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# VALIDATION REPORT

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Optimal utilization of clinker  
by increasing the additives in  
cement production at Holcim  
Lanka Ltd (HLL)  
in  
Sri Lanka

REPORT No. 2007-9019

REVISION No. 02



# VALIDATION REPORT

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Date of first issue: 24/02/2007	Project No.: 61269019
Approved by: Einar Telnes, Director	Organisational unit: International Climate Change Services
Client: Holcim Lanka Limited	Client ref.: Ms. Catherine Martin-Robert

**Project Name:** Optimal utilization of clinker by increasing the additives in cement production at Holcim Lanka Ltd (HLL)

**Country:** Sri Lanka

**Methodology:** ACM0005

**Version:** 3

**GHG reducing Measure/Technology:** Increasing additives in cement production

**ER estimate:** 581 377 tCO<sub>2</sub>e over the selected 10 year crediting period.

## Size

☒ Large Scale

☐ Small Scale

## Validation Phases:

☒ Desk Review

☒ Follow up interviews

☒ Resolution of outstanding issues

## Validation Status

☒ Corrective Actions Requested

☒ Clarifications Requested

☒ Full Approval and submission for registration

☐ Rejected

In summary, it is DNV's opinion that the Optimal utilization of clinker by increasing the additives in cement production at Holcim Lanka Ltd (HLL) project in Sri Lanka, as described in the PDD of "23/03/2007", meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0005. DNV thus requests the registration of the project as a CDM project activity.

Report No.: 2007-9019	Date of this revision: 30/03/2007	Rev. No. 02
Report title: Optimal utilization of clinker by increasing the additives in cement production at Holcim Lanka Ltd (HLL) in Sri Lanka		
Work carried out by: Santhosh Jayaram, Buddika Hemashantha		
Work verified by: Einar Telnes		

Key words:

Climate Change

Kyoto Protocol

Validation

Clean Development Mechanism

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### Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH <sub>4</sub>	Methane
CL	Clarification request
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
DNV	Det Norske Veritas
DNA	Designated National Authority
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
HLL	Holcim (Lanka) Ltd.
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MVP	Monitoring and Verification Plan
N <sub>2</sub> O	Nitrous oxide
NGO	Non-governmental Organisation
ODA	Official Development Assistance
OPC	Ordinary Portland Cement
PDD	Project Design Document
PLC	Portland Limestone Cement
SLS	Sri Lankan Standards
UNFCCC	United Nations Framework Convention on Climate Change




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## VALIDATION REPORT

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### 1 EXECUTIVE SUMMARY – VALIDATION OPINION

*Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the Optimal utilization of clinker by increasing the additives in cement production at Holcim Lanka Ltd (HLL) project in Sri Lanka. The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.*

*The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.*

*The host country is Sri Lanka and the Annex I country is Switzerland. Both countries fulfil the participation criteria and have approved the project and authorized the project participants. The DNA from Sri Lanka confirmed that the project assists in achieving sustainable development.*

*The project correctly applies ACM0005 “Consolidated Baseline/Monitoring Methodology for-Increasing the Blend in Cement Production”, version 03.*

*By increasing the blend in the cement, the project results in reductions of CO<sub>2</sub> emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.*

*The total emission reductions from the project are estimated to be on average 58 138 tCO<sub>2</sub>e per year over the selected 10 year crediting period. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.*

*Adequate training and monitoring procedures have been implemented.*

*In summary, it is DNV’s opinion that the Optimal utilization of clinker by increasing the additives in cement production at Holcim Lanka Ltd (HLL) project in Sri Lanka, as described in the PDD of 23/03/2007, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0005. DNV thus requests the registration of the project as a CDM project activity.*

### 2 INTRODUCTION

Holcim Lanka Ltd (HLL) has commissioned Det Norske Veritas Certification Ltd. (DNV) to perform a validation of the Optimal utilization of clinker by increasing the additives in cement production at Holcim Lanka Ltd (HLL) project in Sri Lanka (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.



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### 2.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all CDM projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reductions (CERs).

### 2.2 Scope

The validation scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords, and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology. The validation team has, based on the recommendations in the Validation and Verification Manual employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

## 3 METHODOLOGY

The validation consists of the following three phases:

- I a desk review of the project design documents
- II follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

### 3.1 Desk Review of the Project Design Documentation

The following table outlines the documentation reviewed during the validation:

- /1/ Project Design Document (PDD) for CDM Activity - Optimal utilization of clinker by increasing the additives in cement production at Holcim Lanka Ltd (HLL), Sri Lanka, Version 01, 21/10/2006.  
Version 04, 23/03/2007.
- /2/ Calculation worksheets – (calculation\_XX\_PDD\_V01.xls) – XX represents 01 – 06  
Calculation worksheets – V04.
- /3/ DNA of Sri Lanka, Letter of approval, dated 09 April 2007
- /4/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): Validation and Verification Manual. <http://www.vvmanual.info>



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- /5/ ACM0005, version 3, 19 May 2006
- /6/ General Direction under Section 6 (1) (c), Direction No: 95, Consumer Protection Act, No: 1 of 1979.
- /7/ Results of Benchmark Laboratory analysis – (Benchmark\_PDD\_V01.pdf )
- /8/ Environmental Protection Licence (EPL), Numbered 725/2005 R-1, dt. 03 May 2006.
- /9/ DNA of Switzerland, Letter of approval, dated 15 March 2007

The main changes between the version published for the 30 days stakeholder commenting period and the final version submitted for registration:

*- Emission Reduction calculation changes resulting from CL's and CAR's in the draft validation report.*

### 3.2 Follow-up Interviews with Project Stakeholders

Personnel who have been interviewed and/or provided additional information to the presented documentation:

	<b>Date</b>	<b>Name</b>	<b>Organization</b>	<b>Topic</b>
/10/	2007-01-15	Ms. Catherine Martin-Robert	Project coordinator, Holcim Group Support Ltd	Calculation and source data verification
/11/	2007-01-15	Mr. Chalaka Fernando	Environmental manager, Holcim (Lanka) Ltd.	Environmental Impact, Environmental clearance, Stakeholder consultation.
/12/	2007-01-15	Mr. R. A. Ananda Wimal Rajakaruna	Plant Manager, Holcim (Lanka) Ltd.	Technology and production.
/13/	2007-01-16	Mr. Peter Spirig	MD & CEO, Holcim (Lanka) Ltd.	Additionality, Benefits of CDM, Risks in Market Place. Funding of project.
/14/	2007-01-16	Mr. George Nicole	Vice President - AFR	Additionality, Benefits of CDM, Risks in Market Place.
/15/	2007-01-16	Mr. Rodolfo Montero	Vice President Sales & Marketing	Additionality, Benefits of CDM, Risks in Market Place.
/16/	2007-01-16	Mr. Francois Golout	Vice President, Manufacturing & Technical	Trails conducted for new blended cement.



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/17/ 2007-01-16 Mr. Anura Jayatilake

Director, Ministry  
of Environment and  
Natural Resources

Approval by DNA

### 3.3 Resolution of Outstanding Issues

The objective of this phase of the validation is to resolve any outstanding issues which need be clarified prior to DNV's positive conclusion on the project design. In order to ensure transparency a validation protocol is customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of two tables. The different columns in these tables are described in the figure below. The completed validation protocol for the Optimal utilization of clinker by increasing the additives in cement production at Holcim Lanka Ltd (HLL) project is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of CDM criteria or where a risk to the fulfilment of project objectives is identified. Corrective action requests (CAR) are issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) CDM and/or methodology specific requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.



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<b>Validation Protocol Table 1: Mandatory Requirements for CDM Project Activities</b>				
<b>Requirement</b>	<b>Reference</b>	<b>Conclusion</b>		
<i>The requirements the project must meet.</i>	<i>Gives reference to the legislation or agreement where the requirement is found.</i>	<i>This is either acceptable based on evidence provided (<b>OK</b>), a <b>Corrective Action Request (CAR)</b> of risk or non-compliance with stated requirements or a request for <b>Clarification (CL)</b> where further clarifications are needed.</i>		

  

<b>Validation Protocol Table 2: Requirement checklist</b>				
<b>Checklist Question</b>	<b>Reference</b>	<b>Means of verification (MoV)</b>	<b>Comment</b>	<b>Draft and/or Final Conclusion</b>
<i>The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.</i>	<i>Gives reference to documents where the answer to the checklist question or item is found.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>This is either acceptable based on evidence provided (<b>OK</b>), or a <b>corrective action request (CAR)</b> due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification.</i>

  

<b>Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests</b>			
<b>Draft report clarifications and corrective action requests</b>	<b>Ref. to checklist question in table 2</b>	<b>Summary of project owner response</b>	<b>Validation conclusion</b>
<i>If the conclusions from the draft Validation are either a CAR or a CL, these should be listed in this section.</i>	<i>Reference to the checklist question number in Table 2 where the CAR or CL is explained.</i>	<i>The responses given by the project participants during the communications with the validation team should be summarised in this section.</i>	<i>This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".</i>

**Figure 1 Validation protocol tables**

### 3.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report will undergo another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with DNV's qualification scheme for CDM validation and verification.



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### 3.5 Validation Team

Role/Qualification	Last Name	First Name	Country
Cement Sector expert, CDM Validator	Jayaram	Santhosh	Sri Lanka
Team Leader, GHG Auditor	Hemashantha	Buddika	Sri Lanka
Technical reviewer	Telnes	Einar	Norway

The qualification of each individual validation team member is detailed in Appendix B to this report.

## 4 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The draft validation findings relate to the project design as documented and described in the project design documentation.

### 4.1 Participation Requirements

The project participants are Holcim (Lanka) Ltd., and Holcim Group Support Ltd. The Parties involved, i.e. Sri Lanka as host Party and Switzerland as Annex 1 Party, meet the requirements to participate in the CDM. Written approval from the DNA of Sri Lanka and Switzerland is available:-

The validation did not reveal any information that indicates that the project can be seen as a diversion of official development assistance (ODA) funding towards Sri Lanka.

### 4.2 Project Design

The project activity consists of a reduction of the clinker content in the current Portland Limestone Cement (PLC) produced in Puttalam cement plant by increasing the additive percentage using natural additives (limestone and dolomite) and artificial pozzolanic materials such as slag and potentially fly ash. The current average percentage blend produced in the Puttalam cement plant is made of limestone and dolomite and represents 12.6% of the blend. The project activity is expected to enable HLL to increase the additives level to 29% (gypsum not included).

The proposed project will be the first of its kind in Sri Lanka with this level of additives.

Starting date of the project was 1 January 2006, which is the starting date of the increasing levels of additives in cement and trials. The fixed crediting period of 10 years is selected from 01 July 2007, in anticipation of the registration of the project. It is confirmed by the project participant that the date of registration will be considered as the starting date of the crediting period. The operational lifetime of the project will be more than 15 years.



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### 4.3 Baseline Determination

The project applies the approved consolidated baseline methodology ACM0005 “Consolidated Baseline Methodology for increasing the blend in Cement production”, Version 03, dated 19 May 2006. The appropriateness is justified by meeting the applicability conditions.

- The project aims at reducing the share of clinker in the production of cement beyond the current practices in Sri Lanka. The additives are limestone, dolomite, slag and potentially later fly ash.
- It is demonstrated that there is no shortage of limestone through the limestone reserves available in the identified mines. HLL has established contracts with suppliers of dolomite and DNV’s verification of the contracts establishes the availability of dolomite. HLL also has established long term contracts for supply of slag. HLL also plans to use fly ash from a proposed coal thermal power plant, but cannot demonstrate availability of the ash prior to the establishment of this plant.
- The cement produced is proposed being sold in the domestic market.
- Although information available in public domain was lacking, an independent survey covering whole of Sri Lanka market has been carried out. As a result adequate data is available on the cement types in the Lanka market.

The project system boundary includes the cement production plant and the power grid. Transportation of additional additives is also included in the project boundary.

The boundaries are considering accounting for;

Direct emissions at the cement plant due to fuel combustion.

Direct emissions due to calcinations of limestone.

Indirect emissions from fossil fuel combustion in power plants in grid and transportation of additives.

The power source for the cement plant is from the Sri Lankan national grid.

### 4.4 Additionality

The methodology refers to the latest version of the additionality tool.

Step 0 – Not applicable.

Step 1:

The only realistic and credible alternatives are the project and the baseline. Both alternatives will be in compliance the legal and regulatory requirements. Since the new type of cement will be sold without an SLS mark in the Sri Lankan market, it is clear that this type of cement does not attract the provisions of the consumer protection act of Sri Lanka to have mandatory SLS mark. The SLS mark is a product certification mark given on products confirming to the standards set by Sri Lankan Standards. For some products, e.g. masonry cement it is mandatory under the consumer protection act that no masonry cement shall be sold without the SLS mark.

Step 2: Not applied.



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### Step 3:

It is demonstrated that the proposed CDM project faces a technological barrier in the form of additional grinding capacities for the slag as well as cement. However, the implementation plans for the additional capacities are not yet well defined nor included in the capital expenditure plans of the organisation, since investments are major and could be partially realized only with the CDM incentives. The organisation will be finalizing on these capital expenditures after project registration.

The project also faces an institutional barrier, as the proposed type of cement is not in line with any of the SLS standards for cement as referred to above. However, the new cement will be in compliance to with the EN 197 CEM II/BM(2000) standard. This requires efforts to convince SLS to align their standards to EN standards, and can thus be perceived as a barrier.

The arguments for market acceptability criteria are supported with figures on marketing and advertisement cost of the earlier launch of PLC. As the new cement is not in line with SLS, coupled with the low awareness of blended cement, the introduction of this cement will definitely face similar barriers as the PLC faced.

HLL is the only producer of PLC cement in Sri Lanka and continuing the production of PLC cement is a viable alternative. However, it is evident that HLL has established a dedicated team to develop high blended cement with the objective of reducing the GHG emissions. Although the new cement will comply with the already existing EN 197 CEM II/BM(2000) standard, time and efforts is invested to study the locally available additives and also trials on various blends and testing for the cement properties. The facilities and resources required for such studies is deemed a barrier in Sri Lanka and the registration of this CDM project will promote such efforts in the industry. The results of such trials were verified.

### Step 4:

The proposed project is the first of its kind in Sri Lanka in applying this high level of additives.

### Step 5:

The CDM registration will assist HLL in overcoming the institutional and marketing barriers.

It was also evidenced during the interviews that HLL has set targets for reducing GHG emissions in line with the Holcim Group's public objective. The registration of the project will be a good motive for HLL to look for projects that face barriers and further reduce GHG emissions.

It can be concluded there are technological, institutional and market acceptability barriers sufficient to prevent the project from happening without the financial support from the CDM. The emissions reductions occurring from the project can hence be deemed additional.

## 4.5 Monitoring

The monitoring plan is consistent with the requirements of the approved monitoring methodology ACM0005. The justification for the applicability of ACM0005 is the same as for the applicability of the baseline methodology.



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The monitoring plan provides detailed information related to the collection and archiving of all relevant data needed to determine project emissions.

The authority and responsibility for registration, monitoring, measurement and reporting are described. Procedures are identified for monitoring, measurements and reporting, for day-to-day records handling, for dealing with possible monitoring data adjustments and uncertainties and for review of reported results/data. These are integrated in the quality management system in line with ISO 9001:2000.

### 4.5.1 Parameters determined ex-ante

In order to benchmark the baseline, the data regarding the percentage of additives and therefore the percentage of clinker has been determined by an independent benchmarking effort, since no other reliable data are available. Statistically significant random bag sampling covering all cement brands in Sri Lanka has been carried out by an independent agency. The samples were sent by the agency to the laboratory in Holderbank where the percentage of additives and the clinker content were analyzed. The results from this analysis were verified during the site visits.

Other parameters used ex-ante are emission factors and data required to calculate the leakages due to transport of additives and preparation of additives.

The grid electricity emission factor is also estimated ex-ante. The Sri Lanka national grid is considered for the determination of a baseline grid electricity emission coefficient. The project uses a simple OM and the average of the approximate operating margin and build margin for determination of the baseline emission factor. The approximate operating margin is calculated as an average of data available for the three years 2002, 2003 and 2004, which is the most recent statistics available at the time of PDD submission. The build margin is calculated using data of 2004. It is verified that the estimation is conservative.

### 4.5.2 Parameters monitored ex-post

The parameters which will be monitored ex-post will be the quantity of clinker produced, quantity of fuel used, quantity of raw material and additives, electricity consumed. These will be monitored on a daily basis and compiled in the Annual Technical Report (ATR).

### 4.5.3 Management system and quality assurance

HLL have delegated a key contact, the environmental manager, who will co-ordinate the collection of plant and company level data required for monitoring. The production manager will be responsible for collecting and archiving data. All data required is collected as part of normal operations. The data pertaining to production is captured electronically and consolidated on a daily basis. The quality management system in line with ISO 9001:2000 is in practice at the plant level.

## 4.6 Estimate of GHG Emissions

The relevant GHG is only CO<sub>2</sub>.

The calculations include emissions resulting from the following:

Project emissions include:



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- Emissions from calcinations of lime stone.
- Emissions from combustion of fossil fuel and electricity for clinker production and processing of raw material.
- Emissions from electricity used for additives transportation, additive preparation and grinding of cement.

The emission reduction calculations are transparently presented in spreadsheets.

An increasing trend of 2% increase in additive annually over the selected percentage in the base year is applied over the projected crediting period. The baseline considers the mass percentage of clinker in the relevant cement type, which is PLC. Since the additive ratio is already at the optimum for this cement as governed by the SLS standard, an increase of 2% additive annually to the baseline is deemed conservative.

The project claims that imported clinker will not be used for this project. This should be verified during verification stage. The project's forecasted calculations clearly indicate  $PE_{\text{Clinker},y} < BE_{\text{Clinker},y}$ , the substitution of  $PE_{\text{Clinker},y}$  for  $BE_{\text{Clinker},y}$  will negate the effect of other efficiency improvement projects and alternate fuel projects.

### 4.7 Environmental Impacts

The environmental impacts are insignificant comparing the present scale of operations. There are no requirements in Sri Lanka for an EIA, considering the nature and size of the project.

### 4.8 Comments by Local Stakeholders

Local stakeholders include the people living in the vicinity of the plant, NGO's and regulators. The minutes of the meeting conducted did not reveal any specific objections or comments.

### 4.9 Comments by Parties, Stakeholders and NGOs

The PDD of 22 November 2006 (version 3) was made publicly available on DNV's climate change website ([www.dnv.com/certification/climatechange](http://www.dnv.com/certification/climatechange)) and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 24 November 2006 to 23 December 2006.

No comments were received.



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### **APPENDIX A**

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#### **CDM VALIDATION PROTOCOL**



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**Table 1 Mandatory Requirements for Clean Development Mechanism (CDM) Project Activities**

Requirement	Reference	Conclusion
<b>About Parties</b>		
The project shall assist Parties included in Annex I in achieving compliance with part of their emission reduction commitment under Art. 3.	Kyoto Protocol Art.12.2	OK
The project shall assist non-Annex I Parties in contributing to the ultimate objective of the UNFCCC.	Kyoto Protocol Art.12.2.	OK
The project shall have the written approval of voluntary participation from the designated national authority of each Party involved.	Kyoto Protocol Art. 12.5a, CDM Modalities and Procedures §40a	OK
The project shall assist non-Annex I Parties in achieving sustainable development and shall have obtained confirmation by the host country thereof.	Kyoto Protocol Art. 12.2, CDM Modalities and Procedures §40a	OK
In case public funding from Parties included in Annex I is used for the project activity, these Parties shall provide an affirmation that such funding does not result in a diversion of official development assistance and is separate from and is not counted towards the financial obligations of these Parties.	Decision 17/CP.7, CDM Modalities and Procedures Appendix B, § 2	OK.
Parties participating in the CDM shall designate a national authority for the CDM.	CDM Modalities and Procedures §29	OK
The host Party and the participating Annex I Party shall be a Party to the Kyoto Protocol.	CDM Modalities §30/31a	Sri Lanka has ratified the Kyoto Protocol on 03 September





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Requirement	Reference	Conclusion
		2002. Switzerland has ratified the Kyoto Protocol on 09 July 2003.
The participating Annex I Party’s assigned amount shall have been calculated and recorded.	CDM Modalities and Procedures §31b	OK
The participating Annex I Party shall have in place a national system for estimating GHG emissions and a national registry in accordance with Kyoto Protocol Article 5 and 7.	CDM Modalities and Procedures §31b	OK
<b>About Additionality</b>		
Reduction in GHG emissions shall be additional to any that would occur in the absence of the project activity, i.e. a CDM project activity is additional if anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the registered CDM project activity.	Kyoto Protocol Art. 12.5c, CDM Modalities and Procedures §43	OK
<b>About forecast emission reductions and environmental impacts</b>		
The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.	Kyoto Protocol Art. 12.5b	OK
<b>For large-scale projects only</b>		
Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, shall be submitted, and, if those impacts are	CDM Modalities and Procedures §37c	OK.



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Requirement	Reference	Conclusion
considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out.		Impacts not significant
<b>About stakeholder involvement</b>		
Comments by local stakeholders shall be invited, a summary of these provided and how due account was taken of any comments received.	CDM Modalities and Procedures §37b	OK
Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for minimum 30 days, and the project design document and comments have been made publicly available.	CDM Modalities and Procedures §40	OK
<b>Other</b>		
The baseline and monitoring methodology shall be previously approved by the CDM Executive Board.	CDM Modalities and Procedures §37e	OK
A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances.	CDM Modalities and Procedures §45c,d	OK
The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure.	CDM Modalities and Procedures §47	OK
The project design document shall be in conformance with the UNFCCC CDM-PDD format.	CDM Modalities and Procedures Appendix B, EB Decision	OK
Provisions for monitoring, verification and reporting shall be in accordance with the modalities described in the Marrakech Accords and relevant decisions of the COP/MOP.	CDM Modalities and Procedures §37f	OK



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Table 2 Requirements Checklist

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
<b>A. General Description of Project Activity</b> <i>The project design is assessed.</i>					
<b>Project Boundaries</b> <i>Project Boundaries are the limits and borders defining the GHG emission reduction project.</i>					
Are the project’s spatial boundaries (geographical) clearly defined?	/1/	DR	Yes, the project spatial boundaries cover Puttalam cement plant at Palavi,Puttalam, Sri Lanka		OK
Are the project’s system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/1/	DR	Yes, the project system boundary includes the cement production plant and grid power. Transportation of additional additives is also included in the boundary. The boundary considered accounts; <ul style="list-style-type: none"><li>• Direct emissions at the cement plant due to fuel combustion.</li><li>• Direct emissions due to calcinations of limestone.</li><li>• Indirect emissions from fossil fuel combustion in power plants in grid and transportation.</li></ul> Power source for Puttalam Cement Plant is grid electricity.		OK

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<b>Participation Requirements</b> <i>Referring to Part A, Annex 1 and 2 of the PDD as well as the CDM glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.</i>					
Which Parties and project participants are participating in the project?	/1/ /10/ /9/	DR I	The project participant is Holcim (Lanka) Ltd. And is supported by Holcim Group Support Limited. The host Part is Sri Lanka. The Annex – 1 party is identified as Switzerland.		OK
Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?	/1/ /17/ /9/	DR I	No. Approval by DNA of Sri Lanka pending. Annex I party identified as Switzerland, but no approval available.	<del>CAR-1</del>	OK
Do all participating Parties fulfil the participation requirements as follows: - Ratification of the Kyoto Protocol - Voluntary participation - Designated a National Authority	/1/ /17/	DR I	Sri Lanka has ratified the Kyoto Protocol on 03 September 2002 and has designated the DNA. Switzerland has ratified the Kyoto Protocol on 09 July 2003 and has designated the DNA.		OK
Potential public funding for the project from Parties in Annex I shall not be a diversion of official development assistance.	/1/ /13/	DR I	The validation did not reveal any information that indicates that the project can be seen as a		OK

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			diversion of official development assistance (ODA) funding towards Sri Lanka.		
<b>Technology to be employed</b> <i>Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The validator should ensure that environmentally safe and sound technology and know-how is used.</i>					
Does the project design engineering reflect current good practices?	/1/ /16/	DR I	Yes.  In order to optimize the clinker content per tonne of cement, the laboratory of Holcim Group Support Ltd (HGRS) located in Holderbank has conducted meticulous Research and Development (R&D). The knowledge was transferred to HLL which has made many experiments varying the percentage of limestone, dolomite, slag and fly ash. HLL has tested the impact on the quality in order to combine final impacts on strength properties and appropriate blended mixture for end users.  By conducting tests and experiments on site, HLL is developing its own blend by mixing additives. The test conducted are not exactly		OK

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			in line with the blend proposed in the project, but has tested with the maximum blend ratio of non reactive elements representing the mix. The forecasted optimal mix combines in a short term limestone, dolomite and slag and potentially later on fly ash.		
Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1/	DR	Yes, the technology will result in producing a type of blended cement which will reduce the clinker content per tonne of cement produced compared to existing blended cement type.		OK
Does the project make provisions for meeting training and maintenance needs?	/1/ /12/ /13/ /14/ /15/	DR I	Yes, substantial marketing and educational effort is to be undertaken to ensure that customers are aware that the quality remains despite the increase of additives, as well as additional marketing effort to establish the higher blend cement in the market. The project will also require training in areas of production control, marketing, quality control and capacity building of customers. The provisions are already made for the training. The project does not envisage extensive maintenance efforts, since most of the equipments used would be similar to		OK

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			baseline.		
<b>Contribution to Sustainable Development</b> <i>The project’s contribution to sustainable development is assessed.</i>					
Has the host country confirmed that the project assists it in achieving sustainable development?	/1/ /17/	DR I	No, the project doesn’t have the DNA approval from DNA of Sri Lanka.	<del>CAR</del> 1	OK
Will the project create other environmental or social benefits than GHG emission reductions?	/1/	DR	Yes, apart from GHG emission reduction, The project also helps to conserve the limestone reserves as well as reduce the fossil fuel consumption and also solve the menace of disposal of materials like fly ash.		OK
<b>B. Project Baseline</b> <i>The validation of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.</i>					
<b>Baseline Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					
Does the project apply an approved methodology and the correct version thereof?	/1/ /5/	DR	Yes, the project applies the approved consolidated baseline methodology ACM0005 “Consolidated Baseline Methodology for-increasing the blend in		OK

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			Cement production”, Version 03, dated 19 May 2006.		
Are the applicability criteria in the baseline methodology all fulfilled?	/1/ /5/	DR	Yes, the appropriateness is justified by meeting the applicability conditions. The project aims at reducing the share of clinker in the production of cement beyond the current practices in Sri Lanka. The additives are limestone, dolomite, slag and potentially later fly ash. It is demonstrated that there is no shortage of limestone through the lime stone reserves available in the identified mines. HLL has established contracts with suppliers of dolomite, the contracted quantity is the demonstration of availability of dolomite. HLL also has established long term contracts for supply of slag, but the contract was not available for verification. HLL plans to use fly ash from the proposed coal thermal power plant and hence cannot demonstrate availability. The cement produced is proposed to be sold in the domestic market.	<del>CL1</del>	OK

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			Although information available in public domain was lacking, the independent survey covering whole of Sri Lanka market was carried out specifically. As a result adequate data is available on cement types in the market.		
<b>Baseline Scenario Determination</b> <i>The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.</i>					
What is the baseline scenario?	/1/	DR	The base line scenario is the continuation of the current blend level of the Portland Limestone Cement.		OK
What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/	DR	The other alternatives in addition to proposed CDM project and baseline can be; <ul style="list-style-type: none"><li>- Reduction in blend level.</li><li>- Production of OPC</li><li>- Production of BHC</li></ul> To be conservative the reduction in blend level and production of OPC are not considered. Considering that all blending material apart from limestone has to come		OK

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			from outside the country, makes the third alternative of production of BHC not viable. Hence the selected scenario of the continuation of the current blend level of the Portland Limestone Cement is conservatively the most likely one.		
Has the baseline scenario been determined according to the methodology?	/1/	DR	Yes. The default national market is considered for the region. The methodology requires the benchmark for baseline emissions defined as the lowest value of the 3 methods. But the PDD does not clearly bring out an analysis to conclude that the option 3 is the lowest value.	<del>CAR 2</del>	OK
Has the baseline scenario been determined using conservative assumptions where possible?	/1/	DR	No, refer to <del>CAR 2</del>	<del>CAR 2</del>	OK
Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/	DR	Yes, The baseline scenario is manufacture of types of cement classified under Sri Lankan Standards (SLS) .		OK
Is the baseline scenario determination compatible with the available data and are all literature and sources clearly	/1/	DR	No, refer to <del>CAR 2</del>	<del>CAR 2</del>	

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referenced? Have the major risks to the baseline been identified?	/1/	DR	No major risks envisaged to the baseline.		OK
<b>Additionality Determination</b> <i>The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.</i>					
Is the project additionality assessed according to the methodology?	/1/ /6/ /13/ /14/ /15/ /16/	DR I	The methodology refers to the latest version of the additionality tool. But the version of tool used is not specified. Step 0 – Not applicable. Step 1: The realistic and credible alternatives are the project and the baseline. Both alternatives will be in compliance the legal and regulatory requirements. Although the new type of cement will be sold with out an SLS mark in the Sri Lankan Market, it is clear that the type of cement does not attract the provisions of the consumer protection act. Step 2: Not applied. Step 3: It is clear that the proposed CDM project does attract a technological barrier in the form of	<del>CL2</del> <del>CL3</del> <del>CL4</del>	OK

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			<p>additional grinding capacities for the Slag as well Cement. But the implementation plans for the additional capacities are not available to establish the barrier.</p> <p>The project also attracts Institutional barriers. The proposed type of cement is not in line with any of the SLS standards for Cement. It is in line with EN 197 CEM II/BM(2000). It requires efforts to convince SLS to align their standards to EN standards.</p> <p>The arguments for market acceptability criteria are not supported with figures. Although the PDD refers to the earlier launch of PLC, do not support the argument with figures. The source of the data supporting the dominance in market of OPC is also not available for verification.</p> <p>The arguments in terms of investment is valid in terms of investment of time and efforts in R &amp; D. It is well demonstrated by setting of the committee with an aim to develop high blended cement.</p> <p>Step 4:</p> <p>The proposed project is the first of its kind in Sri Lanka in terms of the level of additives. But an analysis of similar activity, the introduction of PLC in line with SLS 1253 is not available to</p>		



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			verify the credibility of market acceptability criteria (refer <del>CL-4</del> ) Step 5: The CDM registration will be a clear enabler in overcoming the barriers like Institutional and marketing. It was also evidenced during the interviews that HLL has set targets for reducing GHG emissions in line with the Holcim Group’s public objective. The registration of the project will be a good motive for HLL to look for projects even with barriers and reduce GHG emissions.		
Are all assumptions stated in a transparent and conservative manner?	/1/	DR	Yes the assumptions are stated transparently and conservatively.		OK
Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR	Evidence is available to support the arguments..		OK
If the starting date of the project activity is before the date of validation, has sufficient evidence been provided that the incentive from the CDM was seriously considered in the decision to proceed with the project activity?	/1/	DR	The starting date of the project activity is 01/01/2006. Evidence is not available to demonstrate that incentive from CDM was considered in the decision to proceed with the project activity.	<del>CL-5</del>	OK
Calculation of GHG Emission Reductions – Project					

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<b>emissions</b> <i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /10/ /2/	DR I	<p>The calculations are documented in a separate excel sheet. The PDD only gives the formulas and results.</p> <p>But the following deviations observed from the approved methodology.</p> <ul style="list-style-type: none"><li>- The calculations does not include the comparison of <math>PE_{Clinker,y}</math> and <math>BE_{Clinker}</math> to negate the effects of other efficiency improvements or fuel switching projects.</li><li>- Te grid electricity calculations are not in line with ACM 0002 as required under the approved methodology.</li><li>- For coal the IPCC default emission factor will be 94.6 rather than 96, which is considered in the project calculation.</li></ul> <p>The baseline year 2005, includes</p>	<del>CAR-3</del>	OK

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			imported clinker, the conservativeness of the calculations need to be established.		
Have conservative assumptions been used when calculating the project emissions?	/1/ /2/	DR	Yes, conservative assumptions used.		OK
Are uncertainties in the project emission estimates properly addressed?	/1/	DR	No significant uncertainties envisaged.		OK
<b>Calculation of GHG Emission Reductions – Baseline emissions</b> <i>It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
Are the calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /10/ /2/	DR I	The calculations are documented in a separate excel sheet. The PDD only gives the formulas and results.  But the following deviations observed from the approved methodology. <ul style="list-style-type: none"><li>- For coal the IPCC default emission factor will be 94.6 rather than 96, which is considered in the project calculation.</li></ul>	<del>CAR-4</del>	OK

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Have conservative assumptions been used when calculating the baseline emissions?	/1/ /2/	DR	Yes, conservative assumptions used.		OK
Are uncertainties in the baseline emission estimates properly addressed?	/1/	DR	No significant uncertainties envisaged.		OK
<b>Calculation of GHG Emission Reductions – Leakage</b> <i>It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>					
Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	/1/ /10/ /2/	DR I	The calculations are documented in a separate excel sheet. The PDD only gives the formulas and results.  But the following deviations observed from the approved methodology. <ul style="list-style-type: none"><li>- The fuel consumption figures for transport of material through train and truck is not substantiated to be applicable for Sri Lanka.</li><li>- The distances are accounted for both ways (To and fro distance not accounted).</li><li>- The leakage effects for crushing</li></ul>	<del>CAR-5</del>	OK

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			of Dolomite used as an additive are not considered.		
Have conservative assumptions been used when calculating the leakage emissions?	/1/ /2/	DR	Yes, conservative assumptions used.		OK
Are uncertainties in the leakage emission estimates properly addressed?	/1/	DR	No significant uncertainties envisaged.		OK
<b>Emission Reductions</b> <i>The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.</i>					
Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	/1/ /2/	DR	The total emission reductions from the project are estimated to be on the average 581 377 tCO2e over the selected 10 year crediting period. The emission reduction forecast has been checked and is deemed likely that the state amount is achieved given that the underlying assumptions do not change.		OK
<b>Monitoring Methodology</b> <i>It is assessed whether the project applies an appropriate baseline methodology.</i>					

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Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?	/1/	DR	Yes, the project applies the approved consolidated monitoring methodology ACM0005 “Consolidated monitoring Methodology for-increasing the blend in Cement production”, Version 03, dated 19 May 2006.		OK
Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/ /10/ /12/	DR	No retention period specified in PDD, although it was clarified during the interviews that all data will be captured to the Annual Technical Report (ATR).	<del>CL-6</del>	OK
<b>Monitoring of Project Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete project emission data over time.</i>					
Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/	DR	Yes, the monitoring plan provides collection and archiving of all relevant data as stipulated under ACM0005.		OK
Are the choices of project GHG indicators reasonable and conservative?	/1/	DR	Yes, It is as per ACM0005.		OK
Is the measurement <i>method</i> clearly stated for each GHG value to be monitored and deemed appropriate?	/1/	DR	Yes. Except for the monitoring of grid emission factor. Refer <del>CAR-3</del>		OK

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Is the measurement <i>equipment</i> described and deemed appropriate?	/1/	DR	Yes.		OK
Is the measurement <i>accuracy</i> addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/	DR	Yes. Under the quality management system in line with ISO 9001:2000.		OK
Is the measurement <i>interval</i> identified and deemed appropriate?	/1/	DR	Yes.		OK
Is the <i>registration, monitoring, measurement and reporting</i> procedure defined?	/1/ /12/	DR I	Yes. Under the quality management system in line with ISO 9001:2000.		OK
Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /12/	DR I	Yes. Under the quality management system in line with ISO 9001:2000.		OK
Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation).	/1/ /12/	DR I	Yes. Under the quality management system in line with ISO 9001:2000.		OK
<b>Monitoring of Baseline Emissions</b> <i>It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.</i>					
Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline	/1/	DR	Yes, the monitoring plan provides collection and archiving of all relevant data as		OK

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emissions during the crediting period?			stipulated under ACM0005.		
Are the choices of baseline GHG indicators reasonable and conservative?	/1/	DR	Yes, It is as per ACM0005.		OK
Is the measurement <i>method</i> clearly stated for each baseline indicator to be monitored and also deemed appropriate?	/1/	DR	Yes.		OK
Is the measurement <i>equipment</i> described and deemed appropriate?	/1/	DR	Yes.		OK
Is the measurement <i>accuracy</i> addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/	DR	Yes. Under the quality management system in line with ISO 9001:2000.		OK
Is the measurement <i>interval</i> for baseline data identified and deemed appropriate?	/1/	DR	Yes.		OK
Is the <i>registration, monitoring, measurement and reporting</i> procedure defined?	/1/ /12/	DR I	Yes. Under the quality management system in line with ISO 9001:2000.		OK
Are procedures identified for <i>maintenance</i> of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /12/	DR I	Yes. Under the quality management system in line with ISO 9001:2000.		OK

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Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/ /12/	DR I	Yes. Under the quality management system in line with ISO 9001:2000.		OK
<b>Monitoring of Leakage</b> <i>It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.</i>					
Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/	DR	Yes, the monitoring plan provides collection and archiving of all relevant data as stipulated under ACM0005.		OK
Are the choices of project leakage indicators reasonable and conservative?	/1/	DR	Yes, It is as per ACM0005.		OK
Is the measurement <i>method</i> clearly stated for each leakage value to be monitored and deemed appropriate?	/1/	DR	Yes, it is stated.		OK
<b>Monitoring of Sustainable Development Indicators/ Environmental Impacts</b> <i>It is assessed whether choices of indicators are reasonable and complete to monitor sustainable performance over time.</i>					
Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host	/8/	I	No. No Specific monitoring of sustainable development indicators/ environmental		OK

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country?			impacts required for the proposed project.		
Does the monitoring plan provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?	/8/	I	Not applicable, Refer comments above.		OK
Are the sustainable development indicators in line with stated national priorities in the Host Country?	/1/	DR	Comments Reserved, Refer <del>CAR 1</del> .		OK
<b>Project Management Planning</b> <i>It is checked that project implementation is properly prepared for and that critical arrangements are addressed.</i>					
Is the authority and responsibility of overall project management clearly described?	/1/ /12/	DR I	Yes. Under the quality management system in line with ISO 9001:2000.		OK
Are procedures identified for training of monitoring personnel?	/1/ /12/	DR I	Yes. Under the quality management system in line with ISO 9001:2000.		OK
Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/ /12/	DR I	Yes. Under the quality management system in line with ISO 9001:2000.		OK
Are procedures identified for review of reported results/data?	/1/ /12/	DR I	Yes. Under the quality management system in line with ISO 9001:2000.		OK
Are procedures identified for corrective actions in order to	/1/	DR	Yes. Under the quality management system		OK

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provide for more accurate future monitoring and reporting?	/12/	I	in line with ISO 9001:2000.		
<b>C. Duration of the Project/ Crediting Period</b> <i>It is assessed whether the temporary boundaries of the project are clearly defined.</i>					
Are the project's starting date and operational lifetime clearly defined and evidenced?	/1/	DR	Yes, the project starting date is 01/01/2006. The operational lifetime of the project is expected to be 15 years.		OK
Is the start of the crediting period clearly defined and reasonable?	/1/	DR	The fixed crediting period, with the starting date of crediting as 01/01/2007 is considered for the project. But the same is not reasonable since the project is yet to be registered.	<del>CL7</del>	OK
<b>D. Environmental Impacts</b> <i>Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the validator.</i>					
Has an analysis of the environmental impacts of the project activity been sufficiently described?	/12/	I	Yes, under the environment management system in line with ISO 14001:2004.		OK
Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/8/	I	No.		OK
Will the project create any adverse environmental effects?	/8/	I	Incremental adverse environmental effects are insignificant in comparison to the impact		OK

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			of existing facility.		
Are transboundary environmental impacts considered in the analysis?	/8/	I	No transboundary environmental effects are envisaged through the project.		OK
Have identified environmental impacts been addressed in the project design?	/8/	I	Yes, through installation of dust collection system.		OK
Does the project comply with environmental legislation in the host country?	/8/	I	Yes.		OK
<b>E. Stakeholder Comments</b> <i>The validator should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.</i>					
Have relevant stakeholders been consulted?	/1/ /11/	DR I	Yes The stakeholders’ meeting has been hold on July 18th at Puttalam cement plant.		OK
Have appropriate media been used to invite comments by local stakeholders?	/1/ /11/	DR	Yes, The persons have been invited by official invitation and through the newspaper.		OK
If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/8/	I	No.		OK

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Is a summary of the stakeholder comments received provided?	/1/ /11/	DR	Yes,		OK
Has due account been taken of any stakeholder comments received?	/1/ /11/	DR	Yes		OK

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## VALIDATION REPORT

**Table 2 Resolution of Corrective Action and Clarification Requests**

Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
<p><b>CAR 1</b></p> <p>The project is yet to get the approval from the DNA of Sri Lanka.</p> <p>Annex I party is identified as Switzerland, but no approval letter is available.</p>	<p>The Letter of Approval from the DNA of Sri Lanka has been signed on the 23.01.07. See document: Host country approval.pdf</p> <p>The letter of approval from annex 1 Party is also submitted.</p>	<p>The letter of approval verified, OK. This CAR is closed.</p>

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
<p><b>CAR 2</b></p> <p>The methodology requires the benchmark for baseline emissions defined as the lowest value of the 3 methods. But the PDD does not clearly bring out an analysis to conclude that the option 3 is the lowest value.</p>	<p>The first (i) and second methods (ii) are not applicable since HLL is the only producer of the relevant cement type, PLC, in Sri Lanka. Since the mass percentage of clinker is the lowest in HLL and this for any cement type, the method iii) is applicable</p>	<p>The data derived from AC Nielsen Retail Audit, submitted by HLL was verified. It is clear that HLL is the only producer of the relevant cement type, PLC, in Sri Lanka and the PLC produced represents about a quarter of all the cement sold in Sri Lanka. The same incorporated to PDD. OK, This CAR is closed.</p>
<p><b>CAR 3</b></p> <p>The following deviations observed from the approved methodology in estimation of baseline.</p> <ul style="list-style-type: none"> <li>- The calculations does not include the comparison of <math>PE_{Clinker,y}</math> and <math>BE_{Clinker}</math> to negate the effects of other efficiency improvements or fuel switching projects.</li> <li>- The grid electricity calculations are not in line with ACM 0002 as required under the approved methodology.</li> <li>- For coal the IPCC default emission factor will be 94.6 rather than 96, which is considered in the project</li> </ul>	<p>The last versions of the PDD and calculations include the comparison of <math>PE_{Clinker,y}</math> and <math>BE_{Clinker}</math> to negate the effects of other efficiency improvements or fuel switching projects.</p> <p>The last version of the PDD uses a grid electricity factor of 0.6816 kgCO<sub>2</sub>/kWh which is in line with ACM0002.</p> <p>The latest versions of the PDD and calculations use the IPCC default emission factors from 2006.</p> <p>As the baseline is calculated per tonne of</p>	<p>Verified the calculations and PDD, the comparison of <math>PE_{Clinker,y}</math> and <math>BE_{Clinker}</math> are incorporated and calculations effected accordingly. OK</p> <p>Verified the grid electricity emission factor, OK.</p> <p>Verified and found IPCC emission factors used, OK.</p> <p>The project clearly claims that imported clinker will not be used for this project. This need to be verified during verification. Since the projects forecast calculations</p>

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
<p>calculation.</p> <ul style="list-style-type: none"> <li>- The baseline year 2005, includes imported clinker, the conservativeness of the calculations need to be established</li> </ul>	<p>cement, the small amount of imported clinker included in the calculation of electric consumption for grinding and blending the additive do not modify in any manner the baseline and therefore the calculations are conservative. Indeed the total power consumption and the total blended cement production are used.</p>	<p>clearly indicate <math>PE_{Clinker,y} &lt; BE_{Clinker,,}</math> the substitution of <math>PE_{Clinker,y}</math> for <math>BE_{Clinker}</math> will negate this effect. Hence OK.</p> <p>This CAR is closed.</p>

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
<p><b>CAR 4</b></p> <p>The following deviations observed from the approved methodology in the estimation of project emissions.</p> <ul style="list-style-type: none"> <li>- For coal the IPCC default emission factor will be 94.6 rather than 96, which is considered in the project calculation.</li> </ul>	<p>The latest versions of the PDD and calculations use the IPCC default emission factors from 2006.</p>	<p>Verified and found IPCC emission factors used, OK.</p> <p>This CAR is closed.</p>
<p><b>CAR 5</b></p> <p>The following deviations observed from the approved methodology in the estimation of leakages.</p> <ul style="list-style-type: none"> <li>- The fuel consumption figures for transport of material through train and truck is not substantiated to be applicable for Sri Lanka.</li> <li>- The distances are accounted for both ways (To and fro distance not accounted).</li> <li>- The leakage effects for crushing of Dolomite used as an additive is not considered.</li> </ul>	<p>The latest versions of the PDD and calculations use the real fuel consumption factors and not default factor. Tests on site for train and truck consumption have been carried. The factors used are now more conservative.</p> <p>The latest versions of the PDD and calculations take into account round trip distance.</p> <p>The latest versions of the PDD and calculations take into account the electricity consumption for crushing the dolomite on and outside the plant.</p>	<p>Reports on actual measurements carried out was verified, OK.</p> <p>Verified, OK.</p> <p>The electricity consumption of dolomite crushing outside the site is considered in project emission calculations, OK.</p> <p>This CAR is closed.</p>

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
<b>CL-1</b> To demonstrate the availability of slag, the contract documents were not available for verification.	See document Holcim Trading_slag.pdf	The contract documents verified, OK. This CL is closed.
<b>CL-2</b> The methodology refers to the latest version of the additionality tool. But the version of tool used is not specified.	The tool for the demonstration and assessment of additionality Version 2 as been used. The method respects as well the version03.	OK. This CL is closed.
<b>CL-3</b> It is clear that the proposed CDM project does attract a technological barrier in the form of additional grinding capacities for the slag as well as cement. But the implementation plans for the additional capacities are not available to establish the barrier.	To overcome the grinding capacity barrier, HLL will either increase the power installed this means: a new cement mill will be needed, and/or a new grinding station will be needed. Both investments are major and could be partially realized with the CDM incentives and therefore are not yet well defined nor in the Capex.	As the implementation of the capex projects identified as barriers, the implementation of the projects needs to be done during verification. OK This CL is closed.
<b>CL-4</b> The arguments for market acceptability criteria are not supported with figures. Although the PDD refers to the earlier launch of PLC, do not support the argument with figures. The source of the data supporting the dominance in market of OPC is also not available for verification.	See document: marketing and training.HLL.doc  See document: Overview market_Sri Lanka.doc	Verified and found arguments justified. OK. This CL is closed.
<b>CL-5</b> The evidences not available to demonstrate	In November 2002 Holcim published a voluntary commitment to reduce CO2	The evidence verified and found demonstrating that incentive from CDM

## VALIDATION REPORT

Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
that incentive from CDM was considered in the decision to proceed with the project activity.	emissions by 20% from 1990 to 2020, including the opportunities from flexible market mechanisms. Each group companies has received a target. In 2003, Holcim has (re)confirmed its strategy to use incentive of the Clean Development Mechanism by developing CDM pilot projects, specifically by decreasing the clinker content (MIC) (ref.: CO2update December 2003-031210.doc). The Holcim Lanka target was updated in January 2005 (ref.: CO2 performance Lanka 20050131.doc). In April 2005 the CEO of Sri Lanka through the Holcim SEP committee meeting (ref.: SEP committee 2005.ppt) was informed about the CDM process. At the end of 2005 Holcim Lanka has consulted an external consultant to start with the documentation. Regarding the availability of the resources, Holcim Lanka with the support of Holcim Group Support Ltd has started the CDM documentation at the beginning of 2006 (ref.:extract e-mails CDM documentation. PDF).	was considered in the decision to proceed with the project activity. OK. This CL is closed.
<b>CL-6</b> Retention period of monitored data not specified.	The annual technical report of all plant in the Holcim group companies are kept unlimited in the archives in Holderbank. We have agreed to keep in addition of the	OK. This CL is closed.

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## VALIDATION REPORT

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Draft report clarifications and corrective action requests by validation team	Summary of project owner response	Validation team conclusion
	ATR, the present project data base for 10 years after the end of the crediting period.	
<b>CL-7</b> The fixed crediting period, with the starting date of crediting as 01/01/2007 is considered for the project. But the same is not reasonable since the project is yet to be registered.	We now expect to register the project on the 01.07.07 and therefore the starting date of the crediting period will be 01.07.07.	OK. This CL is closed.



## **APPENDIX B**

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### **CERTIFICATES OF COMPETENCE**



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## CERTIFICATE OF COMPETENCE

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### *Santhosh Jayaram*

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

<b>GHG Auditor:</b>	Yes		
<b>CDM Validator:</b>	Yes	<b>JI Validator:</b>	--
<b>CDM Verifier:</b>	--	<b>JI Verifier:</b>	--
<b>Industry Sector Expert for Sectoral Scope(s):</b>	Sectoral scope 4 (cement)		

Høvik, 6 November 2006

Einar Telnes  
*Director, International Climate Change Services*

Michael Lehmann  
*Technical Director*

### *Buddika Hemashantha*

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

<b>GHG Auditor:</b>	Yes		
<b>CDM Validator:</b>	--	<b>JI Validator:</b>	--
<b>CDM Verifier:</b>	--	<b>JI Verifier:</b>	--
<b>Industry Sector Expert for Sectoral Scope(s):</b>	--		

Høvik, 6 November 2006

Einar Telnes  
*Director, International Climate Change Services*

Michael Lehmann  
*Technical Director*



## CERTIFICATE OF COMPETENCE

### *Einar Ternes*

Qualification in accordance with DNV's Qualification scheme for CDM/JI (ICP-9-8-i1-CDMJ1-i1)

<b>GHG Auditor:</b>	Yes		
<b>CDM Validator:</b>	Yes	<b>JI Validator:</b>	--
<b>CDM Verifier:</b>	Yes	<b>JI Verifier:</b>	--
<b>Industry Sector Expert for Sectoral Scope(s):</b>	Sectoral scope 1, 2, 3 6 & 10		
<b>Technical Reviewer for (group of) methodologies:</b>			
ACM0001, AM0002, AM0003, AM0010, AM0011, AM0012, AMS-III.G	Yes	AM0027	Yes
ACM002, AMS-I.A-D, AM0019, AM0026, AM0029, AM0045	Yes	AM0028, AM0034	Yes
ACM003, ACM0005, AM0033, AM0040	Yes	AM0030	Yes
ACM0004	Yes	AM0031	Yes
ACM0006, AM0007, AM0015, AM0036, AM0042	Yes	AM0032	Yes
ACM0007	Yes	AM0035	Yes
ACM0008	Yes	AM0038	Yes
ACM0009, AM0008, AMS-III.B	Yes	AM0041	Yes
AM0006, AM0016, AMS-III.D, ACM0010	Yes	AM0034	Yes
AM0009, AM0037	Yes	AM0043	
AM0013, AM0022, AM0025, AM00379, AMS- III.H, AMS-III.I	Yes	AM0046	
AM0014	Yes	AM0047	
AM0017	Yes	AMS-II.A-F, AM0044	Yes
AM0018	Yes	AMS-III.A	Yes
AM0020	Yes	AMS-III.E, AMS-III.F	Yes
AM0021	Yes		
AM0023	Yes		
AM0024	Yes		

Høvik, 5 February 2007

**Einar Ternes**  
Director, International Climate Change Services

**Michael Lehmann**  
Technical Director