




**Validation report form for post-registration changes for  
CDM project activities  
(Version 03.0)**

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the project activity</b>	Potrero Hydropower Plant, Peru UNFCCC Reference Number: 8414
<b>Process track</b>	<input checked="" type="checkbox"/> Prior approval <input type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
<b>Version number of the validation report</b>	02
<b>Completion date of the validation report</b>	02/11/2020
<b>Type(s) of PRCs</b>	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents <sup>1</sup> <input checked="" type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input type="checkbox"/> Inclusion of a monitoring plan <input checked="" type="checkbox"/> Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents <input checked="" type="checkbox"/> Changes to the project design <input type="checkbox"/> Changes specific to afforestation and reforestation project activities
<b>Version number of PDD to which this report applies</b>	Version: 11 Dated: 01/11/2020
<b>Project participants</b>	Empresa Eléctrica Agua Azul S.A
<b>Host Party</b>	Peru
<b>Applied methodologies and standardized baselines</b>	ACM0002 version. 12.3.0 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources
<b>Mandatory sectoral scopes</b>	Sectoral scope 01: Energy industries (renewable - / non-renewable sources)
<b>Conditional sectoral scopes, if applicable</b>	NA

<sup>1</sup> Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

<b>Name and UNFCCC reference number of the DOE</b>	E-0052: Carbon Check (India) Private Ltd.
<b>Name, position and signature of the approver of the validation report</b>	Amit Anand, CEO 

**SECTION A. Executive summary**Purpose, general description and location of the project activity:

Empresa Eléctrica Agua Azul S.A (here after referred as “Project Participants” (PP)), has appointed the DOE, Carbon Check (India) Private Ltd. (CCIPL) to perform an independent validation of the post registration changes to the CDM Project Activity “Potrero Hydropower Plant, Peru” (Registration Ref No. 8414) in Peru (hereafter referred to as “Project Activity”). The project activity is generating renewable electricity by using water from the Crisnejas River, who receives its water from two main river basins, Cajamarca River basin (111.9 km of length) and Condebamba River basin (92.7 km of length). This energy is supplied to the National Interconnected Electricity Grid (SEIN). The reduction of baseline emissions results from the displacement of electricity generated by power plants within the SEIN, which include fossil/fuel power plants emitting CO<sub>2</sub>.

Scope of validation:

This validation is an independent and objective review of the post registration changes in registered PDD. The scope of the validation of post registration changes is to determine whether there are proposed or actual changes to the project design of the registered CDM project activity. CCIPL also determined whether the description in the revised PDD submitted by project participants, which describe the nature and extent of the actual changes, accurately reflects the implementation, operation and monitoring of the modified project activity. The validation of post registration changes in the revised PDD /01/ were based on the following:

- (i) Approved consolidated methodology ACM0002 (version 12.0) /B02/ and the applied tools
- (ii) Revised PDD (in track change and clean mode) /01/
- (iii) CDM VVS for Project Activities (version 02.0) /B01-1/
- (iv) CDM PS for Project Activities (version 02.0) and /B01-2/
- (v) CDM PCP for Project Activities (version 02.0) /B01-3/
- (vi) Relevant decisions, guidance and clarifications of the CMP and CDM EB

Validation process:

The validation process for post registration changes includes the following steps:

- (a) Contract with project participants and appointment of validation team and technical review team
- (b) Desk review of the revised PDD/01/ by validation team
- (c) Interview of the representative of PP and consultant by the validation team
- (d) Reporting and closure of findings (CARs/CLs/FARs) and preparation of validation report
- (e) Independent technical review of the validation report
- (f) Issuance of final validation report to contracted PP and submission to UNFCCC for approval of post registration changes as appropriate.

The summary of proposed changes is as below;

Sl. No.	Correction
1.	1. Editorial changes as per PDD Template version 11.0  2. Revised general description of the project activity in Section A.1 in order to justify the changes occurred during project implementation stage.  3. Change in the statement regarding Letter of Approval (LoA) from host country in Section F.
	<b>Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents</b>

2.	<p>1. Inclusion of Monitoring Parameter EG<sub>gross,y</sub> and EG<sub>aux,y</sub> in Section B.7.1 in accordance with the change in monitoring plan. EG<sub>facility,y</sub> is difference of EG<sub>gross,y</sub> and EG<sub>aux,y</sub>.</p> <p>For Gross Electricity meter, which is self-calibrated and hence no calibration records required. Calibration frequency for Gross Electricity meter is mentioned as self-calibrated every 10 seconds.</p> <p>3. For Auxiliary electricity meter, calibration frequency is mentioned as 24 months as per Manufacturers recommendation.</p> <p>4. The cross checking source for gross energy is revised from invoices to records of sold electricity as invoices does not mention electricity quantity.</p>
<b>Change in the programme design</b>	
3.	<p>1. Revised technical description in Section A.3. as per changes in project design. Change of each turbine nominal capacity from 9.95 MW to 10.228 MW. Addition of generator capacity as 11590 KVA and change of total installed capacity from 19.9 MW to 20.86 MW. Turbine speed corrected as 600 RPM. Changes in net electricity generation due to change in capacity and subsequently emission reductions are changed.</p> <p>2. Revised description of establishment of project additionality in Section B.5. in accordance with changes in financial indicators for the project.</p> <p>3. Revision in Section B.6.3 and B.6.4 due to change in EGP<sub>J,y</sub> and BE<sub>y</sub> in accordance with the change in project design.</p>

### Conclusion:

In summary, the post registration changes consist of corrections, permanent changes to registered monitoring plan and changes to the project design. The validation team confirms that the post registration changes proposed for the project activity require prior approval from the Board as the proposed change falls under §241 (a) of CDM PS for Project Activities (version 02.0) /B01-2/. The DOE therefore accepts the changes and notifies the EB of request for the approval of the post registration changes viz., corrections, permanent changes to registered monitoring plan and changes to the project design of the registered Project Activity. The validation team confirms that the proposed post registration changes are in line with the applied methodology and all other applicable tools and guidance.

This report is the combined assessment opinion for all the changes that are proposed in the PDD /01/ and the request is submitted for approval by CDM EB for prior approval.

## **SECTION B. Validation team, technical reviewer and approver**

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### **B.1. Validation team member**

No.	Role	Signature	Last name	First name	Affiliation	Involvement in
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					(e.g. name of central or other office of DOE or outsourced entity)	Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader / Verifier / Validator / Technical Expert	IR	Singh	Vikash Kumar	CC IPL	X		X	X

## B.2. Technical reviewer and approver of the validation report on PRCs

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Anand	Amit	CC IPL
2.	Approver	IR	Anand	Amit	CC IPL

## SECTION C. Means of validation

### C.1. Desk/document review

List of all documents reviewed or referenced during the validation is provided in Appendix-3 below.

### C.2. On-site inspection

No on site assessment was carried out for the validation of post registration changes for the project activity. However, telephonic and Skype based remote interviews were conducted with the project participants.

### C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Soria	Camila	Empresa Eléctrica Agua Azul S.A	06/07/2020	<ul style="list-style-type: none"> <li>Technologies/ measures being used,</li> <li>Project boundary, sources and GHGs,</li> <li>Application of the methodology</li> <li>Reasons for the PRC in accordance with §229 of CDM PS for project activities (version 02.0);</li> <li>Impacts of the proposed or</li> </ul>	Vikash Kumar Singh

					actual changes to the registered CDM project activity	
2.	Wolfgang	Brueckner	Carbonbay GmbH & Co. KG	06/07/2020	<ul style="list-style-type: none"> <li>Technologies/ measures being used,</li> <li>Project boundary, sources and GHGs,</li> <li>Application of the methodology</li> <li>Reasons for the PRC in accordance with §229 of CDM PS for project activities (version 02.0);</li> <li>Impacts of the proposed or actual changes to the registered CDM project activity</li> </ul>	Vikash Kumar Singh
3.	Mitra	Souvik	EnKing INTERNATIONAL	06/07/2020	<ul style="list-style-type: none"> <li>Technologies/ measures being used,</li> <li>Project boundary, sources and GHGs,</li> <li>Application of the methodology</li> <li>Reasons for the PRC in accordance with §229 of CDM PS for project activities (version 02.0);</li> <li>Impacts of the proposed or actual changes to the registered CDM project activity</li> </ul>	Amit Anand

**C.4. Sampling approach**

Not Applicable.

**C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised**

Areas of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	--	--	--
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents	--	--	--
Corrections	--	--	--
Changes to the start date of the crediting period	--	--	--
Inclusion of a monitoring plan	--	--	--
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents	--	CAR 02 CAR 03	--
Changes to the project design	--	CAR 01	--
Changes specific to afforestation and reforestation project activities	--	--	--
Others (please specify): UNFCCC clarification request during preparation of summary note	--	CAR 04	--
<b>Total</b>	--	CAR 04	--

**SECTION D. Validation findings**
**D.1. Compliance with PDD form**

<b>Means of validation</b>	DR
<b>Findings</b>	--
<b>Conclusion</b>	<p>The revised PDD /01/ has been completed using the latest available template of CDM-PDD-FORM /B05/ and has been submitted in both track change and clean versions /01/.</p> <p>Both the registered /B04/ and revised PDD /01/ were reviewed for the consistency of the information and it is confirmed that the information transferred from the previous template to the new template is materially the same as in the registered PDD /B04/ except the changes due to the proposed PRC.</p> <p>Few addition or deletions have been made in the revised PDD /01/ as compared to the registered PDD /B03/. These addition or deletions are primarily due to the adoption of latest template of the CDM-PDD-FORM (version 11.0) /B04/.</p> <p>This confirms to the requirements of §278 and 279 of the CDM VVS for project activities (version 02.0) /B01-1/.</p> <p>Furthermore, in accordance with §280 (a) of CDM VVS for project activities (version 02.0) /B01-1/, the validation team confirms that:</p> <ul style="list-style-type: none"> <li>(i) The revised PDD /01/ is compliant with the valid version of the CDM-PDD-Form /B04/ and instructions therein; and</li> <li>(ii) The information transferred to the revised PDD /01/ is materially the same as that provided in the registered PDD /B03/.</li> </ul>

**D.2. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents**

<b>Means of validation</b>	DR
<b>Findings</b>	Not Applicable
<b>Conclusion</b>	Not Applicable

**D.3. Corrections**

<b>Means of validation</b>	DR
<b>Findings</b>	--
<b>Conclusion</b>	Following corrections have been made to the revised PDD /01/:

Sl. No.	Corrections
1.	Editorial changes as per PDD Template version 11.0
2.	Revised general description of the project activity in Section A.1 in order to justify the changes occurred during project implementation stage.
3.	Change in the statement regarding Letter of Approval (LoA) from host country in Section F.

Validation team has accepted all the proposed corrections in the revised PDD /01/ and confirms that the corrected information is an accurate reflection of actual project information and the corrected information in the revised PDD comply with the CDM PS for project activities (02.0).

The validation took cognizance of §287, 288 and 289 of CDM VVS for project activities (version 02.0) /B01-1/.

**D.4. Changes to the start date of the crediting period**

<b>Means of validation</b>	DR
<b>Findings</b>	Not Applicable
<b>Conclusion</b>	Not Applicable

**D.5. Inclusion of a monitoring plan**

<b>Means of validation</b>	DR
<b>Findings</b>	Not Applicable
<b>Conclusion</b>	Not Applicable

**D.6. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents**

<b>Means of validation</b>	DR										
<b>Findings</b>	CAR 02 ,CAR 03 and CAR 04 has been raised and successfully closed please refer to appendix 4 details.										
<b>Conclusion</b>	<p>Following permanent changes have been made to the registered monitoring plan of the registered PoA-DD:</p> <table border="1"> <thead> <tr> <th>Sl. No.</th><th>Permanent changes to monitoring Plan of PDD</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Inclusion of Monitoring Parameter EGgross,y and EGaux,y in Section B.7.1 in accordance with the change in monitoring plan. EGfacility,y is difference of EGgross,y and EGaux,y .</td></tr> <tr> <td>2.</td><td>For Gross Electricity meter, which is self-calibrated and hence no calibration records required. Calibration frequency for Gross Electricity meter is mentioned as self-calibrated every 10 seconds.</td></tr> <tr> <td>3.</td><td>For Auxiliary electricity meter, calibration frequency is mentioned as 24 months as per Manufacturers recommendation.</td></tr> <tr> <td>4.</td><td>The cross checking source for gross energy is revised from invoices to records of sold electricity as invoices does not mention electricity quantity.</td></tr> </tbody> </table> <p>Validation team has accepted all the proposed permanent changes to the monitoring plan in the revised PDD /01/ and confirms that these changes are an accurate reflection of actual project information and monitoring activity being undertaken at the project site by PP.</p> <p>In accordance with requirements of §297 of CDM VVS for PA (version 02.0) /B01-1/, the validation team confirms that these permanent changes are in compliance with the applied methodology, the applied standardized baseline, the applied methodological tools and is unlikely to lead to a reduction in the accuracy of the calculation of emission reductions.</p>	Sl. No.	Permanent changes to monitoring Plan of PDD	1.	Inclusion of Monitoring Parameter EGgross,y and EGaux,y in Section B.7.1 in accordance with the change in monitoring plan. EGfacility,y is difference of EGgross,y and EGaux,y .	2.	For Gross Electricity meter, which is self-calibrated and hence no calibration records required. Calibration frequency for Gross Electricity meter is mentioned as self-calibrated every 10 seconds.	3.	For Auxiliary electricity meter, calibration frequency is mentioned as 24 months as per Manufacturers recommendation.	4.	The cross checking source for gross energy is revised from invoices to records of sold electricity as invoices does not mention electricity quantity.
Sl. No.	Permanent changes to monitoring Plan of PDD										
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2.	For Gross Electricity meter, which is self-calibrated and hence no calibration records required. Calibration frequency for Gross Electricity meter is mentioned as self-calibrated every 10 seconds.										
3.	For Auxiliary electricity meter, calibration frequency is mentioned as 24 months as per Manufacturers recommendation.										
4.	The cross checking source for gross energy is revised from invoices to records of sold electricity as invoices does not mention electricity quantity.										



	Furthermore, in accordance with §298 of CDM VVS for PA (version 02.0) /B01-1/, the validation team concludes that the permanent changes comply with the relevant requirements related to the permanent changes from the registered monitoring plan, the applied methodology.
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## D.7. Changes to the project design

Means of validation	DR, I								
Findings	CAR 01 has been raised and successfully closed please refer to appendix 4 details.								
Conclusion	Following permanent changes have been made to the project design of the registered PoA-DD:  The current project design involves changes compared to the project design in the registered project activity /B04/. The project design changes to the project activity are:								
	<table><tr><th>Sl. No.</th><th>Changes to the project design</th></tr><tr><td>1.</td><td>Revised technical description in Section A.3. as per changes in project design. Change of each turbine nominal capacity from 9.95 MW to 10.228 MW. Addition of generator capacity as 11590 KVA and change of total installed capacity from 19.9 MW to 20.86 MW. Turbine speed corrected as 600 RPM. Changes in net electricity generation due to change in capacity and subsequently emission reductions are changed.</td></tr><tr><td>2.</td><td>Revised description of establishment of project additionality in Section B.5. in accordance with changes in financial indicators for the project.</td></tr><tr><td>3.</td><td>Revision in Section B.6.3 and B.6.4 due to change in EGPJ,y and BEy in accordance with the change in project design.</td></tr></table>	Sl. No.	Changes to the project design	1.	Revised technical description in Section A.3. as per changes in project design. Change of each turbine nominal capacity from 9.95 MW to 10.228 MW. Addition of generator capacity as 11590 KVA and change of total installed capacity from 19.9 MW to 20.86 MW. Turbine speed corrected as 600 RPM. Changes in net electricity generation due to change in capacity and subsequently emission reductions are changed.	2.	Revised description of establishment of project additionality in Section B.5. in accordance with changes in financial indicators for the project.	3.	Revision in Section B.6.3 and B.6.4 due to change in EGPJ,y and BEy in accordance with the change in project design.
	Sl. No.	Changes to the project design							
	1.	Revised technical description in Section A.3. as per changes in project design. Change of each turbine nominal capacity from 9.95 MW to 10.228 MW. Addition of generator capacity as 11590 KVA and change of total installed capacity from 19.9 MW to 20.86 MW. Turbine speed corrected as 600 RPM. Changes in net electricity generation due to change in capacity and subsequently emission reductions are changed.							
	2.	Revised description of establishment of project additionality in Section B.5. in accordance with changes in financial indicators for the project.							
3.	Revision in Section B.6.3 and B.6.4 due to change in EGPJ,y and BEy in accordance with the change in project design.								
The actual changes in the project design as compared to the description of project design as provided in the registered PDD /B04/ have been assessed in accordance with §309 (a) of VVS for project activities (version 02.0) /B01-1/ and the validation team confirms that this change is in accordance with the §241 (b), (c) and (h) of the CDM Project Standard for Project Activities (version 02.0) /B01-2/. The validation team further confirms that this project design change does not have any adverse impact on the compliance of the monitoring plan, the level of accuracy of the monitoring activity, the applied monitoring methodology including applicable tool(s) thereby complying with §302 of CDM VVS for project activities (version 02.0) /B01-1/.									
Further in line with §309 (c) of VVS for project activities (version 02.0) /B01-1/, the validation team has assessed the effect of the project design change as below:									
	<table><tr><th>Criteria</th><th>Impact of the change in CDM project activity</th><th>Assessment by DOE</th></tr><tr><td>The applicability and application of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents with which the project activity has been registered;</td><td>The change in the CDM project activity (change in installed capacity from 19.9 MW to 20.86 MW) does not impact the applicability of the methodology – the installed capacity of the project after post registration change is 20.86 MW that is still above 15MW (the threshold of small-scale project activity) and the project activity supplies electricity (generated from renewable source) to grid – hence the methodology along</td><td>As confirmed during the remote interviews and as per the review of revised PDD/01/ it is confirmed by VT that capacity of each turbine changed from 9.95 MW to 10.228 MW. Addition of generator capacity as 11590 KVA and change of total installed capacity from 19.9 MW to 20.86 MW. It was further assessed that this change does not impact the applicability of the methodology because it is</td></tr></table>	Criteria	Impact of the change in CDM project activity	Assessment by DOE	The applicability and application of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents with which the project activity has been registered;	The change in the CDM project activity (change in installed capacity from 19.9 MW to 20.86 MW) does not impact the applicability of the methodology – the installed capacity of the project after post registration change is 20.86 MW that is still above 15MW (the threshold of small-scale project activity) and the project activity supplies electricity (generated from renewable source) to grid – hence the methodology along	As confirmed during the remote interviews and as per the review of revised PDD/01/ it is confirmed by VT that capacity of each turbine changed from 9.95 MW to 10.228 MW. Addition of generator capacity as 11590 KVA and change of total installed capacity from 19.9 MW to 20.86 MW. It was further assessed that this change does not impact the applicability of the methodology because it is		
Criteria	Impact of the change in CDM project activity	Assessment by DOE							
The applicability and application of the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents with which the project activity has been registered;	The change in the CDM project activity (change in installed capacity from 19.9 MW to 20.86 MW) does not impact the applicability of the methodology – the installed capacity of the project after post registration change is 20.86 MW that is still above 15MW (the threshold of small-scale project activity) and the project activity supplies electricity (generated from renewable source) to grid – hence the methodology along	As confirmed during the remote interviews and as per the review of revised PDD/01/ it is confirmed by VT that capacity of each turbine changed from 9.95 MW to 10.228 MW. Addition of generator capacity as 11590 KVA and change of total installed capacity from 19.9 MW to 20.86 MW. It was further assessed that this change does not impact the applicability of the methodology because it is							

		with methodological regulatory documents is still applicable to this project.	still above the threshold of small-scale project activity i.e., 15 MW and it supplies electricity generated from renewable source to hence the methodology along with methodological regulatory documents is still applicable to this project.
	The compliance of the monitoring plan with the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents	The change in the CDM project activity (project monitoring plan) does not impact the compliance of the monitoring plan with the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents - the monitoring methodology follows the ACM0002 definition, which states that "the monitoring shall consist of metering the electricity generated by the renewable energy technology.", after change to the project activity, the monitoring still consist of metering the electricity generated by the renewable energy technology.	As per the review of revised PDD/01/ it is confirmed that proposed changes does not impact the compliance of the monitoring plan with the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents
	The level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan	The change in the CDM project activity does not impact the level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan – the change in the CDM project activity includes change in calibration frequency of monitoring equipment, but it is in accordance with the national regulation of host country and manufacturer's specification, so the level of accuracy and completeness in the monitoring of the project activity maintained in the monitoring plan after change in the CDM project activity	PP has changed the calibration frequency of monitoring equipment's for the parameters EG-Gross and EG <sub>aux,y</sub> : /07/, /08/ However as per the review of national regulation of host country /06/ and manufacturer's specification it is confirmed that the project activity does not impact the level of accuracy and completeness in the monitoring of the project activity compared with the requirements contained in the registered monitoring plan.

	The additionality of the project activity	<p>Project IRR (without CER) of the CDM project after the change in project capacity (10.82%) is still well below the benchmark IRR (12.0%); in sensitivity analysis also, with the variation of +/- 10% of the selected parameters, project IRR remains below the benchmark in all cases but one (in case of -10% of initial investment, project IRR exceeds benchmark to some extent but as the project has undergone change in installed capacity, the decrease of initial investment by 10% is very unlikely, hence sensitivity analysis after the change in project also show that project IRR does not exceed benchmark IRR even after variation in key parameters). Besides, common practice analysis considering the increase in installed capacity also shows that the project is not a common practice. Considering these two points, it can be concluded that the change in CDM project does not impact the additionality of the project activity</p>	<p>PP has provided a revised IRR calculation sheet /04/ based on the revised installed capacity and electricity generation (key parameters) and revised the additionality argument under section B.5 of PDD/01/. Based on the review of revised IRR calculation sheet /04/ and interviews with the PP, it is confirmed that the additionality of the project is not impacted i.e., the IRR changes, however the project remains additional as it doesn't cross the benchmark of 12% (as presented in registered PDD).</p> <p>In the revised additionality analysis, the project cost / initial investment (it includes costs for civil works, machinery and equipment, engineering and management and other construction costs) has not been revised and is kept as it was in the registered PDD /B03/ whereas in fact due to change in installed capacity the project cost has been increased as confirmed by the PP during interviews. The increase in project cost is deemed appropriate based on validation team's sectoral expertise due to increase of the installed capacity and due to the gestation period of hydro projects. The same is deemed appropriate and the most conservative approach of re-analysing the impact of the proposed changes on the additionality of the project as it involves a scenario where the cost remain unchanged, but the revenues have increased due to increased electricity generation. Thus, the approach adopted by PP is deemed acceptable by VT. Validation team based on</p>
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			review of the revised PDD also confirms that the common practice analysis considering the increase in installed capacity also shows that the project is not a common practice.
	The scale of the project activity	Project installed capacity after the change is 20.86 MW - hence the project falls in the category of large-scale project and it was a large scale before the change as well, so the change in project does not impact the scale of the project activity	As per the revised PDD/01/ total installed capacity is 20.86 MW Rated power output per generator: 11590 kVA , power factor : 0.90 that implies total real power $11590 \times 0.9 = 10431$ kW i.e. $10.431 \times 2 = 20.86$ MW  As evident the project is still the large-scale project hence, the change in project does not impact the scale of the project activity
	Thus, based on the above assessment, the proposed change is acceptable to the validation team. Validation team took cognizance of §242 of CDM PS for Project activity (version 02) /B01-2/ and § 309 of CDM VVS for Project activity (version 02.0) /B01-1/.		

#### D.8. Changes specific to afforestation and reforestation project activities

<b>Means of validation</b>	DR
<b>Findings</b>	Not Applicable
<b>Conclusion</b>	Not Applicable

#### SECTION E. Internal quality control

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The final validation report passed a technical review before being submitted to the UNFCCC Executive Board. A technical reviewer qualified in accordance with the CC IPL's qualification scheme for CDM validation and verification performed the technical review.

#### SECTION F. Validation opinion

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Post-registration changes for the registered CDM Project Activity "Potrero Hydropower Plant, Peru" having UNFCCC reference number 8414. During the verification of the project activity, following Post Registration Changes to the registered project activity has been identified.

- Correction
- Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents
- Change in the project design

The post registration changes (PRC) to registered project activity has been validated in line with the requirements of PCP for project activities (version 02.0) /B01/, PS for project activities (version 02.0) /B01/ and VVS for project activities (version 02.0) /B01/.

CCIPL based on review of the revised PDD /01/ and interview with the PP confirms that the proposed changes:

- Correction
- Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents
- Change in the project design

The version of the templates for PDD was updated to the latest version of template. This change was assessed to confirm that the revised PDD complies with the completing instructions of the CDM-PDD-FORM.

The validation team can confirm that the post registration changes carried out to PDD is in accordance with the requirements of UNFCCC. The DOE therefore accepts the changes and request for the approval of “correction” “Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents” and “Change in the project design”

The validation was performed on the basis of rules and requirements defined by UNFCCC for the CDM project activities. The review of the revised PDD /01/, supporting documentation and subsequent follow-up actions (including interviews), have provided CCIPL with sufficient evidence to determine the fulfilment of stated criteria.

During the course of verification findings were raised, out of these findings four (04) CARs were relevant to this PRC and has been satisfactorily closed during the course of validation of PRC.

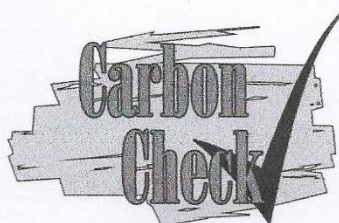
Carbon Check India Private Ltd. concludes the validation with a positive opinion that the Project Activity “Potrero Hydropower Plant, Peru”, meets all applicable requirements of UNFCCC for post-registration changes and therefore recommends for the approval of “correction” “Change in the project design” and “Change in Monitoring Plan” made to the PDD.

## Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CA	Corrective Action/ Clarification Action
CER	Certified Emission Reduction
CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2e</sub>	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DVR	Draft Validation Report
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
FVR	Final Validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour

GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval(s)
LE	Leakage Emissions
MoC	Modalities of Communication
MP	Monitoring Period
MR	Monitoring Report
MWh	Mega Watt Hour
OSV	On Site Visit
PE	Project Emissions
PP(s)	Project Participant(s)
PRC	Post registration change
QC/QA	Quality Control/ Quality Assurance
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VT	Validation / Verification team

## Appendix 2. Competence of team members and technical reviewers



**Carbon Check (India) Private Ltd.**

**Vikash Kumar Singh**

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

*For following functions:*

Validator	<input checked="" type="checkbox"/>	Team Leader	<input checked="" type="checkbox"/>	Technical reviewer	<input checked="" type="checkbox"/>
Verifier	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>	Local Expert <sup>1</sup>	<input checked="" type="checkbox"/>

*In the following Technical Areas:*

TA 1.1	<input checked="" type="checkbox"/>	TA 3.1	<input checked="" type="checkbox"/>	TA 5.2	<input type="checkbox"/>	TA 9.2	<input type="checkbox"/>	TA 13.2	<input checked="" type="checkbox"/>
TA 1.2	<input checked="" type="checkbox"/>	TA 4.1	<input checked="" type="checkbox"/>	TA 8.1	<input type="checkbox"/>	TA 10.1	<input type="checkbox"/>	TA 14.1	<input type="checkbox"/>
TA 2.1	<input type="checkbox"/>	TA 5.1	<input type="checkbox"/>	TA 9.1	<input type="checkbox"/>	TA 13.1	<input checked="" type="checkbox"/>		

**Mr. Amit Anand**  
CEO

**Date of Approval**  
24/12/2019

**Valid Till**  
23/12/2020

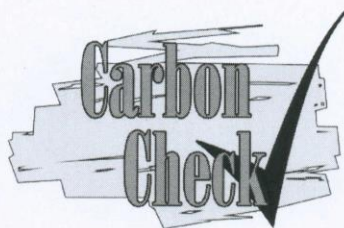
### Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2016	Annual Revision
24/12/2017	Annual Revision
24/12/2018	Annual Revision
24/12/2019	Annual Revision

<sup>1</sup> India, South Africa

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Registered in India: U74930DL2012PTC232495  
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e-mail: [info@carboncheck.co.in](mailto:info@carboncheck.co.in)





## Carbon Check (India) Private Ltd.

### Amit Anand

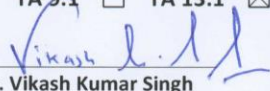
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator	<input checked="" type="checkbox"/>	Team Leader	<input checked="" type="checkbox"/>	Technical reviewer	<input checked="" type="checkbox"/>
Verifier	<input checked="" type="checkbox"/>	Technical Expert	<input checked="" type="checkbox"/>	Local Expert <sup>1</sup>	<input checked="" type="checkbox"/>

In the following Technical Areas:

TA 1.1	<input checked="" type="checkbox"/>	TA 3.1	<input checked="" type="checkbox"/>	TA 5.2	<input type="checkbox"/>	TA 9.2	<input type="checkbox"/>	TA 13.2	<input type="checkbox"/>
TA 1.2	<input checked="" type="checkbox"/>	TA 4.1	<input type="checkbox"/>	TA 8.1	<input checked="" type="checkbox"/>	TA 10.1	<input type="checkbox"/>	TA 14.1	<input checked="" type="checkbox"/>
TA 2.1	<input type="checkbox"/>	TA 5.1	<input type="checkbox"/>	TA 9.1	<input type="checkbox"/>	TA 13.1	<input checked="" type="checkbox"/>		

  
Mr. Vikash Kumar Singh  
Compliance Officer

Date of Approval  
24/12/2019

Valid Till  
23/12/2020

#### Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
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24/12/2019	Annual Revision

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## Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/01/	PP	Revised Final PDD	Version: 11; Dated: 01/11/2020	Project Participant
/02/	PP	Initial and interim Revised PDD and corresponding ER sheet and IRR sheet	Version: 10; Dated: 29/08/2020 Version: 09; Dated: 11/07/2020	Project Participant
/03/	PP	ER Sheet corresponding to /01/	Potrero PRC Estimated ER sheet 10.09.2020	Project Participant
/04/	PP	IRR Sheet corresponding to /01/	IRR calculation spreadsheet PRC - 10.09.2020	Project Participant
/05/	PP	COES requirement for PERU	PROCEDIMIENTO TECNICO COES - PR-20	Project Participant
/06/	PP	Evidence for the technical specifications of the electricity meter (with a precision class of 0.2 (as required by COES)).	<ul style="list-style-type: none"> <li>WEG-manual-MMW02-es_Manual MEDIDOR SSAA</li> <li>Nexus-1500+-Meter-Brochure_E154718</li> </ul>	Project Participant
/B01/	UNFCCC	1. CDM Validation and Verification Standard for Project Activities 2. CDM Project Standard for Project Activities 3. CDM Project Cycle Procedure for Project Activities	Version: 02.0	UNCCC
/B02/	UNFCCC	ACM0002: Grid-connected electricity generation from renewable sources (Version 12.0)	<a href="http://cdm.unfccc.int">http://cdm.unfccc.int</a>	UNCCC
/B03/	UNFCCC	Registered PDD (version 8; Dated: 23/10/2012) and the corresponding validation report	<a href="http://cdm.unfccc.int">http://cdm.unfccc.int</a>	UNCCC
/B04/	UNFCCC	Project Design Document form (CDM-PDD-FORM) and filling instructions	Version: 11	UNCCC

## Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. Remaining FAR from validation and/or previous verifications

<b>FAR ID</b>	xx	<b>Section no.</b>	--	<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY

Table 2. CLs from this validation

<b>CL ID</b>		<b>Section no.</b>		<b>Date:</b> DD/MM/YYYY
<b>Description of CL</b>				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY

Table 3. CARs from this validation

Findings raised during the verification (applicable to this PRC)

<b>CAR ID</b>	01	<b>Section no.</b>	E.3	<b>Date:</b> 03/06/2020
<b>Description of CAR</b>				
As per paragraph 317 of VVS for project activities, version 02.0, <i>"The DOE shall assess and determine whether the implementation and operation of the registered CDM project activity, and the steps taken to report GHG emission reductions or net anthropogenic GHG removals comply with the relevant modalities and procedure for the CDM and the relevant guidance provided by the Board."</i>				
As per the registered PDD "There will be 2 turbines with a nominal capacity of 9.95 MW each, which totalizes a 19.9 MW capacity of Potrero Hydropower plant".				
Verification team during the remote interviews and inspection (through video call) and review of name plate data of the project confirms that the project involves two Francis turbine of individual capacity 10.228 MW each and thus totaling to 20.456 MW. Also, the capacity of the generator has not been provided in the PDD.				
<b>Project participant response</b>				<b>Date:</b> 15/07/2020
1. A revised PDD for Post Registration Changes and supportive documents have been provided mentioning the changes				
2. The capacity of the generator has not been provided in the PDD.				
<b>Documentation provided by project participant</b>				
Revised PDD specifying the Post Registration Changes				
<b>DOE assessment</b>				<b>Date:</b> 27/07/2020

PP has provided the revised clean and track changed PDD and capacity of each turbine has been revised from 9.95 MW each to 10.228 MW along with two generator each with rated power : 11590 kVA , and power factor : 0.90 that implies total real power  $11590 \times 0.9 = 10431$  kW i.e. 10.431 MW and for two generators and total installed capacity is  $10.431 \times 2 = 20.86$  MW.

The changes in the PDD is acceptable, except the summary of change in appendix 7, which should categorically mention the type of changes under the proposed PRC. Furthermore, the changes are not appropriately referenced in relevant sections in B.2 of the MR. Hence, CAR is open.

**Project participant response****Date:** 29/08/2020

The summary of the changes in PDD have been mentioned categorically (i.e. with the type of changes and description of the particular change) in APPENDIX 7 of the document.

The changes have been referenced in Section B.2. of the MR.

**Documentation provided by project participant**

Revised PDD Version 10

**DOE assessment****Date:**

As per the review of revised PDD it is confirmed that the PP has categorically mentioned the type of changes under the proposed PRC.

Hence CAR is closed

<b>CAR ID</b>	02	<b>Section no.</b>	E.7	<b>Date:</b> 03/06/2020
<b>Description of CAR</b>				
As per paragraph 365 of VVS for project activities, version 02.0, " <i>The DOE shall determine whether the calibration of the measuring equipment that has an impact on the claimed GHG emission reductions or net anthropogenic GHG removals is conducted by the project participants at the frequency specified in the applied methodologies, the applied standardized baselines, the other applied methodological regulatory documents or the registered monitoring plan.</i> "				
As per the PDD for the parameter "EGfacility,y ", it is required that " <i>Measuring equipment will be verified with calibrated pattern or calibrated according to relevant industry standards or national regulation <u>but at least every two years.</u></i> "				
The meters at the project site are operational since 03/06/2017 after their replacement. These meters were factory calibrated on 07/05/2017. The latest calibration records of the meter as per the requirement above has not been provided to the verification team.				
<b>Project participant response</b>				<b>Date:</b> 15/07/2020
The meters are operational since 03/06/2017 after their installation; the documents regarding factory calibration of the meters on 07/05/2017 are available; the meters installed are auto-calibrating and the same has been confirmed from technical brochure of the meters. The weblink for the technical brochure has been given below: <a href="https://electroind.com/products/Nexus_1500+/pdf/brochures/Nexus-1500+-Meter-Brochure_E154718.pdf">https://electroind.com/products/Nexus_1500+/pdf/brochures/Nexus-1500+-Meter-Brochure_E154718.pdf</a>				
The meters being auto-calibrating, they do not need calibration by any external agency. The same has also been provided in MR V02				
<b>Documentation provided by project participant</b>				
1. Monitoring Report Version 02				
2. Technical product brochure of meters Nexus 1500+-D2-60hz-2-VI-X-X-X-X				
<b>DOE assessment</b>				<b>Date:</b> 27/07/2020

PP has provided the brochure of the installed meter, and it confirmed through the review of the document that the meter for the parameter "EG Gross" is auto calibrating and also there is no such requirement from the COES to regarding the calibration frequency of the meters. Hence changes in the PDD, with reference to meter calibration of gross generation is deemed to be appropriate.

However, validation team has noted that for the newly added parameter "EGaux,y", PP has mentioned the below description for the QA/QC of the meters:

"the technical specification of energy meter by manufacturer says that the meter is factory calibrated. The next calibration's date is automatically filled based on the last calibration and periodicity".

Review of the meter manual "WEG-manual-MMW02-es\_Manual MEDIDOR SSAA.pdf" reveals that for the auxiliary meter, the interval between two calibrations is suggested by the manufacturer as 24 months. The calibration frequency of the meter is unclear from the above statement.

CAR is still open.

<b>Project participant response</b>	<b>Date:</b> 29/08/2020
The Calibration frequency for Auxiliary meter is revised as 24 months (2 Years). The Section B.7.1 PDD is revised accordingly. The delay in calibration guidance is followed as a conservative approach.	
<b>Documentation provided by project participant</b>	
Revised PDD Version 10	
<b>DOE assessment</b>	<b>Date:</b>
Based on the review of B.7.1 of the PDD it is confirmed that the PP has revised calibration frequency of the meter for parameter EGaux,y and is revised to 24 months as per the meter manual.	
Please also refer to the closure of CAR 04	
CAR is closed	

<b>CAR ID</b>	03	<b>Section no.</b>	E.6.2	<b>Date:</b> 03/06/2020
<b>Description of CAR</b>				
As per paragraph 360 of VVS for project activities, version 02.0 <i>"The DOE shall determine whether the monitoring of parameters related to GHG emission reductions or net anthropogenic GHG removals in the registered PDD has been implemented in accordance with the registered monitoring plan"</i>				
As per paragraph 357 of VVS for project activities, version 02.0 <i>"The DOE shall determine whether the registered monitoring plan is in accordance with the applied methodologies, the applied standardized baselines and the other applied methodological regulatory documents."</i>				
As per the registered PDD for the parameter "EGfacility,y", it is required that "The meter readings may be cross-checked with available internal and/or external information, such as electricity invoices or official reports.". Furthermore, the applied methodology requires "Cross check measurement results with records for sold electricity"				
In above background PP is requested to substantiate as how the measured electricity from the project can be cross checked, while doing so, evidence for such cross check is required to be provided.				
<b>Project participant response</b>				<b>Date:</b> 07/07/2020
Electricity sales invoices have been provided for cross checking				
<b>Documentation provided by project participant</b>				
Electricity sales invoices				
<b>DOE assessment</b>				<b>Date:</b> 27/07/2020
The monitoring plan and the methodology requires, PP to cross check net electricity supplied by using sales records such as invoices. From the provided sales invoice, verification team was unable to cross verify the generation. It is also unclear how the electricity generation figure or the amount in Soles can be cross checked from the provided COES reports.				
CAR is still open.				
<b>Project participant response</b>				<b>Date:</b> 29/08/2020

Currently Electricity invoices mention only amount and not quantity of Gross Electricity and Auxiliary Electricity, hence Invoices may not be used for cross check purpose. For Gross Electricity, COES 15 minutes cumulative data can be cross checked from COES monthly statistical data and for Auxiliary electricity COES 15 minutes cumulative data can be cross checked with plant records. PDD is updated to reflect this changes.
<b>Documentation provided by project participant</b>
Revised PDD Version 10
<b>DOE assessment</b>
As per the review of revised PDD it is confirmed that the PP has revised the cross checking source for gross energy from invoices to plant records of sold electricity as invoices does not mention electricity quantity.
CAR is closed

<b>CAR ID</b>	04	<b>Section no.</b>	D.6, Clarification raised during summary note preparation	<b>Date: 31/10/2020</b>
<b>Description of CAR</b>				
<p>The revised PDD (p43) states that: "Measuring equipment will be verified with calibrated pattern or calibrated according to relevant industry standards or national regulation(65). COES requirements in Peru on energy meter (66) specifies meter requirements like Precision class: 0.2 and ability to measure (amongst other data) active and reactive energy, though it does not specify anything on meter calibration frequency. However, the technical specification (67) of energy meter by manufacturer says that the meter is self-calibrating and hence the meter does not to be calibrated by any external agency and there is no fixed frequency of calibration." The brochure for Nexus 1500 meter says that there is constant calibration; every 10 seconds. However the PP failed to establish a calibration frequency while the DOE has not elaborated its opinion on such frequency. CAR 2 (VR, page 20) says: 'PP has provided the brochure of the installed meter, and it confirmed through the review of the document that the meter for the parameter "EG Gross" is auto calibrating and also there is no such requirement from the COES to regarding the calibration frequency of the meters. Hence changes in the PDD, with reference to meter calibration of gross generation is deemed to be appropriate.'</p> <p>Based on the above, the PP/DOE are requested to explain the lack of frequency of calibration for the self-calibrated meter (Nexus 1500) used to measure EGgross, whereby it is observed that brochure for Nexus 1500 meter specifies that there is constant calibration; every 10 seconds.</p>				
<b>Project participant response</b>				<b>Date: 02/11/2020</b>
<p>As per the trailing mail regarding the lack of calibration frequency of auto calibrating meter in PDD, the PDD has been revised in section B.7.1 and it has been mentioned that meter self-calibrates in every 10 seconds; hence no meter calibration records are required or the meter does not to be calibrated by any external agency. The calibration frequency of the self-calibrating meter (every 10 seconds) has also been mentioned in Appendix 7 of the PDD.</p> <p>The revised PDD (p43) states that: "Measuring equipment will be verified with calibrated pattern or calibrated according to relevant industry standards or national regulation(65). COES requirements in Peru on energy meter (66) specifies meter requirements like Precision class: 0.2 and ability to measure (amongst other data) active and reactive energy, though it does not specify anything on meter calibration frequency. However, the technical specification (67) of energy meter by manufacturer says that the meter is self-calibrating and hence the meter does not to be calibrated by any external agency and there is no fixed frequency of calibration." The brochure for Nexus 1500 meter says that there is constant calibration; every 10 seconds.</p> <p>The PDD has been further revised - in section B.7.1 in QA/QC procedure of parameter EG Gross,y it has been mentioned that meter self-calibrates in every 10 seconds; hence no meter calibration records are required or the meter does not to be calibrated by any external agency. The calibration frequency of the self-calibrating meter (every 10 seconds) has also been mentioned in Appendix 7 of the PDD.</p>				
<b>Documentation provided by project participant</b>				
Revised PDD - both clean and track change mode				
<b>DOE assessment</b>				<b>Date: 02/11/2020</b>

Based on the review of revised PDD, validation team confirms that section B.7.1 of the PDD has been revised for the parameter EG Gross,y, which confirms that meter self-calibrates in every 10 seconds. The calibration frequency of the self-calibrating meter (every 10 seconds) has also been mentioned in Appendix 7 of the PDD; checked and confirmed by the validation team.

CAR is closed.

**Table 2. FARs from this validation**

<b>FAR ID</b>	<b>Xx</b>	<b>Section no.</b>	<b>Date: DD/MM/YYYY</b>
<b>Description of FAR</b>			
-			
<b>Project participant response</b>			<b>Date: DD/MM/YYYY</b>
-			
<b>Documentation provided by project participant</b>			
-			
<b>DOE assessment</b>			<b>Date: DD/MM/YYYY</b>
-			

- - - - -

**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"><li>• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);</li><li>• Make editorial improvements.</li></ul>
02.0	31 October 2017	Revision to align with the requirements in the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Registration Keywords: post-registration change, project activities, validation report		