Corporate Industrial Ecology

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Dear CDM Executive Board,

In reference to the project activity N°1806 "Emission reductions through partial substitution of fossil fuel with alternative fuels in three cement plants of Holcim Philippines Inc. (HPHI)" please find below additional information and comments with regard to the request of review, which we received from the UNFCCC secretariat on the September 11th, 2008.

Additional information request N° 1

The DOE should provide details what evidence has been validated to determine the prohibitive nature of the technological barriers.

At the time of validation, HPHI didn't have a detailed investment plan but an internal technical study assessing the barriers that have to be overcome in order to achieve the project activity, which the DOE validated together with a proposed list of investments. Since the request of registration, an investment plan has been completed, presented to the DOE and been integrated in the PDD version 03. Below is an outline of the technical status of the project as well as an overview of the investment analysis.

Since 2005, HPHI has implemented tests regarding the potential utilization of biomass in its plants. The table below shows the volumes of biomass that have been used in the tests since the project has started as well as the foreseen utilization within the CDM project activities.

Monthly and year total volume of biomass used in the test period				
Bulacan	2005 (t)	2006 (t)	2007 (t)	2008 (t)
January	0	694	2,082	2,475
February	0	617	1681	1,711
March	0	236	2,150	1,721
April	2	154	2,367	1,697
May	0	355	2,107	772
June	0	331	1,070	1,006
July	260	495	803	839
August	449	427	862	124
September	438	394	1,004	Nd

October	323	454	1,292	Nd
November	859	1'751	1,597	Nd
December	0	1'441	407	Nd
Total	2330	7350	17,424	10,350
Yearly average utilization over the duration of the project:				**63,000 t/y**

Monthly and year total volume of biomass used in the test period				
Lugait	2005 (t)	2006 (t)	2007 (t)	2008 (t)
January	0	0	288	781
February	0	0	257	691
March	0	202	294	540
April	0	117	0	852
May	0	276	0	852
June	0	44	340	471
July	0	72	419	575
August	0	200	510	260
September	0	242	609	nd
October	0	239	170	nd
November	0	232	0	nd
December	0	120	613	nd
Total	0	1744	3500	4695
Yearly average utilization over the duration of the project:				**51,000 t/y**

Monthly and year total volume of biomass used in the test period				
Davao	2005 (t)	2006 (t)	2007 (t)	2008 (t)
January	0	0	6	0
February	0	0	17	0
March	0	0	2	0
April	0	0	14	0
May	0	0	12	0
June	0	0	54	3
July	0	0	12	5
August	0	0	64	73
September	1	0	13	nd
October	0	60	0	nd
November	0	0	0	nd
December	0	10	0	nd
Total	0	70	195	80
Yearly average utilization over the duration of the project:				**42,000 t/y**

In addition 17 tonnes of sorted Municipal Solid Waste have been tested in Lugait since April 2008 and 6 tonnes have been tested in Bulacan.

The tables above show that HPHI is still in the starting phase of the project activity with a limited usage of biomass and non continuous feeding. Indeed, HPHI is still far from the utilization it projects to use with the help of the CDM incentive. The current trial phase is necessary for HPHI to solve the technological barriers, which can only be overcome with iterative trials in order to learn about the process as well as the customized handling installations. The tables clearly show that much of the technical works still have to be done in order to achieve the forecast. In addition, the cement association of the Philippines confirms that the use of biomass is a long learning process (Annex A – CeMAP).

In parallel to overcoming process issues, relevant equipment has been installed since 2006 in order to achieve the tests not only by manually feeding but also by using conveyors. Once the project is registered, HPHI will dedicate a team to further analysis the direct and indirect technical barriers that have been shown in the first bottlenecks analysis (ref.: appendix 4 of the PDD) as well as improve the handling installations. HPHI will propose required solutions and their related cost resulting in a final investment plan, which will have to be approved by the CEO. Indeed, so far, in order to minimize the risk, the management didn't approve a final investment plan without registration.

A proposal of an investment plan has been prepared by the process engineers and, together with the bottleneck analysis, has been part of the validation process to determine the prohibitive nature of the technological barriers. Below is an overview of the investment plan by plant.

Bulacan					
Currency: PhP	**2006**	**2007**	**2008**	**2009**	**2010+**
Feeding system to SLC (Pneumatic transport)	16,000,000[1]				nd
Warehouse building		2,741,926	17,950,000		
Pre-process facility and flexible feeding system		21,787,565	77,112,435		
Fire protection system				10,000,000	
Hammers mills – 2 units				1,600,000	
Technical assessment – Process evaluation to optimize alternative fuels usage				2,000,000	
Budget for modifications as a result of the technical assessment.				10,000,000	
Rice husk feeding system (burner)				25,000,000	
Replacement of burner pipe (fine feeding)				34,000,000	
Heavy equipment to feed rice husk				5,000,000	
Baler/Compactor				1,200,000	
Truck scale for weighing				5,100,000	

[1] Remove in 2008 due to feeding issue.

Plattform, mixing and staging area			6,000,000	19,000,000	
Shredder and storage				20,000,000	
Dumptruck			1,000,000		
Forklift			1,200,000		
Payloaders (shredded material)			3,200,000		
Payloaders (biomass)			1,000,000		
Total in PhP	**16,000,000**	**24,529,491**	**107,462,435**	**132,900,000**	**nd**

Lugait					
Currency: PhP	**2006**	**2007**	**2008**	**2009**	**2010+**
Storage facility			1,500,000	23,500,000	
Fire protection system				10,000,000	
Forklift to unload rice husk				1,200,000	
Pre-processing facility and flexible feeding system		21,787,565	77,112,435		
Technical assessment – Process evaluation to optimize alternative fuels usage				2,000,000	
Budget for modifications as a result of the technical assessment.				10,000,000	
Rice husk feeding system (burner)				25,000,000	
Hammer mills – 1 unit				8,000,000	
Baler, Compactor				1,2000,000	
Total in PhP		**21,787,565**	**78,612,435**	**73,700,000**	**nd**

Davao					
Currency: PhP	**2006**	**2007**	**2008**	**2009**	**2010+**
Coarse facility		1,559,000	3,491,000		
Storage area			15,000,000	23,500,000	
Fire protection system				10,000,000	
Rice husk feeding system (cleated belt)				80,000,000	
Payloader and forklift				5,000,000	
Technical assessment – Process evaluation to optimize alternative fuels usage				2,000,000	
Budget for modifications as a result of the technical assessment.				10,000,000	
Rice husk feeding system			7,000,000	8,000,000	

(burner)					
Hammers mills – 1 unit				800,000	
Shredder system for MSW					10,000,000
Compactor				1,200,000	
Total in PhP	**0**	**1,559,000**	**11,991,000**	**140,500,000**	**10,000,000 (nd)**

In order to assess the potential investments, an investment comparison analysis has been calculated with the investment plan proposal (annex B – investment plan) and the "Finplan" fuel forecast of 2006. Please note that the post 2010 fuel requirements have not been finalized at this stage, yet. The draft investment analysis shows that the proposed investment could lead to a negative IRR of 1.7% without CERs and to an IRR of about 28% with CERs. Considering that the usual rate for investment for HPHI is 13.8%, the comparison confirms that HPHI needs the CERs to overcome the barrier and go on with the installations and modifications. In any case, these values are conservative estimation as the estimations for installations and process modifications are not yet finalized. The analysis will be reviewed once the project is registered and the final investment plan is completed and accepted. The table below shows the summary of the IRR calculation. The details have been added in the revised PDD version 03 and the DOE has validated the investment plan.

Year	Investment (US$ K)	Incremental cash flow (US$ K)	Depreciation	Taxable income	Tax	Net benefit	Cash flow without CER	Cash flow with CER (price assumed at $10)
2006	306	-	-	-	-	-	(306)	(306)
2007	917	-	71	(71)	-	-	(917)	(917)
2008	4'537	421	420	1	0	420	(4'116)	(3'175)
2009	7'687	887	1'011	(124)	-	887	(6'800)	(5'280)
2010	214	1'768	1'027	740	222	1'546	1'331	3'536
2011		2'171	1'027	1'144	343	1'828	1'828	4'032
2012		2'089	1'027	1'062	319	1'771	1'771	3'975
2013		1'773	1'027	746	224	1'549	1'549	3'754
2014		1'439	1'027	412	123	1'315	1'315	3'520
2015		1'085	1'027	58	17	1'068	1'068	3'272
2016		711	1'027	(316)	-	711	711	2'915
2017		315	1'027	(712)	-	315	315	2'519
2018	-1'366	(104)	1'027	(1'131)	-	(104)	1'263	4'729
IRR							**-1.70%**	**28.47%**
NPV – WACC 13.80%							**($3'841)**	**$4'487**

Overall, it was assessed during the validation on site that HPHI is currently in the starting phase of the project activity with a limited usage of biomass and non continuous feeding. The various steps will require significant investments. An investment plan has been integrated in the PDD version 03.

HPHI has provided and the DOE has validated the evidence on the prohibitive nature of the technological barriers and the related investments.

Additional information request N° 2

The DOE shall explain how cross-checks with the Host Party DNA is considered a suitable means of validation to determine that no similar projects are occurring without CDM.

The DNA of the Philippines is under the Department of Environment and Natural Resources (DENR), which is also responsible for the issuance of the Environmental Compliance Certificate (ECC). The ECC has to be obtained by every cement plant in the Philippines. In order to get an ECC, the fuels used have to be declared. Therefore, the DENR and the DNA are valuable and suitable source of information to determine if any cement plant is doing a similar project by using alternative fuels without the CDM incentive.

In addition, HPHI has contacted the department of Energy, which collects information about the fuel utilization of various industries, notably the cement industry. The Department has confirmed that there is no biomass included in the fuel mix in the cement industry in the Philippines (annex C – Department of Energy).

Additional information request N° 3

The DOE should provide details regarding how the applicability of the methodology has been validated, in particular the installed clinker production capacity and the surplus of availability of biomass.

Installed clinker production capacity

The installed capacity of the 3 plants is the Original Design Capacity as indicated by the suppliers. Documents of the suppliers have been validated during the validation on site. In addition, the Annual Technical Reports of the company indicate the Original Design Capacity as well the Best Demonstrated Practice. These data points have also been validated on site and the values have been confirmed. Below is a table, which compares the Original Design Capacity with the Best Demonstrated Practice of 2005.

	Bulacan plant	**Lugait plant (line 2)**	**Davao plant**
Original Design Capacity (t clinker/d)	5'500	4,500	3,500
Best Demonstrated Practice (t clinker/d)	5,451	4,160	3,769

The DOE has validated that the clinker capacity is the installed capacity that existed at the time of validation of the project activity, which is in line with the methodology ACM003 Version 4.

Surplus of availability of biomass

The surplus of the availability of rice husk has been validated with the official availability in the region per year. This information has been received from the Philippine Bureau of Agricultural Statistic, which is a suitable source of information and this information has been validated during the site visit. The official data confirms that rice husks are available with abundant quantities in each region.

Region	A. Average of rice husk proposed to be used by the project per year	B. Official availability of rice husk stemming from the Philippine Bureau of Agricultural Statistic	Amount available in comparison with the amount proposed to be used (B-A)/A
Bulacan	62,827	705,808	10.2 x
Lugait	50,763	573,010	10.3 x
Davao	41,906	373,702	7.9 x

As the official data did not include the current utilization by other users, the DOE has requested HPHI to support the official data with additional investigation. The investigation has been done through a questionnaire. Rice mill owners have been asked to define the percentage of rice husks that are: land filled, burned in open air, used for fertilizer, brought by companies, sent to haulers, used as a fuel, used as animal foods, and other. Each collected form included the detail of the owner of the rice mill and is available for consultation. The forms have been assessed during the validation. Since the submission for request of registration of the PDD version 02 and on the request of the DOE, additional investigations have been done increasing the number of questioned rice mill owners in the region of Davao from 14 to 32 and in Bulacan from 25 to 53. Annex D version 02 "investigation availability of biomass including other users-3 plants.xls" shows an overview per rice mill owner.

Below is the updated investigation on the current practice of rice husk disposal. The details are presented in the annex D version 02 and in the PDD version 03, which is submitted with the present letter.

As in the previous investigation, we consider that the amount available only consists of the amount sent to uncontrolled landfill and the amount burned in open air. The investigation gives a conservative overview of the current practice in the region. In combination with the official data, an estimation of the net amount available (taking out the amount consumed by other users) is possible.

HPHI plants	**Rice husk** Number of rice mill's owners asked during the investigation	**Rice husk** % sent to uncontrolled landfill (no distinction)	**Rice husk** % burned in open air	**Rice husk** Amount available in comparison with the amount proposed to be used	**Distance** from the furthest suppliers to the plant (km)
		Percentage available	Percentage available		
Bulacan	53	53%	0%	5.9x	150
Lugait	4	22%	21%	4.9x	159
Davao	32	64%	7%	6.3x	200

The official data and the investigation on the current practice show that the amount of rice husks available for the project activity is at least 1.5 times the amount required to meet the consumption of all users consuming the same alternative fuels. The DOE has validated the official data and the investigation and it is in line with the methodology ACM003 Version 4.

Additional information request N° 4

The PP/DOE should explain why a baseline scenario" reflecting the likely evolving fuel mix portfolios" has not been established and assessed.

The baseline scenario reflecting the likely evolving fuel mix portfolio has been established. It is very likely that the baseline scenario is similar to the historical fuel mix of Holcim Philippines. During the validation in 2006 and in the middle of 2007 it was not clear if petcoke will remain in use. Therefore, the historical fuel mix was used as a baseline. The revised PDD version 03 includes the additional scenario 2 (scenario 2 of the PDD version 02 is now scenario 1a) reflecting the likely evolving fuel mix, which is based on the historical fuel mix but excludes petcoke. The revised baseline is more conservative as petcoke has a higher CO2 emission per MJ than coal. The assessment is below.

The tables below indicate the expected prices (in PhP) of fossil fuels per MJ based on the 2006 forecast. The price includes the FOB and freight. The details of the forecast are presented in Annex E – Fuel price. The last shipment of Petcoke was received in 2005. Indeed, the use of petcoke is not anymore foreseen mainly due to the high sulphur concentration and due to prices[2]. The consumption of heavy oil and diesel is only used to start the kiln as they are expensive fuels. The consumption will remain around the stated figures as planned and unplanned kiln stoppages are expected to remain at current levels. The plants use the local coal Semirara from the Philippines which is not always available, the Indonesian coal, and anthracite from Vietnam which will most likely only be used occasionally as it has been the case in the previous year.

Bulacan

Price (Php/MJ)	2006	2007	2008	2009	2010
Coal indo (Indonesia)	0.1326	0.1327	0.1507	0.1646	0.1801
Coal semirara (Philippines)	0.0866	0.0904	0.0980	0.1069	0.1168
Anthracite (Vietnam)	0.1331	0.1389	0.1509	0.1646	0.1799

Lugait

Price (Php/MJ)	2006	2007	2008	2009	2010
Coal indo (Indonesia)	0.1115	0.1165	0.1269	0.1389	0.1524
Coal semirara (Philippines)	0.0816	0.0851	0.0927	0.1015	0.1114
Anthracite (Vietnam)	0.1269	0.1323	0.1440	0.1575	0.1727

[2] 0.085PhP/MJ in 2005 (see annex F- petcoke price)

Davao

Price (Php/MJ)	2006	2007	2008	2009	2010
Coal indo (Indonesia)	0.1189	0.1244	0.1358	0.1491	0.1639
Coal semirara (Philippines)	0.0870	0.0910	0.0992	0.1087	0.1194
Anthracite (Vietnam)	0.1326	0.1388	0.1517	0.1666	0.1833

The tables above show that the fuel price of coal and anthracite are similar although coal is more affordable. The Indonesian coal has a higher quality and its availability is better. Therefore, we can consider that any fuel switch will be to Indonesian coal.

Regarding the price and availability analysis above, the fuel mix scenario would most likely be the same as the historical fuel mix but instead of petcoke, coal would be used.

Revised Scenario 2 - likely evolving fuel mix portfolio

Fuels	**Percentage (%) Baseline 2 Bulacan**	**Percentage (%) Baseline 2 Lugait**	**Percentage (%) Baseline 2 Davao**
Coal	79.6	96.7	88.5
Anthracite	18.6	1.7	11.0
Petcoke	0.0	*0.0*	*0.0*
Heavy oil	0.9	1.5	0.5
Light oil/ Diesel	0.1	0.0	0.0
Waste oil	0.0	0.1	0.0
Industrial waste originating from fossil sources	0.8	0.0	0.0
Emission factor (tCO2/TJ)	95.09	94.33	95.08

The scenario 2 of the PDD version 02 was not considering the stop of petcoke utilization since it was not clear during the validation on site if petcoke will be re-used.

The revised version 03 of the PDD now includes the alternative scenario 2 - likely evolving fuel mix (described above), which was not presented in the PDD version 02. The version 03 of the PDD includes now the scenario 1, 1a, 2- likely evolving fuel mix and 3. The baseline is now more conservative and the emission reductions have been reviewed in the PDD version 03 and in the calculations version 03.

We hope that this additional information, annexes, the revised PDD version 03 and the calculation PDD version 03 will duly answer the questions related to the request of review.

Sincerely yours,

For
Holcim Philippines Inc

Ian Thackwray
CEO Holcim Philippines Inc.

For
Holcim Group Support Ltd

Bruno Vanderborght
Senior Vice president

Annexes and additional documents:

Annex A – CeMAP

Annex B – Investment plan

Annex C – Department of Energy.pdf

Annex D – Investigation availability including other users-3plants.pdf

Annex E – Fuel price 2006.pdf

Annex F – Purchase order Petcoke

PDD version 03.doc

Appendix 1 version 01 – revised calculation spreadsheet.xls