



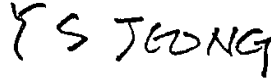
**Validation report form for post-registration changes for
CDM project activities
(Version 03.0)**

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

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	<ul style="list-style-type: none"> • Title: Patrind Hydropower Project • Reference number: 6560
Process track	<input type="checkbox"/> Prior approval <input checked="" type="checkbox"/> Issuance <input type="checkbox"/> Renewal of crediting period
Version number of the validation report	Version 1.1
Completion date of the validation report	15/06/2019
Type(s) of PRCs	<input type="checkbox"/> Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents ¹ <input type="checkbox"/> Corrections <input type="checkbox"/> Changes to the start date of the crediting period <input checked="" 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
Version number of PDD to which this report applies	Version 07.0
Project participants	Star Hydro Power Limited
Host Party	Islamic Republic of Pakistan
Applied methodologies and standardized baselines	ACM0002 (Version 12.3) Consolidated baseline methodology for grid-connected electricity generation from renewable sources
Mandatory sectoral scopes	1- Energy industries (renewable/non-renewable sources)
Conditional sectoral scopes, if applicable	N/A
Name and UNFCCC reference number of	• Name : Korean Foundation for Quality (KFQ)

¹ 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).

the DOE	• Reference number : E-0025
Name, position and signature of the approver of the validation report	Yu Shim JEONG  Managing Director of Sustainability management institute

SECTION A. Executive summary

Korean Foundation for Quality (hereinafter KFQ) has performed first verification of the CDM project "Patrind Hydropower Project" in Khyber-Pakhtunkhwa(KP) and Azad Jammu & Kashmir (AJ & K), Islamic Republic of Pakistan", UNFCCC Registration Ref. No.6560 for the period from 08/11/2017 to 31/10/2018.

The project activity is to generate electricity and supply it to the national grid by using hydro power of river Kunhar that rises in KP and flows into the river Jhelum in Pakistan instead of the fossil fuel and contribute to mitigation of climate change & sustainable development. Star Hydro Power Limited generates electricity utilizing water resource which emits zero greenhouse gas (hereinafter GHG) into the air.

There was a post-registration change(hereinafter 'PRC') such as inclusion of a monitoring plan, permanent changes to the registered monitoring plan and changes to the project design identified in the course of verification for this monitoring period of 08/11/2017 ~ 31/10/2018. The request for approval of PRC is submitted via the issuance track with the discretion of the project participant (hereinafter PP) as per the CDM Project Standard for project activities.

Validation process

The validation process includes desk review of PRC and other supporting documents. Further, on-site assessments and interviews with those involved in project management and operations are conducted. Draft validation report is prepared by summarizing desk review and on-site inspection findings (i.e. Raising CARs, CLs, and FARs). Upon successful closing of the CARs and CLs raised (if any), the final PRC validation report for the PRC is prepared. The final report then undergoes a technical review and final approval according to KFQ's internal quality assurance procedures.

The information provided by the PP was assessed by review of the detailed project documentation as well as interviews with personnel at Star Hydro Power Limited. This has enabled the validation team to assess and determine that the temporary deviation from the registered monitoring plan and applied methodology is in compliance with CDM Project standard and relevant guidance provided by the Board.

General description of the project activity and summary of PRC

Project Title	Patrind Hydropower Project	
UNFCCC Registration Number	6560	
Project Participant	Star Hydro Power Limited	
Location of the project	Address	Khyber-Pakhtunkhwa(KP) and Azad Jammu & Kashmir(AJ&K)
	GPS Coordinates	[Weir site] Longitude: 73° 25'42.9"E Latitude: 34° 20'31.9"N [Power House site] Longitude: 73° 27'08.03"E Latitude: 34° 20'06.67"N
Date of registration	24 December 2012	

Registered PDD	Version 06.0 dated 17/12/2012
Revised PDD	Version 07.0 dated 14/06/2019
Crediting period	08/11/2017 ~ 07/11/2024 (Renewable, 7 years)
Monitoring period of this verification	08/11/2017 ~ 31/10/2018

During this first monitoring period (08/11/2017 ~ 31/10/2018), there was a post-registration change identified and details of it are as below:

- 1) Inclusion of monitoring plan
 - : Include $EF_{grid\ CM,y}$ as a fixed ex-ante for the first crediting period
 - : Include flow diagram of power system of this project activity
- 2) Permanent changes to the registered monitoring plan
 - : Monitoring plan for measuring reservoir area (A_{PJ})
 - : Calibration frequency of electricity meters to measure export & import electricity
- 3) Change to project design
 - : Capacity of the emergency of generator from 640 kW(480 kW, 160 kW) to 660 kW (500 kW, 160 kW)
 - : Location of weir from Longitude: 73°25'46"E, Latitude: 34°20'38"N to Longitude: 73°25'42.9"E, Latitude: 34°20'31.9"N
 - : Changes in project elements like power intake, optional hybrid desander system, headrace tunnels, surge shaft

Conclusion

As a result of our assessment, the changes described in the revised PDD (version 07.0 dated 14/06/2019) ensure that PRC are in accordance with the applied methodology and the changes to the project activity comply with the requirements established in the CDM Project Standard (Version 02.0). As per para. 246~248 of CDM PS for PA (version 02.0), PP decided to submit request for approval of PRC with the request for issuance of CERs for this monitoring period.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader	IR	JANG	Pyung Hee	KFQ	V	V	V	V
2.	Validator	IR	CHO	Jin Seok	KFQ	V	V	V	V

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	LEE	Mi Jung	KFQ
2.	Approver	IR	JEONG	Yu Shim	KFQ

Please refer to Appendix 2 below for demonstration of how the team meets the competence required for the validation.

SECTION C. Means of validation**C.1. Desk/document review**

The PDD version 07.0 (hereinafter referred to as 'revised PDD') was submitted by the PP and it was reviewed as initial step of the validation process as for the post registration changes. Also, over the whole validation period, validation team reviewed the applied baseline and monitoring methodology and any other information and references relevant to the changes to the project design. A complete list of all documents reviewed is shown in Appendix 3 of this validation report. KFQ's validation process takes into consideration all the CDM Rules and Guidance applicable to the project activity, e.g. Clean Development Mechanism Validation and Verification Standard, Clean Development Mechanism Project Standard, Clean Development Mechanism Project Cycle Procedure, Post Registration Changes and Request for Issuance: Completeness checklist, Post Registration Changes and Request for Issuance: Information and reporting checklist and relevant decisions, clarifications and guidance from the CMP and the CDM EB.

C.2. On-site inspection

On-site inspection related to this validation of the PRC from the registered PDD and applied methodology was performed during the site visit on 20/03/2019 ~ 21/03/2019. During the on-site assessment, the personnel were interviewed or assisted the validation team.

The main activity performed on-site are summarized in the table below:

Duration of on-site inspection: 20/03/2019 to 21/03/2019				
No.	Activity performed on-site	Site location	Date	Team member
1.	Review of the complete data flow from data generation, aggregation, recording, calculation to reporting of the monitoring parameters	Khyber Pakhtunkhwa, Islamic Republic of Pakistan	20/03/2019 ~ 21/03/2019	Pyung Hee JANG Jin Seok CHO
2.	Confirmation of the complete & correct implementation of procedures for data collection.	Khyber Pakhtunkhwa, Islamic Republic of Pakistan	20/03/2019 ~ 21/03/2019	Pyung Hee JANG Jin Seok CHO
3.	Review of the information provided in the MR and documentation with other sources.	Khyber Pakhtunkhwa, Islamic Republic of Pakistan	20/03/2019 ~ 21/03/2019	Pyung Hee JANG Jin Seok CHO
4.	Identification whether suitable QA/QC procedures are in place in order to prevent errors or to enable the corrections of errors and omissions in the reported parameters.	Khyber Pakhtunkhwa, Islamic Republic of Pakistan	20/03/2019 ~ 21/03/2019	Pyung Hee JANG Jin Seok CHO

C.3. Interviews

A list of the persons interviewed during this validation activity is included in table below.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	SONG	Chi Ho	Star Hydro Power Limited	20/03/2019 ~ 21/03/2019	General support, project implementation, operation	Pyung Hee JANG Jin Seok CHO
2	KHAN	Junaaid	Star Hydro Power Limited	20/03/2019 ~ 21/03/2019		Pyung Hee JANG Jin Seok CHO
3.	JEONG	Dong Woo	K-water	20/03/2019 ~ 21/03/2019	CDM Coordination	Pyung Hee JANG Jin Seok CHO
4	HA	Sung Jong	K-Water O&M	20/03/2019 ~ 21/03/2019	Project implementation and operation. Technical equipment, Monitoring data	Pyung Hee JANG Jin Seok CHO
5.	KIM	Bong Hyun	K-Water O&M	20/03/2019 ~ 21/03/2019		Pyung Hee JANG Jin Seok CHO

C.4. Sampling approach

As per the requirements set out in CDM Validation and Verification Standard for Project Activity (Version 02.0), random sampling has been applied, as relevant for the present case in the Project Activity, where no sampling approach was applied by the PP.

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	0	0	0
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents	0	0	0
Corrections	0	0	0
Changes to the start date of the crediting period	0	0	0
Inclusion of a monitoring plan	0	0	0
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents	0	0	0
Changes to the project design	0	0	0
Changes specific to afforestation and reforestation project activities	0	0	0
Others (please specify)	0	0	0
Total	0	0	0

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

Means of validation	Comparing the PDD with the latest PDD template form (CDM-PDD-FORM) as well as 'Instructions for filling out the project design document form for CDM project activities' provided by CDM EB listed in UNFCCC website.
Findings	Regarding to this PRC, PP submitted revised PDD which is update version of registered PDD reflecting inclusion of monitoring plan, permanent changes to the registered monitoring plan and changes to project design in a registered PDD (Version 06.0 dated 17/12/2012). All PRC has been included in the revised PDD (Version 07.0 dated 14/06/2019) and the PP has provided the PDD in both clean and track version. Both registered

	<p>and revised PDD were reviewed for the consistency of the information the validation team can confirm that the information transferred to the later version of the PDD form is materially the same as that in the registered PDD besides those changes are assessed under this report.</p> <p>Thus, the validation team confirms that the revised PDD completed by the PP is compliance with the latest PDD form, version 11.0 and instruction therein available at UNFCCC website and conforms to the requirement of paragraph 292 to 310 of VVS version 02.0.</p>
Conclusion	The validation team confirm that revised PDD is compliance with relevant form and instruction therein. Furthermore, it is confirm that information transferred to the later version of the PDD form is materially the same as that in the registered PDD.

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

Means of validation	N/A
Findings	N/A
Conclusion	N/A

D.3. Corrections

Means of validation	N/A
Findings	N/A
Conclusion	N/A

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

Means of validation	N/A
Findings	N/A
Conclusion	N/A

D.5. Inclusion of a monitoring plan

Means of validation	<p>The proposed change to the inclusion of a monitoring plan is verified by the validation team as per para. 292 ~295 of VVS version 02.0.</p> <p>The KFQ validation team checked the reason of inclusion of a monitoring plan from the registered monitoring plan and proposed updated monitoring plan to confirm its reliability and conservativeness through review of relevant documents and interviews with project participant.</p>
Findings	<p>According to methodology ACM0002 and TOOL 07 applied in the registered PDD, CO₂ emission factor for the displacement of electricity generated by power plant in an electricity system is determining by calculating the 'Combined margin' emission factor (CM) of the electricity system. And monitoring of it either need to be monitored continuously during the the crediting period or need to be calculated only once for the each crediting period.</p> <p>The EF_{grid CM,y} was calculated as 0.42565 t CO₂/MWh and applied in estimation of annual emission reduction in the registered PDD. EF_{grid CM,y} as 0.42565 t CO₂/MWh was fixed ex-ante for the first crediting period and it was used for estimation of annual emission reduction for first crediting period. Validation team checked validation report (Report No. GHGCC(A) 11-002, revision No.4.0) and found that it was fixed as ex-ante parameter for the first crediting period. However, it was just omitted as fixed ex-ante parameter in the registered PDD (Version 06, 17/12/2012) thus PP decided to revise PDD to include EF_{grid CM,y} as 0.42565 t CO₂/MWh for crediting period for 08/11/2017 ~ 07/11/2024. The verification team could confirm that it was already assessed as fixed ex-ante for the first crediting period in the course of validation of this project activity thus it is valid value to use in ER calculation during first crediting.</p> <p>In case of this project activity, electricity supplied to the grid and electricity imported from the grid have to be monitored to get net electricity generation supplied by the project activity (EGy). To monitor it, 6 watt-hour meters (3 main meters and 3 back-up meters) have been installed but flow diagram all the facilities, systems and</p>

	equipment was not included in the registered PDD. Thus, to provide clear and details of it, PP decided to revise registered PDD to include flow diagram of power system. Through facilities and equipment layout and on-site assessment, provided flow diagram in the revised PDD are correct and valid to understand this project activity.
Conclusion	The validation team could confirm that inclusion of $EF_{grid\ CDM,y}$ as fixed ex-ante parameter for the crediting period and flow diagram of power system are valid and reasonable based on review of relevant documents and interview with project participant. Also the validation team has assessed this inclusion against the requirement of the applied methodology and confirm that it is in compliance with the provisions of the applied methodology (ACM0002, version 12.3) and CDM PS for PA, version 2.0.

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

Means of validation	The proposed permanent change to the registered monitoring plan is assessed by the validation team as per para. 296 ~299 of VVS version 02.0. KFQ reviewed the revised PDD, registered PDD, applied methodology, and the supporting documents referenced in the findings row below.										
Findings	<p>Firstly, as per registered PDD (version 06, 17/12/2012), PP planned to measure reservoir area (A_{PJ}) by third qualified entity. However, due to geographical accessibility of the project site and lack of third qualified entity in Pakistan, PP changes its plan to measure it by themselves with topographical surveys or maps or satellite pictures or contour line of the reservoir at full water on the surveying map and planimeter, etc.</p> <p>To confirm its validity of it, validation team checked monitoring requirement of parameter (A_{PJ}) in applied methodology, ACM 0002 (version 12.3) and compared it with the monitoring plan in the registered and revised PDD.</p> <table border="1"> <thead> <tr> <th></th><th>ACM0002 (Version 12.3)</th><th>Registered PDD</th><th>Revised PDD</th></tr> </thead> <tbody> <tr> <td>Measurement procedures</td><td>Measured from topographical surveys, maps, satellite pictures, etc.</td><td>Measures from the surveying map, the contour line of the reservoir at full water on the surveying map and the planimeter by a qualified entity annually</td><td>Measures from topographical surveys, maps, satellite pictures, contour line of the reservoir at full water on the surveying map and planimeter, etc.</td></tr> </tbody> </table> <p>As shown in above table, measurement procedures in the revised PDD is not differ from applied methodology and registered PDD but measurer of it is changed from qualified entity.</p> <p>As for the measurer, the validation team checked the impact on project emission (hereinafter PE) due to the possibility of measurer change from 3rd qualified entity to PP. Also internal procedure of 'QA/QC procedures for CDM Monitoring of Patind HPP (including monitoring of reservoir area, Version 002 dated 25/05/2019), annual survey report of reservoir for 2017, 2018 were reviewed and interview with internal person of PP in charge of measuring reservoir area was conducted. Through this, validation team could confirm that PE is highly unlikely affected by level of competency of measurer. Further to this, validation team checked possibility of PE is larger than '0' due to power density of the project activity is lower than $10W/m^2$. As installed capacity of the hydro power plant is fixed as 150MW, if area of reservoir is 27 times bigger than designed reservoir area ($572,000m^2$), power density will lower than $10W/m^2$. Thus, validation team could confirm that it is unlikely to occur and it will not affect GHG emission reductions to be over-estimated as a result of this permanent change.</p>				ACM0002 (Version 12.3)	Registered PDD	Revised PDD	Measurement procedures	Measured from topographical surveys, maps, satellite pictures, etc.	Measures from the surveying map, the contour line of the reservoir at full water on the surveying map and the planimeter by a qualified entity annually	Measures from topographical surveys, maps, satellite pictures, contour line of the reservoir at full water on the surveying map and planimeter, etc.
	ACM0002 (Version 12.3)	Registered PDD	Revised PDD								
Measurement procedures	Measured from topographical surveys, maps, satellite pictures, etc.	Measures from the surveying map, the contour line of the reservoir at full water on the surveying map and the planimeter by a qualified entity annually	Measures from topographical surveys, maps, satellite pictures, contour line of the reservoir at full water on the surveying map and planimeter, etc.								

	<p>Also during on-site assessment, it was identified that calibration frequency of watt-hour meters (both main meters and back-up meters) in MR is 2 years whereas calibration frequency in the registered PDD was not determined and it was only referred to PPA agreement. Thus, verification team firstly checked PPA agreement and identified that 'Central Power Purchasing Agency Guarantee Limited' (hereinafter CPPA) is assigned as a supervisory institution and they conduct annual capacity test. In this annual capacity test, they check capacity of the project activity and also decide whether watt-hour meters need calibration or not. Thus there is no determined calibration frequency in PPA and there is no national law/regulation of meter calibration too. Thus PP decided to fix calibration frequency and it was determined as 1 year. Even there is no national regulation of meter calibration, validation team could see PP's effort to manage this project activity especially for the monitoring of net electricity generated by this project. Thus validation team confirm that 1 year of calibration frequency for watt-hour meters is appropriate based on our technical expertise on the hydropower plant.</p>
Conclusion	<p>Based on the above mentioned findings, the validation team confirmed that the proposed permanent changes do not reduce the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan. Also this permanent change are not likely to lead to a reduction in the accuracy of the calculation of emission reductions</p> <p>The permanent changes complied with the relevant requirements related to the permanent changes from the registered monitoring plan and the applied methodology in the PS.</p> <p>As per para.246~248 of CDM PS for PA (version 02.0), PP decided to submit request for approval of PRC with the request for issuance of CERs for this monitoring period. And validation team confirm that the changes above have no material impact on the applicability of the applied methodologies or the accuracy and completeness of the monitoring.</p>

D.7. Changes to the project design

Means of validation	<p>The proposed change to the project design is assessed by the validation team as per para. 300~310 of VVS version 02.0. KFQ reviewed the revised PDD, registered PDD, applied methodology, and the supporting documents referenced in the findings row below.</p>
Findings	<p>In case of this project activity, construction was completed on 27/12/2016 which is after registration of this project activity on 24/12/2012. Thus the project description in the registered PDD (version 06, 17/12/2012) is from FSR, construction contract document and engineering & construction contract but there was some changes in the course of actual construction process in order to control sedimentation. The changes are as below:</p> <ul style="list-style-type: none"> - Capacity of the emergency of generator from 640 kW(480 kW, 160 kW) to 660 kW(500 kW, 160 kW) - Location of weir from Longitude: 73° 25'46"E, Latitude: 34° 20'38"N to Longitude: 73° 25'42.9"E, Latitude: 34° 20'31.9"N - Changes in project elements like power intake, optional hybrid desander system, headrace tunnels, surge shaft, etc. <p>By means of on-site inspection on 20/03/2019 ~ 21/03/2019, the validation team confirmed that 500 kW and 160 kW emergency generators that had been installed and operated in the project site. New location of weir also checked through GPS by validation team during site visit and confirmed that it is correctly provided in the revised PDD (Version 07.0 dated 14/06/2019). To be in line with requirement of para.309 of CDM VVS for PA, version 02.0, validation team assessed these changes by below steps:</p> <p><u>Para 309 (a) A description of the proposed or actual changes as compared to</u></p>

the description in the registered PDD

Combined result from document review for 'PPA commissioning report', 'test result report of PPA commissioning test'(As per PPA, these report were developed by appointed 3rd party of engineering company, Multiconsult, United Kingdom) and physical on-site inspection, validation team could confirm that PP described above mentioned changes in the revised PDD clearly and correctly. According to our technical expertise on the hydropower plant as well as above mentioned technical documents issued by 3rd party of engineering company, those changes are quite possible to occur. Also these changes does not affect any material equipment for power generation thus validation team could conclude that those changes are not adversely affect operation/ability of the project to deliver emission reduction as stated in the registered PDD.

Para 309 (c) An assessment regarding whether the changes would adversely affect the conclusions of the validation report of the registered PDD with regard to:

- (i) The applicability and application of the applied methodologies and, where applicable, the applied standardized baselines with which the project activity has been registered

Validation team reviewed requirement in ACM0002 version 12.3 applied by the Project and found that there is no applicable requirement that affected by the above mentioned changes. In addition, this project doesn't applied any standardized baseline that have to be updated or switched to.

This is confirmation that these changes don't cause any affect to applied methodology or any standardized baseline.

- (ii) The compliance of the monitoring plan with the applied methodologies and, where applicable, the applied standardized baseline

Validation team reviewed above mentioned changes against description provided in registered monitoring plan and found that the these changes didn't affect any actions in registered monitoring plan.

This is confirmation that the changese don't cause any affect to registered monitoring plan and the project still comply with applied methodology.

- (iii) The additinality of the registered CDM project activity

As per the registered PDD and final validation report of this project activity, additionality of this project activity was demonstrated through applying 'Tool for the demonstration and assessment of additionality'. As above mentioned changes may affect construction cost, validation team checked final investment cost and found that there was no change in investment cost and it was evidence by the official approval by Star Hydro Power Limited on 05/11/2014.

Based on reason above, combined with document review and on-site physical inspection, validation team could confirmed that project main elements like power generation capacity (150MW) remains as it was stated in the registered PDD and there were no specific changes which may affect operation of the project activity. Also it was confirmed that there was no change in investment cost and O&M cost thus these changes would not adversely affect initial result of additionality.

- (iv) The scale of the registered CDM project activity

Based on document review and physical site inspection, validation team confirmed that total capacity of the project remains as it was planned, 150MW thus there is no change in scale of the registered CDM project activity.

	<p>(v) <u>The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan</u></p> <p>Validation team reviewed the changes installed in the site and taken account of any risk that related to level of accuracy provided in registered monitoring plan. It's found that above mentioned changes don't cause any effect to level of accuracy as required by registered monitoring plan. This is because monitoring plan requested PPs to monitor total amount of electricity generated from the project activity and there is no change in total capacity of the project.</p>
Conclusion	<p>It is confirmed that actual changes to the project design of a registered CDM project activity do not adversely impact any of the following requirement in CDM PS.</p> <p>(a) The applicability and application of the applied methodology and, where applicable, the applied standardized baseline under which the project activity has been registered;</p> <p>(b) The additionality of the project activity;</p> <p>(c) The scale of the project activity.</p> <p>In conclusion, combined with evidences of post-registration change described above - verification team confirmed that the changes are not likely to increase the estimates of emission reductions in the future monitoring periods.</p> <p>As per para.246~248 of CDM PS for PA (version 02.0), PP decided to submit request for approval of PRC with the request for issuance of CERs for this monitoring period.</p>

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

Means of validation	N/A
Findings	N/A
Conclusion	N/A

SECTION E. Internal quality control

According to KFQ's Procedure for deciding whether to proceed request for post registration changes, the final validation report and validation findings underwent a technical review before being submitted to the PP for requesting an approval of post registration changes. The technical review was performed by technical review team composed of a person for the project activity qualified in accordance with KFQ's qualification scheme for CDM project validation and verification.

SECTION F. Validation opinion

Korean Foundation for Quality (KFQ) has performed a validation for post registration changes of 'Patrind Hydropower Project (UNFCCC Registration Ref. No. 6560)'. During the validation, PRC from the registered monitoring plan and project design have been identified. The post registration changes have been validated in line with all relevant UNFCCC requirements for the CDM

The validation is based on the registered PDD (ver. 06.0), revised PDD (ver.07.0), applied methodology (ACM0002, version 12.3) and the information made available to us. The review of the registered and revised PDD, relevant supporting documents, and the subsequent follow-up interviews have been conducted to determine the post-registration changes of the project activity meet all relevant UNFCCC requirements for the CDM.

The validation team confirms the alternative measure for the PRC from the registered monitoring plan and project design are appropriate under existing situation, and the emission reductions will not be over-estimated compared to actual emission reductions as a result of the PRC. The request for approval of PRC is submitted under this issuance track according to the choice of PP.

As a result of our assessment, KFQ confirms that the PRC complies with the relevant requirements related to the PRC from the registered monitoring plan and project design in the CDM Project Standard for project activities (ver. 02.0).

Therefore, KFQ recommends for approval of the post registration changes as justified above.

Signed on behalf of the Korean Foundation for Quality

Signature : 

Name : Yu Shim JEONG, Managing Director of Sustainability management Institute

Date : 15/06/2019

Appendix 1. Abbreviations

Abbreviations	Full texts
ACM	Approved Consolidated Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CM	Combine Margine
CMP	COP/MOP Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO ₂	Carbon dioxide
CO _{2e}	Carbon dioxide equivalent
DOE	Designated Operational Entity
EB	Executive Board
EF	CO ₂ emission factor
FAR	Forward Action Request
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
KFQ	Korean Foundation for Quality
K-water	Korea Water Resources Corporation
MP	Monitoring Plan
MR	Monitoring Report
NTDC	National Transmission and Despatch Company
PA	Project Activity
PE	Project Emission
PDD	Project Design Document
PP	Project Participant
PPA	Power Purchase Agreement
PS	Clean Development Mechanism Project Standard
PRC	Post-Registration Change
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers



CERTIFICATE OF COMPETENCE

Name: Pyung-Hee JANG

Qualification:

	Validation	Verification
-Lead auditor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
-Auditor	<input type="checkbox"/>	<input type="checkbox"/>
-Technical Expert	<input type="checkbox"/>	<input type="checkbox"/>
-Local Expert	<input type="checkbox"/>	<input type="checkbox"/>

Scopes of Expertise:

Technical Area (TA)

- 1.1 Thermal energy generation
- 1.2 Renewables

He is approved as the qualification above according to the KFQ's procedure of Qualifying and Maintaining of Auditor on 31 March 2016.

Sustainability Management Institute
Sang Yeon PARK



CERTIFICATE OF COMPETENCE

Name: Jin Seok CHO

Qualification:

	Validation	Verification
-Lead auditor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
-Auditor	<input type="checkbox"/>	<input type="checkbox"/>
-Technical Expert	<input type="checkbox"/>	<input type="checkbox"/>
-Local Expert	<input type="checkbox"/>	<input type="checkbox"/>

Scopes of Expertise:

Technical Area (TA)

- 1.1 Thermal energy generation
- 1.2 Renewables
- 13.1 Solid waste and wastewater
- 13.2 Manure
- 5.2 Captolactam, Nitric acid, Adipic acid

He is approved as the qualification above according to the KFQ's procedure of Qualifying and Maintaining of Auditor on 11 March 2019

Sustainability Management Institute

Mi Jung LEE



CERTIFICATE OF COMPETENCE

Name: Mi Jung LEE

Qualification:

	Validation	Verification
-Lead auditor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
-Auditor	<input type="checkbox"/>	<input type="checkbox"/>
-Technical Expert	<input type="checkbox"/>	<input type="checkbox"/>
-Local Expert	<input type="checkbox"/>	<input type="checkbox"/>

Scopes of Expertise:

Technical Area (TA)

- 1.1 Thermal energy generation
- 1.2 Renewables
- 3.1 Energy demand
- 5.2 Caprolactam, nitric and adipic acid
- 11.1 Emission of Fluorinated gases
- 11.2 Refrigerant gas production
- 13.1 Solid waste and wastewater
- 13.2 Manure

She is approved as the qualification above according to the KFQ's procedure of Qualifying and Maintaining of Auditor on 14 September 2017.

Sustainability Management Institute
Yu Shim JEONG

Appendix 3. Documents reviewed or referenced

No	Author	Title	References to the document	Provider
1	Project Participant	Monitoring Report	Version 01 (01/02/2019) Version 02 (20/06/2019)	Project Participant
2	Project Participant	CDM Project Design Document	Version 06.0 (17/12/2012) https://cdm.unfccc.int/Projects/DB/KE/MCO1340946734.9/view Version 07.0(14/06/2019)	Project Participant
3	Korea Energy Management Corporation	Validation report	Report No. GHGCC(A)11-002, Revision No. 4.0 https://cdm.unfccc.int/Projects/DB/KE/MCO1340946734.9/view	Others
4	Project Participant UNFCCC Secretariat	Notification of start date of crediting period change Confirmation letter from secretariat	20/09/2018 24/09/2018	Project Participant
5	Project Participant	Log book	For the period of 08/11/2017~ 31/10/2018	Project Participant
6	NTDC	Jointly monthly meter readings	November 2017~ October 2018	Project Participant
7	Project Participant	Daily export & import electricity (downloaded from central data management system)	For the period of 08/11/2017~ 31/10/2018	Project Participant
8	Multiconsult, United Kingdom	PPA Commissioning Report	Document code: 16PA02/100/R0203 (18/12/2017)	Project Participant
9	Multiconsult, United Kingdom	Test prior to synchronization of units	Test No.: PHP-NL-017 (10/06/2017)	Project Participant
10	Multiconsult, United Kingdom	Certificate of readiness for synchronisation of units 1,2&3 Turbines and generators	Certificate reference 16PA02/100/04 (27/12/2016)	Project Participant
11	Multiconsult, United Kingdom	Certificate that the complex is complete	Certificate reference 16PA02/100/07 (07/11/2017)	Project Participant
12	Multiconsult, United Kingdom	Certificate that the complex is commissioned	Certificate reference 16PA02/100/08 (07/11/2017)	Project Participant
13	Multiconsult, United Kingdom	Test result report –PPA commissioning tests	Test No. PHP-MT 001,001, 010~016 (07/11/2017)	Project Participant
14	Zhejiang Funchunjiang Hydropower EQUIPMENT Co., Ltd.	Technical specification of generator	Document No.: PHP-G-GEN-0075(For construction)	Project Participant
15	DAEWOO E&C	M&E/HSS Detailed design report	January 2017	Project Participant
16	DAEWOO E&C	Revised proposal for weir site layout change	August 2014	Project Participant
17	STAR HYDRO POWER LIMITED &	survey report of the project surface reservoir area calculation - Reservoir area calculation	For year 2017, 2018	Project Participant

	K- WATER PAKISTAN OFFICE	- Site check coordinates		
18	DAEWOO E&C	Protection and metering configuration (as built)	Drawing No.: PHP-E-SLD-5501	Project Participant
19	NTDC STAR HYDRO POWER LIMITED	Calibration report for watt- hour meters	Annual capacity test report - 05/05/2017 - 07/05/2019	Project Participant
20	Deputy registrar of companies Islamabad	Certificate of incorporation	11/05/2018	Project Participant
21	STAR HYDRO POWER LIMITED	Approval of basic design change	Ref No.: SHLP/EPCC/12(7)/251 (05/11/2014)	Project Participant
22	Project Participant	QA/QC procedures for CDM monitoring of Patrind HPP	Version 001	Project Participant

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

Table 1. CLs from this validation

CL ID	-	Section no.	-	Date:	-
Description of CL					
Project participant response					Date:
Documentation provided by project participant					
DOE assessment					Date:

Table 2. CARs from this validation

CAR ID	xx	Section no.		Date:	DD/MM/YYYY
Description of CAR					
Project participant response					Date:
Documentation provided by project participant					
DOE assessment					Date:

Table 3. FARs from this validation

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

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none">• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);• Make editorial improvements.
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		