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:

Fuel Switch and energy efficiency project at PWML, Pakistan
Version: 1.0
Date: 04/02/2008

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

The project activity is proposed by Prosperity Weaving Mills Limited (PWML), a Nagina Group company located in Lahore, Pakistan. The unit operations at the plant require Heavy Fuel Oil (HFO) combustion in steam & power generation. PWML proposes to switch from HFO use to natural gas in energy generation for meeting their captive demand. Natural gas is a cleaner fuel (IPCC default = 15.3 tC/ TJ) as compared to HFO (IPCC default = 21.1tC/ TJ) and so project activity results in lower emissions in energy (steam & power) generation.

PWML have installed natural gas based gas engines for power generation and boilers for steam generation. Steam from boilers is used to run Vapour Absorption Chillers and Sizing M/c at the plant site. Thus, PWML would be able to displace use of HFO in power and steam generation.

Following are the areas at PWML where fuel switching is proposed/ undertaken –

Equipment/ Area	Pre-project fuel	Project activity fuel/ energy source
DG sets	HFO	Natural Gas
Boilers	HFO	Natural Gas

A number of technological changes and new installations are carried out at the site for the project activity. As discussed earlier, these changes and installations are done to accommodate combustion of natural gas in steam and power generation.

Steam Generation at PWML
In the project activity, PWML proposes to displace use of HFO for steam generation in existing boiler. Instead, natural gas shall be used to meet the steam demand. For the purpose, same boilers have been retrofitted to accommodate use of natural. The technical specifications of Boilers where changes have been carried out are as below:

Parameter	Boiler 1	Boiler 2
Capacity (TPH)	5.5	6.0
Steam Pr (bar)	10	10
Steam Temp (deg C)	175	175
Make	3Way Wetback, England	3Way Wetback, England

Power Generation at PWML:

To meet the in-house power demand of the plant, PWML generated captive power in existing HFO based DG sets. Project activity will help displace power from the DG sets. PWML have installed 02Nos. Gas Engines in the project activity. The technical Specifications of Gas Engines installed as below:

Parameter	Gas Engine 1	Gas Engine 2
Manufacturer – Engine	Jenbacher	Jenbacher
Engine Type	JGS-620 GS-NL	JGS-620 GS-NL
Rated Output (kW)	3041	3041

The project activity faces many hurdles in its implementation such as capital investment, barriers to sustainable supply of natural gas and uncertain natural gas prices apart from other technological barriers. PWML foresee overcoming these hurdles from CDM backed revenue.

The project activity is consistent with laws and sustainable policies of Pakistan. The project has following sustainable development aspects and meets the sustainability criteria as defined by DNA in the country:

Environmental Criteria:

1. The project activity helps in conservation of natural resource i.e. coal and helps in better utilization of resources in energy generation.
2. The project activity uses cleaner fuel i.e. natural gas and helps improve environmental conditions inside the plant and overall improvement in the region's environment due to lower emissions.
3. The project activity helps reduction of GHG emission and mitigates the ill effects of climate change.

Social Criteria:

1. It helps in generation of employment during erection & commissioning and later on in its operation.

Technological Criteria:

1. Project activity would help spread awareness among the industry and promote its speedy implementation among industrial sectors.
2. Efforts will be renewed in the field of Research & Development of gas based technologies for different application areas.
3. Gas engine based power generation in textile industry is a new phenomenon and the equipments are imported from outside.
4. There is no technology transfer in the project activity taking place from Annex 1 countries.

A.3. Project participants:

Name of Party involved (*) ((host) indicates a host involved)	Private and/or public entity(ies) Project Participants(*) (as applicable)	Party involved wishes to be considered as project participant (Yes/No)
Pakistan (Host)	Prosperity Weaving Mills Limited (private entity)	No

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

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

A.4.1.1. Host Party(ies):

Country: Pakistan

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

Province: Punjab

A.4.1.3. City/Town/Community etc:

City: Lahore
Taluka: Sheikhupura

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

The project activity is located on Sharkpur Road, in Lahore. It is situated approximately 18 km away from the nearest railway station. The nearest airport is Lahore Airport.

The physical address of the project site:

Prosperity Weaving Mills Limited
13.5 km, Sheikhupura Sharkpur Road
Sheikhupura
Punjab, Pakistan

The map below shows the geographical location.

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

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

Project Type: III– Other project activities

Project Category: IIIB. Switching Fossil Fuels; Sectoral Scope: 1

Technology in the project activity:

Boilers:
In the project activity, PWML proposes to displace use of HFO for steam generation in existing boiler. Instead, natural gas shall be used to meet the steam demand. For the purpose, same boiler has been retrofitted to accommodate use of natural.

Technical specifications of Boiler:

Parameter	Boiler 1	Boiler 2
Capacity (TPH)	5.5	6.0
Steam Pr (bar)	10	10
Steam Temp (deg C)	175	175
Make	3Way Wetback, England	3Way Wetback, England

Gas engines:

To meet the in-house power demand of the plant, PWML generated captive power in existing HFO based DG sets. Project activity will help displace power from the DG sets. PWML have installed 02Nos. Gas Engines in the project activity.

Technical Specifications of Gas Engines:

Parameter	**Gas Engine 1**	**Gas Engine 2**
Manufacturer – Engine	Jenbacher	Jenbacher
Engine Type	JGS-620 GS-NL	JGS-620 GS-NL
Rated Output (kW)	3041	3041

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

Years	**Estimation of annual emission reduction in tonnes of CO2e**
2008-09	16722
2009-10	16722
2010-11	16722
2011-12	16722
2012-13	16722
2013-14	16722
2014-15	16722
2015-16	16722
2016-17	16722
2017-18	16722
2018-19	16722
Total estimated reductions (tonnes of CO2e)	**167220**
Total number of crediting years	10 years(fixed crediting period)
Annual average of estimated reductions over the crediting period (tonnes of CO2e)	16722

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

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

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 Simplified Modalities and Procedures for Small-Scale CDM project activities- "A proposed small-scale project activity shall be deemed to be a debundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity:

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

The project activity is not a de-bundled component of a large project activity as –

There is no small scale CDM project activity or an application registered by PWML, in the same project category in the last two years within 1 km of the project boundary of the proposed small-scale project activity.

SECTION B. Application of a baseline and monitoring methodology

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

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

Project Type: III– Other project activities

Project Category: IIIB. Switching Fossil Fuels; Version 12, Scope 1; EB 35

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

The project status is in line with the methodology AMS IIIB & AMS IIIQ; specific features of project and applicability of methodology AMS IIIB & AMS IIIQ are discussed below-

Category	Applicability Criteria	Project Status
IIIB: Switching fossil fuels	This category comprises fossil fuel switching in existing1 industrial, residential, commercial, institutional or electricity generation applications. Fuel switching may change efficiency as well. If the project activity primarily aims at reducing emissions through fuel switching, it falls into this category. If fuel switching is part of a project activity focussed primarily on energy efficiency, the project activity falls in category II.D or II.E.	The project is primarily one of switching of fossil fuel in existing industrial and electricity generation applications. PP proposes fuel switch in steam generation in boilers and power generation in DG sets at plant site

	This category is not applicable to project activities that propose switch from fossil fuel use in the baseline to renewable biomass, biofuel or renewable energy in the project scenario. A relevant type I methodology shall be used for such project activities that generate renewable energy displacing fossil fuel use.	The project activity is one of fossil fuel switch and not of switching from fossil fuel to renewable biomass, biofuels or renewable energy.
	Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO_2 equivalent annually.	Implementation of project activity will result in emissions reduction less than or equal to 60 kt CO_2e annually.

B.3. Description of the project boundary:

AMS IIIB: The project boundary is the physical, geographical site where the fuel combustion affected by the fuel-switching measure occurs.

B.4. Description of baseline and its development:

Baseline emission factors for unit operations & power generation has been estimated based on past performance. The method adopted is explained in following sections.

Baseline Emission Factor for Boilers:

In the plant, PWML require steam for Vapour Absorption Chillers and for Sizing M/c. Steam in the baseline is generated with HFO as fuel. Baseline emission factor is estimated for per unit of steam energy produced in the existing boilers based on plant operation data and fuel consumptions for most recent years.

Following methodology has been adopted for estimating baseline emission prior to the project activity:

1. Emissions associated with HFO consumption in steam generation are calculated for each year.
2. Ratio of total emissions to total production in a year gives emissions for per unit of steam energy.
3. Weighted average of emissions for last 2 years has been taken as baseline emission factor for per unit of steam energy.

Parameter	Unit	Value
Steam raising ratio (design data)*	t of steam/ t FO	15
Baseline Emissions Factor	tCO_2e/ t of steam	0.21

*Conservative estimate

Baseline Emission Factor for Power:

Baseline emission factor is estimated for per unit of power generation in DG sets. Following methodology has been adopted for estimating baseline emission prior the project activity:

1. Emissions associated with FO consumption in DG sets are calculated for each year.
2. Ratio of total emissions to total production in a year gives emissions for per unit of power generation for respective year.
3. Weighted average of emissions for last 2 years has been taken as baseline emission factor for per unit power generation.

Parameter	Unit	Value
Baseline Emissions Factor	tCO_2e/ MWh	0.80

Developed by:
M/s Prosperity Weaving Mills Limited (PWML) and their consultants

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:

The barrier analysis has been carried out to show that the project activity is not a business-as-usual scenario and is additional over the baseline.

Investment barrier:
PWML is a medium size enterprise engaged in the textile manufacturing. The investment in the project activity incurred by PWML is ~Rs. 173.88 million. The project cost includes the cost of building, plant & machinery and gas pipelines. The project is financed through a mix of debt and equity with equity making 30% of total investment. PWML has availed loans for the project activity from Habib Bank.

Following are financial details of the project activity:

Parameter	Details
Project Cost Break Up	
Plant & machinery	Rs. 4.2 million
Building	Rs. 144.89 million
Gas pipe lines	Rs. 24.79 million
Total project cost	Rs. 173.88 million
Debt	30%
Equity	70%
Interest on term loan	3 month KIBOR + 2.25%
Loan providing bank	Habib Bank Ltd.
Repayment Schedule	16 equal quarterly instalment

The investment of this scale in a project activity, which is uncertain and is prone to risk more due to externalities involved beyond PWML's control, was a big decision. These uncertainties are due to uncertainty in natural gas prices, unavailability of domestic supply of spare parts of the gas engines, absent service support from the manufacturer in the region of project activity and others. Additional investments are required in recruiting/hiring and training operation personnel for the same. These investments were not necessary in the baseline and are additional. The investment of this scale is difficult

also because of not so good financial performance of the company in the recent years. PWML's annual reports for the past 4 years suggest that the company's earnings have not been encouraging. In the year 2006-07 profit after tax (PAT) Rs. 4.6 million. Though the company made PAT for the previous year Rs. 28 million but for the earlier year it was only Rs. 13 million.

Apart from the difficulties in arranging the finance for the project activity, PWML envisage a number of barriers that are prohibitive and to mitigate these, CER related income is considered for the project activity. These barriers have been detailed in the sections to follow. PWML envisage Rs. 7.6 million from CER sale, of which approximately 10% would be taken as cost towards CDM process.

Parameter	Details	Remarks
CER generation	16722 per annum	Estimated for power and steam generation in the project activity
CER rate	Euro 8/ CER	Assumed price for CER
Euro conversion rate	Rs. 57/ Euro	Currency exchange rate
CDM process cost	10%	
CER Income	Rs. 6.86 million/ annum	Net CER income

PWML in the baseline had been generating power from existing HFO fired DG sets. In the absence of project activity, PWML would have continued with its operation of DG sets with no investments made.

Other barriers:

Difficulty in laying down the gas pipe lines:
In the project activity PWML have put in place the infrastructure including gas pipe lines through the gas company Sui Northern Gas Pipelines Limited. Company faced a lot of difficulties in putting the pipe lines for the gas supply to the project site. It not only increased the cost of project but also delayed the commissioning of the project. There are evidences available which clearly demonstrate these problems. These problems would have however not been there, had PWML decided to continue with the pre-project scenario of power generation in existing HFO fired DG sets.

Natural Gas Supply & Prices:
The energy demand of Pakistan is heavily dependent on natural gas with its share being at almost 50% of the total energy requirement. In recent times demand has outsripped natural gas supply in the country with manufacturing industries e.g. cement manufactrers been asked to switch to run their operations on coal[1]. The demand is further increasing consistently on annual basis. The current demand supply gap is estimated to be at 800 mmcfd. This demand supply gap can be filled in only through highly uncertain and unpredictable gas imports. Unceratinty of availablity and prices makes the projects as propsoed by PWML even more risky. PWML have come up with the project activity due to natural gas being clean source of energy and have taken the risk of unceratinties as above. A recent report from World Bank suggests that the Pakistan's gas demand will increase at 7% annually and considering this, the shortfall between supply and gap will increase up to 20% by 2010[2]. Companies in Pakistan are already facing the

[1] International The News; http://www.thenews.com.pk/daily_detail.asp?id=74433

[2] Khaleej Times News; http://www.khaleejtimes.com/DisplayArticleNew.asp?xfile=data/business/2007/November/business_November406.xml&section=business&col=

heat of increased gap between supply and demand with frequent gas supply cut to their units from the gas supplier. Even the contract with the gas supplying company suggests that gas supplies can be curtailed if the company so feels the need to. Cases of abrupt cut off of gas supply to textile units have happened in the past and it may happen again. In the event of wide gap in demand and supply of gas, textile units are the first casualties[3].

Other uncertainty regarding natural gas is related to its price. As discussed dependence on imported gas may impact the cost of natural gas to PWML plant. The contract says that in the event of any hike at any point of time, PWML has to abide by it and pay as per the revised rates. In Pakistan, The Oil and Gas Regulatory Authority (OGRA) has recently allowed 6.56 percent increase in the prescribed prices of natural gas for all consumer categories[4]. It may also be noted that energy forms good part of input cost of the textile industry as of PWML and any random change would impact the profitability of the entire business.

Summary:
As discussed above it is clear that the project activity is not a business as usual case as it faces a number of barriers. In the absence of CDM, PWML would have continued with the earlier practice of HFO based energy generation in DG sets and boiler. However, with CDM in place, PWML have decided to go ahead with the project activity and cover the risks involved with CDM backed benefits.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

Baseline Emissions:

[3] Textile Intelligence; http://www.textileintelligence.com/lahore/1444.html?aid=1444

[4] Daily Times; http://www.dailytimes.com.pk/default.asp?page=2007%5C11%5C22%5Cstory_22-11-2007_pg5_4

Boilers:

$BE_{y,1} = Q_{steam,y} \times EF_{BSL,1}$

Where;
$BE_{y,1}$ = Emissions in the baseline in year y, tCO2
$Q_{steam,y}$ = Quantity of steam generated in year y, tonne
$EF_{BSL,1}$ = Baseline emission factor for steam generation, tCO2/tonne of steam

$EF_{BSL,1} = \sum[FF_{i,BSL} \times COEF_i] / Q_{steam,BSL}$

Where;
$FF_{i,BSL}$ = Fossil fuel i consumed in baseline, tonne
$Q_{steam,BSL}$ = Quantity of steam generated in baseline, tonne
$COEF_i$ = Coefficient of emission for fossil fuel i, tCO2/tonne

$COEF_i = NCVi \times EFi / 1000$

Where;

NCVi = Net calorific value of fossil fuel i, TJ/ 10^3T (IPCC default value)
EFi = Emission factor for fossil fuel i, tCO2/ TJ (IPCC default value)

DG set:
$BE_{y,2} = NET_y \times EF_{BSL,2}$

Where;
$BE_{y,2}$ = Emissions in the baseline in year y, tCO2
NET_y = Net power generation in gas engine in year y, MWh
$EF_{BSL,2}$ = Baseline emission factor for power generation in baseline, tCO2/MWh (0.80 tCO2/ MWh as per AMS ID)

Project Emissions:

Boilers:

$PE_{y,1} = \sum FF_{i,y,1} \times COEF_i$

Where;

$PE_{y,1}$ = Emissions in the project activity in year y, tCO2

$FF_{i, y, 1}$ = Fossil fuel i consumed in steam generation in year y, mass or volume unit
$COEF_{i, y}$ = Coefficient of emission for fossil fuel i, tCO2/mass or volume unit
$Q_{steam, y}$ = Quantity of steam generated in year y, tonne

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Gas engine:

$PE_{y, 2} = \sum FF_{i, y, 2} \times COEF_i$

Where;
$PE_{y, 2}$ = Emissions in the project activity in year y, tCO2
$FF_{i, y, 2}$ = Fossil fuel i consumed in power generation in project activity in year y, mass or volume unit
$COEF_{i, y}$ = Coefficient of emission for fossil fuel i, tCO2/mass or volume unit
NET_y = Net power generation in gas engine in year y, MWh

$COEF_i = NCV_i \times EF_i / 1000$

Where;

NCV_i = Net calorific value of fossil fuel i, TJ/ mass or volume unit
EF_i = Emission factor for fossil fuel i, tCO2/ TJ (IPCC default value, Natural gas 56.1 tCO2/ TJ)

Emission Reduction:

$ER_y = BE_y - PE_y$

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

(Copy this table for each data and parameter)

Data / Parameter:	$EF_{BSL,1}$
Data unit:	tCO2/ Tonnne of steam
Description:	Baseline emission factor for per unit of steam produced in boiler
Source of data used:	On-site measurements
Value applied:	0.21
Justification of the choice of data or description of measurement methods and procedures actually applied :	Based on boiler design data i.e. steam generation rate 15 tSteam/ tHFO considered.
Any comment:	

Data / Parameter:	$EF_{BSL,2}$
Data unit:	tCO2/ MWh
Description:	Baseline emission factor for power generation in DG set

Source of data used:	Value for DG sets as per AMS ID
Value applied:	0.80
Justification of the choice of data or description of measurement methods and procedures actually applied :	-
Any comment:	

B.6.3 Ex-ante calculation of emission reductions:

Power Gen:
Net power generation = 6082 x 90% load factor x (365x24) x (1-3%)/1000 = 46512 MWh/annum
Baseline emission factor = 0.80 tCO2/MWh
Baseline emissions= 46512 x 0.80 = 37210 tCO2/annum
Project emission factor = 0.45 tCO2/MWh (at an assumed heat rate of 1900 kcal/ kWh for gas engine)
Project emissions= 46512 x 0.45 = 20758 t CO2/annum
Emission reduction = 37210 – 20758 = 16452 tCO2/annum

Boiler:
Steam generation = 4500 t /annum
Baseline emission factor = 0.21 tCO2/ t steam
Baseline emissions= 4500 x 0.21 = 945 tCO2/ t steam
Project emission factor = 0.15 tCO2/ t steam
Project emission= 4500 x 0.15 = 675 t CO2/annum
Emission reduction = 945 - 675 = 270 tCO2/annum

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

Parameter	Baseline Emission		Project Emission		Emissions Reduction	
Year	Power	Steam	Power	Steam	Power	Steam
2008-09	37210	945	20758	675	16452	270
2009-10	37210	945	20758	675	16452	270
2010-11	37210	945	20758	675	16452	270
2011-12	37210	945	20758	675	16452	270
2012-13	37210	945	20758	675	16452	270
2013-14	37210	945	20758	675	16452	270
2014-15	37210	945	20758	675	16452	270
2015-16	37210	945	20758	675	16452	270
2016-17	37210	945	20758	675	16452	270
2017-18	37210	945	20758	675	16452	270
Total (tCO2e)	**372100**	**9450**	**207580**	**6750**	**164520**	**2700**

Total Emission Reduction = 16722 tCO2/annum

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

B.7.1 Data and parameters monitored:

(Copy this table for each data and parameter)

Data / Parameter:	$FF_{i,y}$
Data unit:	Mass or volume unit
Description:	Fossil fuel i consumed in steam/ power generation in year y
Source of data to be used:	Directly Measured
Value of data	On site measurement of fuel (natural gas) consumed shall be the basis of the data
Description of measurement methods and procedures to be applied:	On line gas meters installed at boiler inlet and gas engine inlet shall be used as measurement tool. Frequency of measurement: Continuous Frequency of recording: Monthly
QA/QC procedures to be applied:	These meters shall be calibrated every third year. The data can be cross checked with Gas Meters bills from Gas supplier.
Any comment:	

Data / Parameter:	NET_{y}
Data unit:	MWh
Description:	Net power supplied from the gas engine in year y
Source of data to be used:	On-site measurements
Value of data	46512 (estimated)
Description of measurement methods and procedures to be applied:	In-line energy meters at the site are used. Frequency of measurement: Continuous Frequency of recording: Monthly
QA/QC procedures to be applied:	Meters shall be calibrated every third year
Any comment:	

Data / Parameter:	$Q_{steam,y}$
Data unit:	Tonne
Description:	Quantity of steam generated in year y
Source of data to be used:	On-site measurements
Value of data	Actual Data from on line steam flow meter shall be used
Description of measurement methods and procedures to be applied:	Steam flow meter shall be used to monitor the actual steam generation Frequency of measurement: Continuous Frequency of recording: Monthly

QA/QC procedures to be applied:	Meters shall be calibrated every third year
Any comment:	

Data / Parameter:	NCV_i
Data unit:	TJ/ mass or volume unit
Description:	Net calorific value of fossil fuel i
Source of data to be used:	Lab test on natural gas
Value of data	-
Description of measurement methods and procedures to be applied:	Lab test conducted every quarter shall be the basis
QA/QC procedures to be applied:	External agency shall conduct the calibration every quarter.
Any comment:	-

B.7.2 Description of the monitoring plan:

PWML is an ISO9001:2000 certified plant and has procedures in place for monitoring, measurement, maintenance and operation in place. PWML proposes following procedures to assure the completeness and correctness of the data needed to be monitored for CDM project.

Formation of CDM Team:
A CDM project team is constituted with participation from relevant departments. Members are trained on CDM concept and monitoring plan. This team is responsible for data collection and archiving. This team will meet periodically to review CDM project activity check data collected, emissions reduced etc. On a weekly basis, the monitoring reports are checked and discussed by the senior CDM team members/managers. In case of any irregularity observed by any of the CDM team member, it is informed to the concerned person for necessary actions. On monthly basis, these reports are forwarded to the management level.

Day to day data collection and record keeping:
Plant data shall be collected on operation under the supervision of the respective Shift-in-charge and record would be kept in daily logs.

Frequency of monitoring-
The frequency for data monitoring shall be as per the monitoring details in Section B.7 of this document.

Archiving of data-
The data is kept for two years after crediting period or from the last issuance (total 12 years)

Checking data for its correctness and completeness:
Works Engineer would have the responsibility of checking data for its completeness and correctness. The data collected from daily logs is forwarded to the Technical Director after verification.

Calibration of monitoring equipments/ instruments:

PWML get the energy meter calibrated regularly. A log of calibration records will be maintained. Quality Assurance cell in the company is responsible for the upkeep of instruments in the plant.

Maintenance of instruments and equipments used in data monitoring:
The operation department shall be responsible for the proper functioning of the equipments/ instruments and shall inform the concerned department for corrective action if found not operating as required. The concerned department shall take corrective action and a report on corrective action taken shall be maintained as done time to time along with the details of problems rectified.

Emergency preparedness:
The project activity does not result in any unidentified activity that can result in substantial emissions from the project activity. No need for emergency preparedness in data monitoring is visualized.

Report generation on monitoring:
After verification of the data and due diligence on correctness an annual report on monitoring and estimations shall be maintained by the CDM team and record to this effect shall be maintained for future verification.

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

Mr. Raza Ellahi Shaikh
Director

Prosperity Weaving Mills Limited
91 B-1, M.M. Alam Road
Gulberg III, Lahore 54660
Punjab, Pakistan
Phone: +92 42 575 4811
Fax: +92 42 571 1856
raza@nagina.com

Date of completion: 10/08/2007

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:

26/04/2006

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

20 years

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:

01/04/2008

C.2.1.2. Length of the first crediting period:

10 years

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

NA

C.2.2.2. Length:

NA

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 activity does not require environment impact study to be undertaken as per regulations for pollution control in Pakistan. The project activity envisages the use of biomass residue as fuel in steam and power generation and displacement of fossil fuels. There is no adverse impact by the project activity on the environment (air, water, soil). It has only positive impacts in the form of emission reduction of GHG.

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

The project activity is a fuel switch project. Cleaner fuel natural gas replaces use of high carbon intensive fuels such as HFO. The switch is an environmentally positive project and has only good impact on environment.

SECTION E. Stakeholders' comments

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

The following stakeholders were identified for the project activity-

- Local community
- Union Council Nazim - Sheikhupura
- District Authority - Sheikhupura

Mode of communication adopted for consultation with stakeholders –

- Letters were sent to the DCO office, Sheikhupura and Union Council Nazim – Sheikhupura inviting their views on the project activity.
- News paper advertisement was published on 16/11/2007 in a local News Paper Nation.
- A public meeting was organized on 19/11/2007 where local people were invited to share their views and suggestions about the project activity.

E.2. Summary of the comments received:

A meeting was held on 19/11/07 at Prosperity Weaving Mills Ltd. 13.5 KM, Sheikhupura Sharkpur Road, Sheikhupura for discussion with local community and taking their views.

This was an open house meeting on the subjected project where general public of the area was invited to give them knowledge about the project and get the suggestions to align the project further to the region's priorities.

Mr. Tariq Zaffar Bajwa, General Manager of the company gave the history and need to develop this project. He stated that there were times when the world was very simple and needs/requirements of human being were very limited like water, land for growing crops, livestock and hunting for food etc.

As the time passes, the population of human being increases very rapidly and the needs/requirement were also changed. New styles of life and new technologies to cater the increased needs/requirements were developed. During this period of advancement, certain technologies were developed / invented which ultimately start affecting the world's natural habitats. Realizing the fact, our company has also developed a project to participate in the rehabilitation of natural habitats by mitigation of greenhouse gas emission.

Mr. Tariq Zaffar Bajwa then called upon Mr. Sikandar Mehmood, Plant manager to explain what we have done so for to achieve our objectives and goals set for the project.

Mr. Sikandar Mehmood stated that we have replaced the furnace oil generators, which are the major cause of emission of greenhouse gases, with natural gas generators. We also have converted the furnace oil boilers to natural gas boilers.

Thereafter, a question answer session was held where all questions and suggestions received were properly answered and noted. The following were the important questions raised by the participants and answered by relevant officer of the company:

Q. Mr. Abdul Whaeed asked about the current status of the project?

A. Mr. Sikandar Mehmood replied that HFO operated generators have been replaced with gas generators and boilers have been converted to gas. All new requirements of energy will be fulfilled by gas engines. Moreover, the used jacket water will be used for chilling which is being currently powered by natural gas boilers.
Q. Mr. Mukhtar Ahamd questioned that what will be the noise level?
A. Mr. Sikandar Mehmood replied that the noise level will be much lesser than HFO technology used previously.
Q. Mr. Muhammad Saleem inquired how atmosphere will be better.
A. Mr. Sikandar Mehmood replied that by burning HFO, exhaust gases containing by-products which are injurious to health are produced in large quantities whereas these gases are much lesser than limits in case of using natural gas.
Q. Mr. Nasir Mehmood asked was there any additional waste generated which will create pollution in the environment of surrounding area?
A. Mr. Tariq Zaffar Bajwa replied that no such waste is generated.
Q. Mr. Muhammad Arshad requested for the list of other benefits to the area by the project.
A. Mr. Tariq Zaffar Bajwa replied that due to this project if any new facility comes in the area like gas, it may benefit to the local territory.

The meeting was closed with a vote of thanks to all the participants from company and the local community.

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

The project activity received no negative comments.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No public funding or direct funding from Annex-1 countries availed for this project activity.

Annex 3

BASELINE INFORMATION

Please refer section B.4 for details of baseline estimation

Annex 4

MONITORING INFORMATION

Please refer section B.7.1 for details of monitoring plan

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