



**CDM Project Activity Registration  
and Validation Report Form**  
*(By submitting this form, designated operational entity confirms  
that the proposed CDM project activity meets all validation and  
registration requirements and thereby requests its registration)*

**Section 1: Request for registration**

<b>Name of the designated operational entity (DOE) submitting this form</b>	Det Norske Veritas Certification Ltd. (DNV)
<b>Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration</b>	Sihwa Tidal Power Plant CDM Project
<b>Project participants (Name(s))</b>	Korea Water Resources Corporation (KOWACO), Ecoeye Co. Ltd.
<b>Sector in which project activity falls</b>	Sectoral Scope Nr. 01: Energy Industries
<b>Is the proposed project activity a small-scale activity?</b>	<u>No</u> (underline as applicable)

**Section 2: Validation report**

<b>List of documents to be attached to this validation report (please check mark):</b>	
<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> The CDM-PDD of the project activity</li> <li><input checked="" type="checkbox"/> An explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;</li> <li><input checked="" type="checkbox"/> The written approval of voluntary participation from the designated national authority of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development.</li> <li><input checked="" type="checkbox"/> Other documents, including any validation protocol used in the validation <ul style="list-style-type: none"> <li>○ Validation Report, including a validation protocol and a list of persons interviewed by the validation team during the validation process</li> </ul> </li> <li><input checked="" type="checkbox"/> Information on when and how the above validation report is made publicly available.</li> <li><input checked="" type="checkbox"/> Banking information on the payment of the non-reimbursable registration fee</li> <li><input checked="" type="checkbox"/> A statement signed by all project participants stipulating the modalities of communicating with the Executive Board and the secretariat in particular with regard to instructions regarding allocations of CERs at issuance</li> </ul>	

**Executive Summary and Introduction, including**

- **Description of the proposed CDM project activity**
- **Scope of validation process (include all documentation that has been reviewed and name persons that have been interviewed as part of the validation, as applicable)**
- **DOE Validation team (list of all persons involved in the validation, describing functions assumed in the validation)**

**•Description of the proposed CDM project activity:**

The Sihwa tidal power plant will generate electricity by utilizing the sea water when it is coming into Sihwa Lake, which is an artificial lake made by the tide embankment. The plant will be located in Jaggungarisum, which is an island in Ansan-city, Gyeonggi province, Republic of Korea. The project will be equipped with 10 turbine generators (25.4 MW) each of straight inflow bulb type. It is expected to generate 552.7 GWh a year and will be connected to the grid. This project is the first tidal power project in Korea and primarily aims at reducing GHG emissions. As a result of the project, it is estimated that 315 440 tCO<sub>2</sub>/annum will be mitigated.

**•Scope of validation process:**

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 ACM0002. 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 KOWACO. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

**•Documents reviewed:**

- Sihwa Tidal Power Plant Project, CDM PDD, Old version and final version 02 of 18 November 2005
- Emission Factor Calculation Sheets
- DNA of Korea, letter of approval, Dt 25 January 2006.
- Approved EIA report – titled Environmental Impact Assessment (EIA) Report on Sihwa lake Tidal Plant Construction Dt. 18 March 2005.
- International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): Validation and Verification Manual. <http://www.vvmanual.info>
- CDM Executive Board: ACM0002 - "Consolidated baseline methodology for grid-connected electricity generation from renewable sources" Version 04 Dt 28 November 2005

**•DOE Validation team:**

Mr Santhosh Jayaram, DNV Certification, Sri Lanka, Team Leader, CDM Auditor  
 Mr. Kim Young Keun, DNV Certification, Korea, CDM auditor  
 Mr. Einar Telnas, DNV Certification, Norway, Technical Verifier/ sector expert

For further details, please refer to the "Introduction" and "References" Section of DNV's Validation Report (DNV Report 2005-1537, rev. 03).

**Description of methodology for carrying out validation**

- Review of CDM-PDD and additional documentation attached to it
- Assessment against CDM requirements (e.g. by use of a validation protocol)
- Report of findings by the DOE, e.g. by use of type of findings (e.g. corrective action requests, clarifications or observations). Please explain the way findings are "labelled" during validation.
- Include statements or assessments in the section "Conclusions, final comments and validation opinion" below.

The validation consists of the following three phases:

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

In order to ensure transparency, a validation protocol was customised for the project, according to the Validation and Verification Manual. 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.

Findings established during the validation can either be seen as a non-fulfilment of validation 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 future project performance or results;
- ii) CDM 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.

The validation team may also use the term **Clarification (CL)**, which would be where additional information is needed to fully clarify an issue.

For further details, please refer to the "Methodology" Section of DNV's Validation Report (DNV Report 2005-1537, rev. 03) and the IETA/PCF Validation and Verification Manual ([www.vvmanual.info](http://www.vvmanual.info)).

**Explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;**

- Description of how and when the PDD was made publicly available
- Description of how comments were received and made publicly available
- Explanation of how due account has been taken of comments received
- Compilation of all comments received (Identify the submitter)

The PDD of August 22, 2005 was made publicly available on DNV's climate change website <http://www.dnv.com/certification/climatechange/Projects/ProjectDetails.asp?ProjectId=261> and Parties, stakeholders and NGOs were through the CDM website invited to provide comments during a 30 days period from 16 September 2005 to 15 October 2005. No comments were received. Please refer to the "Comments by Parties, Stakeholders and NGOs" Section of DNV's Validation Report (DNV Report 2005-1537, rev. 03) and the above mentioned CDM website.

#### **Conclusions, final comments and validation opinion**

- Provide conclusions on each requirement under paragraph 37 of the CDM modalities and

<p><b>procedures, describing how these requirements have been met. This shall include assessments and findings (e.g. corrective action requests, clarifications or observations) in relation to each requirement, including a confirmation that all issues raised have been addressed to the satisfaction of the DOE.</b></p>	
<p>• <b>Final comments and validation opinion</b></p>	
<p>Det Norske Veritas Certification Ltd. (DNV) has performed a validation of the "Sihwa Tidal Power Plant CDM Project" located at Gyeonggi Province, Republic of Korea towards 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.</p> <p>The validation consisted of the following three phases: i) a desk review of the project design documentation (September-October 2005), ii) follow-up interviews with project stakeholders (October 2005) and iii) the resolution of outstanding issues and the issuance of the draft validation report and opinion (December 2005). The validation of the initial project design documentation raised several minor issues and changes to the documentation were provided in an updated project design document.</p> <p>The project correctly applies ACM0002 and the determination of the baseline is transparent. There are no local regulations/programs that constrain the project. An Investment comparison analysis of the project without CER revenues sufficiently demonstrated that the project would not occur in the absence of CDM benefits and that emission reduction attributable to the project are thus additional.</p> <p>By establishing the tidal power plant, the project results in the reduction of CO<sub>2</sub> emissions that are real, measurable and give long-term benefits. The project is likely to achieve the estimated amount of emission reductions of approximately 315 440 tCO<sub>2</sub>e per year.</p> <p>The key parameters for determining baseline emissions and thus emission reductions are monitored, i.e. the net electricity supplied to grid by the project. This net electricity supplied is multiplied with an emission factor monitored ex post and calculated as an average of Build margin and Operating margin.</p> <p>The total emission reductions from the project are estimated to be on the average 315 440 tCO<sub>2</sub>e per year over the selected 7 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.</p> <p>Adequate training and monitoring procedures have been implemented.</p> <p>In summary, it is DNV's opinion that the "Sihwa tidal power plant CDM project" in Republic of Korea, as described in the PDD of date November 18, 2005 (Version 2), meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM 0002. DNV thus requests the registration of the project as a CDM project activity.</p> <p>For further details, please refer to DNV's Validation Report (DNV Report 2005-1537, rev. 03).</p>	
<p>The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.</p>	
<p>By submitting this validation report, the DOE confirms that all validation requirements are met.</p>	
<p>Name of authorized officer signing for the DOE</p>	<p>Mari Grooss Viddal</p>

Date and signature for the DOE	29 March 2006 <i>Hon G. Uddel</i>	
<b><i>Section below to be filled by UNFCCC secretariat</i></b>		
Date when the form is received at UNFCCC secretariat		
Date at which the registration fee has been received		
Date at which registration shall be deemed final		
Date of request for review, if applicable		
Date and number of registration	Date	Number