKGROUND

Raus Power Ltd., a Hyderabad, India based private entity is implementing a 3.66 MW capacity poultry litter based power generation project for a grid system. The main resource for the power generation is poultry litter which is non-conventional and renewable energy source. The location of the project is in East Godavari district of Andhra Pradesh state in India. The power generated by the project using poultry litter will be exported to a local grid system Eastern Power Distribution Corporation of Andhra Pradesh Ltd. (APEPDCL). By utilizing the poultry litter, the project activity is contributing to the mitigation of local environment pollution as well as mitigation of climate change by displacing the CO₂ and CH₄ emissions.

Due to the sustainable development benefits and global climate change mitigation due to the project activity, the project developers i.e. Raus Power Ltd. are seeking financial support for the project activity by participating in the Clean Development Mechanism under Kyoto Protocol of United Nations Framework Convention on Climate Change. Due to the project activity being one of first few of similar project activities with several outstanding features and sustainable development benefits, project developers believe that modalities and procedures of Gold Standard could be applied for the project activities so as to get the maximum financial benefit for the global climate change mitigation.

South Pole Carbon Asset Management Ltd., a Switzerland based carbon advisor was assigned by the Climate Cent Foundation to carry out the project development activities under CDM and Gold Standard. As part of such development activities and the gold standard requirements, an initial stakeholder consultation dialog was initiated by South Pole. This report contains the methodology adopted for the initial stakeholder consultation and the findings of the stakeholder dialog.

PURPOSE OF THE CONSULTATION

The objective of the Gold Standard initial stakeholder consultation is to enable affected and concerned institutions and individuals in expressing their point of view on the proposed carbon offset project, taking into account general concerns and recommendations on the project activity.

Two stakeholder consultations must be held during the project cycle in order to fulfill the criteria of the Gold Standard, which stands for environmental, economic and social integrity of carbon offset projects. An initial consultation in the early stages of documentation preparation and a main consultation after completion of the final project documentation have to be carried out.

Following stakeholders must be invited to participate in both consultation processes: Local policy makers, local people impacted by the project, (if applicable) local NGOs, local and national NGOs that have endorsed the Gold Standard and the Gold Standard itself.

PROCEDURE OF THE INITIAL STAKEHOLDER CONSULTATION

Invitation:

The Gold Standard initial stakeholder consultation consists of a public meeting and an email consultation addressing the stakeholders mentioned above.

The stakeholders are sent emails or letters inviting them to submit comments on the project and to participate in the public meeting. The letter sent includes:

- Invitation to the public consultation meeting
- Description of the project
- Questionnaire

Results announcement:

The results of the initial stakeholder consultation process and a summary of the comments received during the local public meeting are to be made public on the internet to stakeholders not later than 15 days after this request.

Stakeholder report:

According to the results of the of the initial stakeholder consultation process a stakeholder report will be compiled and attached to the project documentation (PDD).

CONSULTATION MEETING

Consultation meeting for local stakeholders:

Date: December 6th, 2006
Duration: 10:30am to 12:30pm
Place: Anaparthi Region Poultry Farmers Welfare Society,
Anaparthi Village, East Godavari District, Andhra Pradesh.

Language: Documentation and meeting was held in Telugu (local language) and English.

Meeting Schedule:

- Opening (5 min)
- Purpose of the consultation (5 min)
- Description of the project (15 min)
- Answering of questions (10 min)
- Completing checklists (40 min)
- General feedback (15 min)

Participants invited:

As per the gold standard requirements local stakeholders were identified and include local people, local and national NGOs, project developers, poultry farmers, resource suppliers, entities involved in implementation and operation of the project activity. A list of project participants invited for the stakeholder consultation is enclosed at Annex 1 to this report.

Documentation:

The following documents have been prepared and duly attested where required with the signatures of the attendees and Raus Power Ltd. during the local public meeting:

1. Presence list with name and occupation.
2. Appendix E – Public Consultation checklist completed by project participants
3. Telugu Version of the Appendix E-Public Consultation checklist
4. Summary of comments received.
5. Photographs of the meeting(s).

Site visits and onsite interviews:

Following the initial stakeholder meeting, site visit to the project location and some of the nearby poultry farms was conducted to assess the present condition. Local people and operating personnel at the poultry farms were interviewed.

EMAIL CONSULTATION

In addition to the invitation for comments and the meeting for local stakeholders, Gold Standard supporting NGOs in India are consulted through email. A list of gold standard supporting NGOs invited to comment on the project activity is provided in Annex.

All identified local gold standard supporter NGOs were sent an invitation letter on 01 December 06 by South Pole along with project description, information of environmental aspects, and the GS questionnaire on environmental impacts. NGOs are invited to comment on the project activity as well as fill up the questionnaire. 15 working days were given for submitting their comments. Thus the period of email consultation process is 01-December 2006 to 21 December 2006.

SUMMARY OF THE INITIAL STAKEHOLDER CONSULTATION

Summary of the meeting:

Local poultry farmers and villagers are supporting the project activity, mainly due to the environmental problems being faced by them. During the initial stakeholder consultation meeting most of the participants expressed their concerns over increasing pollution problems such as air pollution with bad odour around the poultry farms, increasing population of pests, ground water pollution, unhygienic conditions near the poultry farms, emissions of dust etc. Among the participants in the initial stakeholder consultation meeting are the president of Duppalapudi Village Panchayat and the President of Anaparthi Village Panchayat, who have expressed that the project should come as early as possible without delay. Majority of the existing farms are of more than 4 years old and the local populace are virtually finding difficult tackling the stocks of and getting rid of litter. Other concerns raised by the participants is giving preference to local villagers in the additional employment opportunities created by the project activity. Project developers informed that environmental problems due to poultry litter would be reduced due to the project activity. Hence, the local people are supportive to the project implementation.

A summary of the comments received during the meeting are provided in Annex 4 of the report of the stakeholder meeting.

Summary of the consultation:

No comments have been found at the end of the email consultation.

LIST OF LOCAL STAKEHOLDERS

List of local stakeholders who have been invited for the stakeholder meeting:

STAKEHOLDER	Organisation / Firm	Function	Participated
Mr. Christoph Sutter	South Pole Carbon Asset Management, Zurich	CDM Project Consultant	Yes
MR. NARENDRA PARUCHURI	Independent Expert	CDM Project Consultant	Yes
MR. I. MURALI KRISHNA	Raus Power Ltd.	Executive Director	Yes
MR. M. RAGHUNATH	Raus Power Ltd.	Managing Director	No
MR. R.V.S.K. RANGA RAO	Raus Power Ltd.	Director	No
MR. K.SRIHARI RAO	Raus Power Ltd.	Director	No
MR. G.H.K.KUMAR REDDY	Raus Power Ltd.	Director	No
MR. J.PRABHAKAR	Raus Power Ltd.	Project Coordinator	Yes
MR. A.V.R. VARMA	Raus Power Ltd.	Site Incharge	Yes
MR. P.SUBBA REDDY	President: Anaparthi Region Poultry Farmers Welfare Society	Signed an agreement for supply of poultry litter for the project	Yes
MR. M. SATYANARAYANA REDDY	Vice President: Anaparthi Region Poultry Farmers Welfare Society	Signed an agreement for supply of poultry litter for the project	Yes
MR. M.RAMA KRISHNA REDDY	Secretary: Anaparthi Region Poultry Farmers Welfare Society Poultry Farmer: S.R.R.Poultry Farms	Contractor for supply of poultry litter	Yes
MR. T. RADHA KRISHNA REDDY	Anaparthi Region Poultry Farmers Welfare Society	Jt. Secretary (Signed an agreement for supply of poultry litter for the project)	No
MR. K.SAMUDRA REDDY	Treasurer: Anaparthi Region Poultry Farmers Welfare Society, Poultry Farmer: V.R. Poultry Farms	Contractor for supply of poultry litter	Yes
MR. K. BASIVI REDDY	Poultry farmer, Duppalapudi village	Litter supplier (Signed an agreement for supply of poultry litter for the project)	No
MR. M.V.V.S.N.REDDY	Poultry farmer Duppalapudi village	Litter supplier (Signed an agreement for supply of poultry litter for the project)	No
MR. K. GOPALA KRISHNA REDDY	Poultry farmer Duppalapudi village	Litter supplier (Signed an agreement for supply of poultry litter for the project)	No
MR. K. V. MUKUNDA REDDY	Treasurer: National Egg Coordination Committee, Poultry farmer: Laxmi Poultry	Contractor for supply of poultry litter	Yes
MR. K.V.MURTHI REDDY	Poultry farmer Duppalapudi village	Litter supplier (Signed an agreement for	No

		supply of poultry litter for the project)	
MR. T. SURI REDDY	Rice Miller	Rice husk supplier	No
MR. S. VENKAT REDDY	Rice Miller	Rice husk supplier	No
MR. K. RAMA REDDY	Paddy Farmer Duppalapudi village	Neighbor	No
MR. N. PEDA VENKAT REDDY	Paddy Farmer Duppalapudi village	Neighbor	Yes
Mr. S. Nageswara Rao	President: Village Panchayat, Duppalapudi village		Yes
MR. V. DHARMA RAJU	Member: Village Panchayat, Duppalapudi village		Yes
MR. GARAPATI SATYANARAYANA	Member: Village Panchayat, L.N.Puram		Yes
MR. K.APPALA RAJU	Ex-President, Duppalapudi Village		No
MR. ABBANA REDDY	Ex-President, Duppalapudi Village		No
MR. LAXMI NARAYANA	Andhra Pradesh State Pollution Control Board, Kakinada, East Godavari District	Environmental Engineer, local PCB representative	No
MR. R. RAMALINGESWAR RAO	Dy. Director, Ground Water Dept., Rajahmundry, East Godavari Dist.	Ground water resources	No
MR. CH. SRINIVAS	Rice Miller	Rice husk supplier	Yes
MR. S. RAVIKALA REDDY	Rice Miller	Rice husk supplier	Yes
MR. PADALA BULLI REDDY	Farmer, Duppalapudi village		Yes
MR. PADALA SURA REDDY	Farmer, Anaparthi village		Yes
MR. NALLAMILLI SRINU	Farmer, Duppalapudi village		Yes
MR. N. GANGADHAR	Poultry farmer, Duppalapudi village	Poultry litter supplier	Yes
MR. M.SRINU	Poultry farmer, Duppalapudi village	Poultry litter supplier	Yes
MR. N. SATYANARAYANA REDDY	Farmer, Duppalapudi village		Yes

GOLD STANDARD INSTITUTIONS CONSULTED

CONTACT PERSON	Organisation
Kalipada Chatterjee	Climate Change Centre, Development Alternatives
Deepak Mawandia	Carbon Watch
Dhirendra Kumar	Winrock International India
Nishant Bhardwaj	IT Power India Private Limited
Narendra Paruchuri	EnerGHG India

Dr. Prakash Rao / Shruti Shukla	WWF India
Liam Salter	WWF Asia Pacific Climate and Energy Programme,
	C/o WWF Philippines
Steve Sawyer	Greenpeace International
K. Srinivas	Greenpeace India
Binu Parthan	REEEP
Patrick Buergi	My Climate
Michael Schlup	The Gold Standard, CDM

SUMMARY OF COMMENTS RECEIVED

Out of the 38 stakeholders invited, only 22 stakeholders participated in the meeting held on 06 December 2006 in Anaparthi village in project region. The attendance in the meeting represents good participation of all affected / impacted people such as local people, local farmers, local and national NGOs, contractors, resource suppliers etc. Among the participants in the initial stakeholder consultation meeting are the president of Duppalapudi Village Panchayat and the President of Anaparthi Village Panchayat, representatives of local NGOs namely: National Egg Coordination Committee and Anaparthi Region Poultry Farmers Welfare Society. Complete list of participants is already provided in Annex 3 above.

At the start of the meeting, project developer representative Mr.L.Murli Krishna, Executive Director of Raus Power introduced the participants and explained about the purpose of the meeting, brief description of the project activity, environmental aspects and sustainable benefits due to the project activity. The following are the brief benefits that have been presented to the participants.

- Reduction of local air pollution
- Improvement in working conditions in poultry farms
- Commercialisation of a waste material and creation of additional revenue stream to poultry farmers from sale of poultry litter
- Generation of additional employment
- Contribution of the project activity to the betterment of the local grid
- Contribution to the global climate change mitigation etc.

Possible impacts on the local environment of the project activity together with mitigation measures being implemented by Raus Power were also explained.

Later Independent Expert Mr.Narendra explained about the CDM and the requirements of the gold standard. The discussion was mostly held in the local language Telugu as most of the attendees could understand only the local language. The project description, environmental aspects and the questionnaire (checklist) were translated into Telugu and furnished to the participants. The questionnaire was initially explained in detail point by point and asked the participants to comment. Where comments are raised by the participants, representatives of the Raus Power were asked to respond to the comments. Only a few comments have been raised by some of the participants. The following is the summary of the comments raised.

Comment No:1, By Mr.S. Ravikala Reddy, Rice miller

The participant raised the issue of ash handling and disposal from the project. Project developer responded that all ash generated by the project activity would be collected using closed systems and sold to farmers as the ash generated from burning of poultry litter is a good organic manure. He further stated that the ash quantity is very less due to the small size of the project. During collection and transportation, closed conveyors and closed trucks would be used to avoid leakage of ash.

Comment No.2, By Mr.Mukunda Reddy, Treasurer, NECC and poultry farmer

The participant asked the project developer how the poultry litter will be transported and moist litter would be handled. Project developer responded that the litter would be transported using closed trucks such that no litter would leak during transportation. Further, project developer informed that the moist litter would be available only during monsoon season, during that times, the litter would be dried within the project plant using boiler exhaust gases. Due to closed trucks, the moist litter would not pose any leakage problems during transportation.

Comment No.3, By Mr.S. Nageswar Rao, President, Village Panchayat

The participant asked project developers on whether project would result any sound pollution. Project developer responded that the sound pollution from the project activity is negligible. Further informed that, all sound generating equipment would be acoustically insulated to meet the standard accepted level.

Comment No.4, By Mr. M. Rama Krishna Reddy, Secretary, ARPFWS, Poultry farmer

The participant asked the project developer about the pollutants from the project activity. Project developer responded that the pollutants are negligible and would be treated within the plant using an effluent treatment plant. Liquid effluents would be treated in ETP and after treatment the same would be used for watering on site green belt plantation. Solid effluent from the project is only the ash which would be sold for on-land application as manure in agricultural fields.

Comment No.5, By Mr.S. Nageswar Rao, President, Village Panchayat

The participant raised the issue of water existing near the plant site and asked how the water pollution would be avoided. Project developer informed that the project site is 300m away from the water pond and cause no pollution. The project developer further informed that the road cum bund of the water pond is already strengthened by riveting such that no dust would raise and pollute the pond. The project developer assured that proper care would be taken during the project operation to suppress the dust from time to time.

Comment No.6, By Mr.S. Nageswar Rao, President, Village Panchayat

The participant requested the project developer to give preference to the local unemployed youth in the employment. Project developer agreed and assured that the local people would be employed in the project suitably depending on the skill level.

General Comments:

A number of other participants expressed that the project be implemented as early as possible since the immediate benefit from the project would be reduction of local pollution around the poultry farms. They expressed several problems faced from the accumulation of poultry litter.

At the end all the participants have signed the questionnaire and returned to the organizers. However, no comments have been included in the questionnaire.

Conclusion:

In all local poultry farmers and villagers, which are the most and badly impacted by the present practice of handling the poultry litter are welcoming the project activity, mainly due to the environmental problems being faced by them. This is evident from their concerns expressed during the meeting over the increasing pollution problems such as air pollution with bad odor around the poultry farms, increasing population of pests, ground water pollution, unhygienic conditions near the poultry farms, emissions of dust etc. These have been witnessed during site visits to two of the nearby medium sized poultry farms.

Other concerns raised by participants is giving preference to local villagers in the additional employment opportunities created by the project activity. Project developers informed that environmental problems due to poultry litter would be reduced due to the project activity. Hence, the local people are supportive to the project implementation.

In summery, the local stakeholders have agreed and unanimously confirmed the sustainable development benefits as described in the project description and environmental impacts. No negative comments have been raised.

No comments have been submitted by the local and national gold standard supporting NGOs.

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