

**GOLD STANDARD FOR THE GLOBAL GOALS (GS4GG)
REPORT
-
VERIFICATION**



Project Title:	La La Hydropower Project, Vietnam
Monitoring Period:	01/10/2017 - 29/04/2019 (Inclusive of both days)
GS project ID:	GS840
Internal ID:	14819
Customer:	Ecotawa AG
Date:	21/02/2023
Revision:	01

SUMMARY			
Reference No.	Date (first version)	Version No.	Date (last version)
GS 840	21/02/2023	01	21/02/2023
GS4GG Verification			
GS4GG Certified Product (sought):		GS CER	
GS4GG SDG Impact Statement (sought):		Impact Certification	
General Information			
Client	Ecotawa AG		
Project Title	La La Hydropower Project, Vietnam		
Project Participants	Ecotawa AG Mai Linh Energy JSC		
Project Location	Tan Lap, Tan Long Commune, Huong Hoa District, Quang Tri Province of Vietnam		
Contact Person	Mr. Jürg M. Grütter		
Monitoring Period:	01/10/2017 - 29/04/2019 (Inclusive of both days)		
GS toolkit version 2.1 Applied Methodology Version: AMS I.D, version 16		UNFCCC CDM Sectoral Scope: 1 Technical Area: 1.2	
Monitoring Report Version: 01 Date: 31/05/2020		Final Monitoring Report Version: 05 Date: 30/01/2023	
Certified Project Design Document Version: Assessment team checked the GS passport (to check SDG parameters and other information related to verification). CDM registration date: 29/03/2011 Crediting Period: 30/04/2012 to 29/04/2019. Date: Provided above			
Estimated Sustainability indicators: -			
No.	Indicators	Values	
1	Air quality	Must meet the legal standards of Vietnam.	
2	Water quality and quantity	Quality: must meet VN standards Quantity: ≥ 0.3 m³/s permanent flow after dam according to the surface water using license.	
3	Soil Condition Tree planting / lubricants in soil / Erosion	Not Specified	
4	Biodiversity (Trees and Fish population)	Planting trees around reservoir and hydropower plant areas total 5 ha within 7 years (2009 - 2015) Main fish species should be found in the up- and down-stream area of the dam.	
5	Quality of employment	18 recruited people will be trained to operation hydro-power plant	
6	Quantitative employment and income generation	18 people during operation stage is planned to be employed	
7	Balance of payments and investment	7,750 tons of coal will be imported less	
8	Technology transfer and technological self-reliance	at least 3 delegations /each year	

SUMMARY		
9	Other pollutants (including blasting)	noise level shall meet VN law
10	Other pollutants: compensation procedure	Not specified
11	Emission Reductions	6,905 tCO _{2e} (Annual)
Actual value of Sustainability Indicators for the current monitoring period:		
No.	Indicators	Values
1	Air quality	Complied under legal standards of Vietnam.
2	Water quality and quantity	Quality: Meet VN standards Quantity: Hole in the dam body with the release of ≥ 0.3 m ³ /s was permanently open
3	Soil Condition Tree planting / lubricants in soil / Erosion	According to the EIA (year 2013 to 2016) there is no visible erosion in the dam area (see files 15-03 to 15-09), measures taken against soil erosion are mentioned. Lubricants (Grease) have been measured in the water at the reservoir as well as at the river after dam. In all the EIA there could not find any grease (Hydrocarbons) in the water samples (see file 15-01 to 15-12)
4	Biodiversity (Trees and Fish population)	The biodiversity did not change between baseline and project situation.
5	Quality of employment	The project employees currently 11 people from the area. The staff was all educated in operating a hydropower plant
6	Quantitative employment and income generation	The company started with 18 staff which are trained by the project owner. After some years the permanent staff has been reduced to 11. Some administration jobs could be reduced due to more experience. Some work was outsourced to service providers.
7	Balance of payments and investment	The hydropower plant produced in the monitored crediting period net 45,960.252 MWh. Thus, the coal consumption of Vietnam is about 29,460 tons less with the La La hydropower project. With an average coal price of 60 USD/tcoal around 1.8 Mio fuel costs could be saved (means around 66% of the total investment costs according to the PDD).
8	Technology transfer and technological self-reliance	The company makes annually regular trainings for the staff. The visitors are not listed. The effect of technology transfer for visitors is not measurable
9	Other pollutants (including blasting)	The noise level was measured at the quarrying and the plant site during construction (April and October 2012). The Vietnamese noise level of 70 dB(A) could be met during the measurements.
10	Other pollutants: compensation procedure	There were no complaints after construction. With hanging complaints, the land use right was not issued.
11	Emission Reductions	7,884 tCO _{2e} (Achieved)

SUMMARY

Verification Summary

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Ecotawa AG to perform the 1st verification of "La La Hydropower Project, Vietnam" (Ref. No. GS 840) applying the methodology AMS I.D version 16.

The management of *Mai Linh Energy JSC & Ecotawa AG* are responsible for the preparation of the GHG emissions data and the reported GHG emission reductions.

A desk review and interviews have been conducted to verify the data submitted in the monitoring report. Applus+ Certification confirms the following have been reviewed:

- The registered transitional annex including the monitoring plan;
- Monitoring report(s);
- The applied monitoring methodology;
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- Gold Standard toolkit v.1.6;
- All information and references relevant to the project activity is resulting in emission reductions.

La La Hydropower Project, Vietnam is a "greenfield" 3 x 1 MW on a dam which was built in Tan Long commune, stored water of Lala stream that belongs to branch of Sepon river and located in Tan Lap commune, Huong Hoa district, Quang Tri province.

The electricity generated is exported to Vietnam national grid. The project activity was commissioned on 10/10/2012 as verified from the commissioning certificate. The project generates electrical energy through sustainable means without causing any negative impact on environment. Use of renewable sources for power generation contributes to mitigation of greenhouse gases emissions. The detail of the project is as below:

Project Investors' Name	Capacity	Commissioning Date	Location
La La Hydropower Project, Vietnam	03 MW	10/10/2012	Huong Hoa District, Tan Long Commune, Tan Lap, Viet Nam

Applus+ Certification confirms that the project is implemented in accordance with the validated and Transitional annex and CDM registered PDD¹. The monitoring plan complies with the applied methodology AMS.I.D version 16 and the GS4GG guideline the monitoring has been carried out in accordance with the monitoring plan. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information reviewed and evaluated Applus+ Certification confirms that the implementation of the project has resulted in 7,884 tCO₂e emission reductions during period 01/10/2017 - 29/04/2019 (Both days included).

ASSESSMENT TEAM

Team Members	Type of Resource ²	Organization (for OEs)
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¹ <https://cdm.unfccc.int/Projects/DB/DNV-CUK1171615677.62/view?cp=1>

² IR (Internal Resource); EI (External Individual); OE (Outsourced Entity)

SUMMARY		
Lead Auditor: Mr. Sukanta Das ³ /Dr. Atul Takarkhede ⁴	☐ IR ☐ EI ☒ OE	M/s True Quality Certifications Private Limited
Auditor: NA	☐ IR ☐ EI ☐ OE	NA
Technical Expert: Mr. Sukanta Das ⁵ /Dr. Atul Takarkhede ⁶	☐ IR ☐ EI ☒ OE	M/s True Quality Certifications Private Limited
Technical Reviewer: Mr. Simon Shen	☐ IR ☒ EI ☐ OE	Applus+ Certification

³ TL & TE till March 2021.

⁴ TL & TE from April 2022 & scope of involvement limited to response to GS performance review comments & revisions in FVR accordingly.

⁵ TL & TE till March 2021.

⁶ TL & TE from April 2022 & scope of involvement limited to response to GS performance review comments & revisions in FVR accordingly.

ABBREVIATIONS	
ACM	Approved Consolidated Methodology
AM	Approved Methodology
AMS	Approved Methodology Small Scale
Applus+ LGAI / Applus+	LGAI Technological Center, S.A. (Applus+ Certification)
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CDM VVS version 02	CDM validation and verification standard for project activities, Version 03.0
CER	Certified Emission Reduction
CL / CR	Clarification Request
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
VVB	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GS4GG (or GS)	Gold Standard for Global Goals
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-Governmental Organization
SDG	Sustainable Development Goal
TAC	Gold Standard Technical Advisory Committee
OM	Operational Margin
PDD	Project Design Document
PP	Project Participant
UNFCCC	United Nations Framework Convention for Climate Change
VVB	Validation and Verification Body
VVS	Validation and Verification Standard

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1. INTRODUCTION

1.1 Objective

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Ecotawa AG to perform the 1st verification of “La La Hydropower Project, Vietnam” applying the methodology AMS. I.D version 16 and GS toolkit. Gold Standard projects must undergo periodic audits and verification of emission reductions as the basis for issuance.

The objective of the verification work is to assess the compliance with the requirements of paragraph 62 of the CDM Modalities and Procedures as well as the GS4GG guidelines and relevant Principles and Requirements. According to this assessment, Applus+ Certification shall:

- Ensure that the project activity has been implemented and operated as per the CDM registered PDD/Transitional annex and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place;
- Ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable CDM validation and verification standard for project activities, Version 03.0 for the project activities and Gold Standard (i.e. applicable GS4GG requirements version 1.2);
- Ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology;
- Evaluate the data recorded and stored as per the AMS.I.D version 16.

1.2 Scope

The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the VVB. The verification is based on the submitted monitoring report, CDM registered PDD and registered Transitional annex, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the EB, GS4GG guideline and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures, GS4GG guideline and relevant Principles and Requirements, as well as their related rules and guidance.

Based on the requirements in the CDM validation and verification standard for project activities, Version 03.0 for the project activities as well as the GS4GG guidelines, Applus+ Certification has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.

The verification considers both quantitative and qualitative information on emission reductions. The verification also considers the monitoring of SDG goals as per the requirement of GS4GG guideline.

The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

1.3 Description of the project activity

La La Hydropower Project, Vietnam is a “greenfield” 3 x 1 MW run-of-the-river hydroelectric project developed in the Tan Lap, Tan Long Commune, Huong Hoa District, Quang Tri Province of Vietnam. The dam was built in Tan Long commune, stored water of Lala stream that belongs to branch of Sepon river. The water flows through water channels to the pressure tank from where it runs through the penstock into the turbines.

There are 3 hydraulic turbines installed with a total capacity of 3 MW (3x1 MW). The electricity generation is connected to national grid that belongs to Vietnam Electricity (EVN) by 6.7 km long transmission line of 22 kV to Khe Sanh 110kV station. The power station is based on a dam with a reservoir area at maximum water level of 31,000m². The energy intensity is around 100 W/m². The electricity produced will be fed into the national grid with a 22 kV single circuit transmission line from La La Hydropower project to the Khe Sanh station. The project started construction in February 2008 and will enter into operations middle of 2011.

The relevant dates for the project activity are listed in the table below:

Table 1: Relevant dates of the Lala Hydropower project, Vietnam

Date	Project Activities	Reference ⁷ files
12/02/2008	Start of construction (Signing of the construction contract)	File 25
29/03/2011	CDM Registration	See website UNFCC ⁸
10/10/2012	Commission of the 1 st turbine	File 10
10/10/2012	Commission of the 2 nd turbine	File 10
10/10/2012	Commission of the 3 rd turbine	File 10

Technology applied in the Lala Hydropower project, Vietnam :

Equipment	Unit	Vaule
Turbine¹		
Number of turbines		3
Type		Francis, horizontal, metal spiral case
Manufacturer		Ganfa-China
Model		HLA550-WJ-62
Diameter of runner	mm	800
Maximum flow rate (for one turbine)	m ³ /s	1.4
Efficiency	%	88
Capacity (each)	kW	1087
Generators²		
Number of generators		3
Type		2 bearing, oil lubrication, open cooling method

^{7 7} All mentioned reference files are listed in the appendix 1

⁸ <https://cdm.unfccc.int/Projects/DB/RWTUV1301377895.16/view>

Manufacturer		Ganfa-China
Model		SFW-1000-6/1180
Rated voltage	kV	6.3
	kW	1000
Rated capacity (each)		
Efficiency at full load		Cosj = 0.8
Transformer³		
Number of transformers		3
Manufacturer		Viet Nam
Type		YMG44TL
Rated capacity	kVA	1250 x 3
Grid connection – transmission line		
Length		6.7 km from Lala hydropower house to Khe Sanh 110 kV station

The details for the reservoir are listed in the table below.

Table 3 Characteristics of the reservoir

Parameter	Unit	value
Maximum water level	m	310.62
Normal water height	m	308
Total capacity	10 ⁶ m ³	0.0929
Useful capacity	10 ⁶ m ³	0.0276

2. METHODOLOGY

Applus+ Certification approach to the verification is a two-stage process. In the 1st stage, Applus+ Certification completed a strategic review and risk assessment of the project activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

Applus+ Certification used a periodical Verification Checklist which, based on the risk-based assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

In the 2nd stage, using the Verification Checklist, Applus+ Certification verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved remote audit and a desk review of the Monitoring Report. This Verification Report describes the findings of this assessment.

2.1 Appointment of the assessment team

According to the sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center, S.A. (Applus+ Certification) has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of LGAI Technological Center, S.A. (Applus+ Certification).

The composition of audit team shall be approved by the LGAI Technological Center, S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Mr. Sukanta Das ⁹ / Dr. Atul Takarkhede	LA / TE	YES	YES	NA	YES
Mr. Simon Shen	TR	YES	YES	NA	NA

The complete list of CVs is included as Appendix 3 of this report.

2.2 Document review

The Monitoring Report version 01 was submitted to VVB before the verification activities started. The MR was assessed based on all the relevant documents. The aim of the assessment in the desk review was to:

- Verify the completeness of the data and the information presented in the MR;
- Check the compliance of the MR with respect to the monitoring plan depicted in the CDM registered PDD/ Transitional Annex, verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures of the power plant was checked by the assessment team.

⁹ Mr. Sukanta Das was TL & part of verification team till June 2021 and project was completed by VVB on 08/03/2021 i.e. before Mr. Sukanta Das left VVB. Thus, independence and absence of conflict of interest maintained by VVB by assigning GS review work to new GS auditor, Dr. Atul Takarkhede from April 2022.

- Evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.
- Please check reference 4 of this report for detail of the documents checked.

2.3 On site assessment and follow up interviews

As a part of the verification, the assessment team has performed the remote inspection of the power plant.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Khoa	Mr. Tien	PP representative	23/09/2020	Project implementation, Baseline emissions, ER calculations, Sustainable monitoring etc.	Mr. Sukanta Das
2.	Lieu	Liem	Local stakeholder	23/09/2020	Stakeholder meeting- Employment opportunities, Standard of Livings etc.	
3.	Mai	Xuan	Local stakeholder	23/09/2020	Stakeholder meeting- Employment opportunities, Standard of Livings etc.	
4.	Ho	Van Doan	Local stakeholder	23/09/2020	Stakeholder meeting- Employment opportunities, Standard of Livings etc.	
5.	Ho	Dung	Local stakeholder	23/09/2020	Stakeholder meeting- Employment opportunities, Standard of Livings etc.	
6.	Ho	A Do	Local stakeholder	23/09/2020	Stakeholder meeting- Employment opportunities, Standard of Livings etc.	

The objective of the remote assessment is to:

- Confirm the implementation and operation of the project;
- Review the data flow for generating, aggregating and reporting the monitoring parameters;
- Confirm the correct implementation of procedures for operations and data collection;
- Cross-check the information provided in the MR documentation with other sources;
- Check the monitoring equipment against the requirements of the CDM PDD, GS Transitional annex and the approved methodology, including calibrations, maintenance, etc.;
- Review the calculations and assumptions used to obtain the GHG data and ER;
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.
- Confirm the SDG goals/ Sustainable monitoring parameter as per the registered Transitional Annex
- To understand grievance (if any) from the villagers during the monitoring period.

2.4 Quality of evidences

Sufficient evidence covering the full verification period in the required frequency is available to verify the figures stated in the final MR. Specific cross-checks have been done in cases that further sources were available. The monitoring report's figures were checked by the assessment team against the raw data. The data collection system meets the requirements of the monitoring plan as per the methodology.

2.5 Reporting of findings

As an outcome of the verification process, the assessment team can raise different types of findings.

Where a non-conformance arises the assessment team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

The assessment team shall raise a Clarification Request (CR) if information is insufficient or not clear enough to determine whether the applicable CDM/GS requirements have been met.

All CARs /CRs/ FARs raised during verification shall be resolved prior to submitting a request for issuance.

Forward Action Requests (FARs) may be raised during verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period.

Please refer Appendix 1 of this report. Total numbers of CARs: 06, CLs: 00, FARs: 00.

2.6 Internal Quality Control

As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the VVB's Technical Manager or the Deputy. This approval process also includes another quality assurance check in terms of Administrative Review. In case one of these two persons is part of the assessment team, the final approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the Request for Issuance is submitted to the GS Registry along with the relevant documents.

3. VERIFICATION FINDINGS

3.1 FARs from Validation / Previous Verification

This is 1st verification for the project activity and **2 FAR were** raised during validation & GS review which were successfully closed during this verification. Refer appendix 1 for details of closure.

3.2 Project Implementation in accordance with the registered Project Design Document

The project activity was fully implemented according to the description presented in the CDM registered PDD and Transitional Annex. The assessment team confirms, through the remote audit that all physical features of the proposed project activity including data collecting systems and storage have been implemented in accordance with the CDM registered PDD and Transitional Annex for GS4GG.

The technical features of the equipment's have been verified by the assessment team during site visit by checking nameplate of Wind turbines and also cross checked with manufacturer's technical manual.

Assessment team checked the relevant dates i.e. Commissioning dates for the project activity and found the same to be appropriate. The actual date of Commissioning is mentioned in the below table. The details are as below:

Date	Project Activities
10/10/2012	Commission of the 1 st turbine
10/10/2012	Commission of the 2 nd turbine
10/10/2012	Commission of the 3 rd turbine

The capacity VVBs not change after the registration of the project activity as confirmed by the assessment team during verification remote audit.

The category for the project activity according to the simplified modalities and procedures for small-scale CDM project activities is Type I D – Grid connected renewable electricity generation. The project conforms to the project category since the nominal installed capacity is below the 15 MW threshold and the generated electricity is sold to the national electricity grid of the national power company (EVN).

La La Hydropower Project, Vietnam is a “greenfield” 3 x 1 MW on a dam which was built in Tan Long commune, stored water of Lala stream that belongs to branch of Sepon river and located in Tan Lap commune, Huong Hoa district, Quang Tri province.

The coordinates of the spillway and the powerhouse are:

16.607806 N, 106.686518 E (spillway)

16.597494 N, 106.675130 E (powerhouse)

No post registration changes are envisaged for the present monitoring period. The project activity is in continuous operation and undergone scheduled maintenance and operation for the concerned monitoring period. No unforeseen incident observed during the monitoring period, which can affect the applicability or additionality of the methodology. Assessment team checked and confirm from the plant breakdown log sheets apart from scheduled maintenance (as per manufacturer specification) no any forced incident occurred which can alter the applicability of the methodology.

Moreover, there were no changes in host country regulations which may impact either baseline or additionality of the project. Thus, assessment team confirms that the project is implemented as per the registered PDD and no change in additionality/baseline is envisaged for the present monitoring period.

The amount of GS-CERs achieved during the present monitoring period are 27.09% lower than the estimated value in the CDM PDD and Transitional Annex. This is due to the lower PLF months during the monitoring period.

Based on the documentary evidence of commissioning certificates and physical verification VVB concludes that the project was implemented as per the registered PDD.

Compliance of the Monitoring Plan with the Monitoring Methodology:

The verification team is able to confirm that the monitoring plan is in accordance with the approved methodology AMS.I.D version 16, applied by the proposed GS project activity.

During the verification process the geo-coordinates were checked on google earth. It was found that the coordinates are not completely correct according to google earth. Therefore, the coordinates have been corrected in the monitoring report and verified by the VVB.

Assessment team also checked the metering details of the connected Hydro plant and found the same to be appropriate. Feeder details were confirmed from the interviews with PP, Measurement records and submitted for current monitoring period.

Materiality adopted in Verification:

Consideration of materiality in planning the verification

No.	Risk that would lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk levels	Justification	
1	Human errors: Readings from Meters (if not automatic)	LOW	Human error is likely to occur if the monitoring personnel are not trained well or inexperienced in data recording procedures and monitoring processes.	All the personal are well trained to monitor and collect data and thus risk associated with Human error is minimized. Assessment team checked the training records to confirm that all the personal are well trained to handle the activities related to monitoring. Assessment team checked the training records for the complete monitoring period and confirm that the personal are well trained to monitor and collect data for the project activity.
2	Human error: Quantification of emission reduction	LOW	Use of spread sheets without adequate data control, changes/updates, version tracking, traceability and security	All the energy statement i.e. MEASUREMENT RECORDS sheets and the invoices for the complete monitoring period are checked and thus the assessment team confirms that the ER value is conservative and correct.

Consideration of materiality in conducting the verification

In line with Guidelines for Application of materiality in verifications, the verification team has conducted a complete verification of all the information presented in the monitoring report and data monitored as presented in the emission reduction calculation spreadsheet. It invoices follows the paper trail back to the raw data such as meter reading records and invoices. There are no material errors, overestimation of ER, omission or misstatement.

3.3 Compliance of the Monitoring Plan with the Monitoring Methodology

The verification team is able to confirm that the monitoring plan is in accordance with the approved methodology AMS I.D version 16, applied by the proposed GS project activity.

No deviation, correction or permanent change to the monitoring plan has been requested or observed. The project monitoring is in compliance with Monitoring methodology.

3.4 Completeness of Monitoring

The monitoring has been carried out in accordance with the monitoring plan contained in the Transitional Annex. All parameters were monitored and determined as per the monitoring plan of the CDM PDD as follows:

a. Data and parameters fixed ex ante or at renewable of crediting period

FC_{i,m,y}, **EG_{m,y}**, **NCV_i**, **EF_{CO2,I}**, **EF_{grid,CM}** were mentioned as ex-ante fixed parameter. Assessment team checked the values, source of data, choice of data, purpose of the data mentioned in the MR from the registered CDM PDD and confirms that the similar approach was considered for the current monitoring period also.

1. **FC_{i,m,y}**: Amount of fossil fuel type i consumed by power plant m in the year y. The source of value is MONRE, 2010 which is on based fuel efficiency factor per power plant (fuel usage in relation to net electricity generation) as reported by EVN. This parameter is used for the calculation of the baseline emission. Data years 2006/7/8 were used i.e. 3 most recent years prior validation. Assessment team checked the registered PDD and found that value considered for emission reduction calculation in this present monitoring period is sourced from the registered PDD. Thus, the assessment team conclude that the emission reduction calculation for the present monitoring period is conservative and correct.
2. **EG_{m,y}**: Net electricity generated by power plant m in the project electricity system in the year y. The source of value is MONRE, 2010 which is on based fuel efficiency factor per power plant (fuel usage in relation to net electricity generation) as reported by EVN. This parameter is used for the calculation of the baseline emission. Data years 2006/7/8 were used i.e. 3 most recent years prior validation. Assessment team checked the registered PDD and found that value considered for emission reduction calculation in this present monitoring period is sourced from the registered PDD. Thus, the assessment team conclude that the emission reduction calculation for the present monitoring period is conservative and correct.
3. **NCV_i**: Net calorific value of fossil fuel type i. source of this value is MONRE 2010. This parameter is used for the calculation of the baseline emission. Assessment team checked the registered PDD and found that value considered for emission reduction calculation in this present monitoring period is sourced from the registered PDD. Thus, the assessment team conclude that the emission reduction calculation for the present monitoring period is conservative and correct.
4. **EF_{CO2,I}**: CO₂ emission factor of fossil fuel type i. Source of this value is IPCC 2006 guidelines, Chapter 1 Vol. 2 table 1.4, lower limit of the uncertainty at a 95% confidence interval. Values applied are Anthracite Coal: 94.6, Other Bituminous coal: 89.5, Natural gas: 54.3, Fuel Oil: 75.5, Diesel oil: 72.6. Assessment team checked the registered PDD and found that value considered for emission reduction calculation in this present monitoring period is sourced from the registered PDD. Thus, the assessment team conclude that the emission reduction calculation for the present monitoring period is conservative and correct.
5. **EF_{grid,CM}**: Combined Margin CO₂ emission factor for grid connected power generation. Value is taken from MONRE, 2010 (see file 22). Value applied are 0.5764 tCO₂/MWh. The value integrates amount of fossil fuel type i consumed in the 3 most recent years y, net electricity generated by power plants, the net calorific value of fossil fuel type i and the CO₂ emission factors of the fossil fuel type i (see above mentioned file). Assessment team checked the registered PDD and found that value considered for emission reduction calculation in this present monitoring period is sourced from the registered PDD. Thus,

the assessment team conclude that the emission reduction calculation for the present monitoring period is conservative and correct.

b. Data and parameters monitored

As per the registered monitoring plan and requirement of the registered methodology following parameters needs to be monitored:

CAP_{PJ}: Installed capacity of the hydropower plant after the implementation of the project activity. Source of this data is La La Hydropower company based on nameplates of generators. The value measured is **3,000,000 W**. Same been verified by the VVB during the remote audit.

AP_J: Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full. This value is measured by ruler. The areas of both reservoirs are measured over the water levels. Based on the topographical survey carried out in the framework of the feasibility study the area can be determined based on the water level (a.s.l.) In 2018 and 2019 the water level was at the highest 309.20 m a.s.l. Based on the topographical graph at the highest water level of 309.20 m a.s.l. the surface of the reservoir is **45,628.504 m²**. The highest water level can be cross-checked with the deposited sediments on the ruler. Same has been done by verification team during the remote audit.

PEG_{y,net}: Net electricity supplied by the project activity to the grid, in the year y. Source of this data is Measurements records collected by La La Hydropower Plant together with Electricity Viet Nam (EVN). Value is Calculated based on measured data for total supply minus total consumption Bi-directional electrical energy meters are used as monitoring equipments With the meters the electricity supplied to the grid and the imported electricity is measured: the net electricity is the supplied electricity to the grid minus the electricity imported electricity to the hydropower plant.

The reading for the electricity supplied and imported is made through the main meter M11. It can be cross-checked with the back-up meter M12. The difference between these two meters over the whole monitoring period is around 0.05% (influenced by the fact that the backup meter is read shortly after the main meter and thus normally higher values are measured).

The data is measured with electric energy meters, which are calibrated according to Vietnamese law at least every two years.

Assessment team also cross checked the parameters with the sold electricity to EVN (invoice/receipt). EVN and La La Hydropower plant are reading the meters together on the last day of each month. The procedure is in line with the registered PDD and applied meth. The same is thus acceptable to the assessment team.

Assessment team thus confirm that the value of **13,693.233 MWh** as mentioned in the revised MR and emission sheet is correct and the same is in compliance with the requirement of Para 364 and 395 (e).

Assessment team therefore confirm that the onsite practice followed is in line with registered monitoring plan and applied methodology.

c. Implementation of sampling plan

PP did not apply sampling plan to determine data and parameters monitored during this monitoring period. The verification team has checked all the documents such as MEASUREMENT RECORDS issued by EVN etc. and hence sampling plan was not required. The verification team

hereby confirms that has checked all the documents.

d. Compliance with the calibration frequency requirements for measuring instruments

The calibration details such as make, accuracy class serial number is as per the meter available onsite and checked during remote verification. The Calibration details are presented in Appendix 2 of this report. Calibration of meters carried out by Vietnam's Directorate for Standards and Quality (STAMEQ). Assessment team checked the same and found that the calibration is appropriate and correct as traceability is ensured. The meters were calibrated as per the norms of NABL and the meters are within the permissible error limit.

The detail of the meter calibration is thus as follows:

Meter	Type	Serial number	Meter accuracy class	Calibration Frequency	Calibration dates	Validity of calibration	Delay
Main meter M11	Elster A1700	11060674	0.5	Once per year	01/11/2016 13/11/2017 23/11/2018	31/10/2017 12/11/2018 22/11/2019	No 01/11/2017- 12/11/2017 13/11/2018- 22/11/2018
Back up meter M12	Elster A1700	11060670	0.5	Once per year	01/11/2016 13/11/2017 23/11/2018	31/10/2017 12/11/2018 22/11/2019	No 01/11/2017- 12/11/2017 13/11/2018- 22/11/2018

It was observed that meters are not covered under calibration validity from 01/11/2017-12/11/2017 & 13/11/2018-22/11/2018. Error of meters are within permissible error and thus PP has applied maximum permissible error factor 0.5% in export (error subtracted) and import (error added) for the delayed calibration period in calculating emission reductions. . Thus, the values recorded are conservative and acceptable to the assessment team and hence emission reduction value is correct and appropriate.

3.5 Sustainable Monitoring

The monitoring was made according to the sustainable monitoring plan of the passport (see 9 indicators below).

S.no	Indicator	Chosen Parameter	Baseline Situation of the parameter	Way of Monitoring	Result	VVB Conclusion
1.	Air quality	Air concentration for dust, SO ₂ , CO, NO ₂	the parameter was not	Air pollution measurements and noise measurement	The air pollution and the noise was measured twice annually	VVB has verified result from the Center of

S.no	Indicator	Chosen Parameter	Baseline Situation of the parameter	Way of Monitoring	Result	VVB Conclusion
		must be measured annually during construction as well as during project activity time. Furthermore, noise emissions have to be measured during this assessment.	measured.	ts of 3rd party.	at 4 sites during construction time: - at the National Route 9 where the road leading to the project site - at the dam area - at the quarrying area - at the plant site After the construction time the parameters have been only measured at the National Route and the plant site. The Vietnamese standards were kept in all measurements	Natural Resources and Environment Monitoring. Supporting files: EIA Year 2012 - 2019 (File 15-01 to File 15-12) and found that it is as per the legal standards of the Vietnam. Moreover VVB has also found that Hydropower projects are normally not relevant for air pollutant. At the site of the National Road the air quality is influenced by the road and not from the project itself.
2.	Water quality and quantity	Water quality: Annually analysis of: pH, DO, TSS, BOD, COD, N, P, Cu, Zn,	the parameter was not measured.	Monthly COD-analyses according to the CDM monitoring (see also section D of	Quantity: $\geq 0.3 \text{ m}^3/\text{s}$ permanent flow after dam according to	VVB has verified the result from the Monthly COD-analyses according to

S.no	Indicator	Chosen Parameter	Baseline Situation of the parameter	Way of Monitoring	Result	VVB Conclusion
		Pb, Cd and mineral oil content (at 4 sites, see above) Water quantity: minimal flow (0.3 m3/s according to file NN9) during the whole year secured.		the monitoring report).	the surface water using license.	the CDM monitoring taken from Center of Natural Resources and Environment Monitoring. Supporting files: EIA Year 2012 - 2019 and found that All the measured values of the surface water met Vietnamese Standards. The quantity was kept over an release in the dam body which was permanently open.
3.	Soil Condition Tree planting / lubricants in soil / Erosion	Annual planted tree area for preventing soil erosion / contaminated soil through lubricants in the project area after	the parameter was not measured.	Visual soil erosion in the dam and reservoir area (proof with pictures). Lubricants in soil through construction: organoleptica	According to the EIA (year 2013 to 2016) there is no visible erosion in the dam area (see files 15-03 to 15-09), measures taken against soil erosion	VVB has verified the result from Environmental Impact Assessments and found that The set targets could be met.

S.no	Indicator	Chosen Parameter	Baseline Situation of the parameter	Way of Monitoring	Result	VVB Conclusion
		construction			are mentioned. Lubricants (Grease) have been measured in the water at the reservoir as well as at the river after dam. In all the EIA there could not find any grease (Hydrocarbons) in the water samples (see file 15-01 to 15-12)	
4.	Biodiversity (Trees and Fish population)	Total tree planting area according to tree planting plan (see file 6)	Construction places. In the baseline scenario the land was used for banana, coffee and pepper cultivations. There was not much biodiversity in the project area.	Total cover area (m2)	Planting trees around reservoir and hydropower plant areas total 5 ha within 7 years (2009 - 2015) Main fish species should be found in the up- and down-stream area of the dam.	VVB has verified the result from total cover area and found Most of the project area is still agricultural land. Around the reservoir the natural bush forest is still kept. The biodiversity did not change between baseline and project situation.

S.no	Indicator	Chosen Parameter	Baseline Situation of the parameter	Way of Monitoring	Result	VVB Conclusion
5.	Quality of employment	Number of certificates issued and labour contracts	Currently the recruited people are trained in other companies how to operate a hydropower plant	Staff employed in the company with education in operating a hydropower plant	The company started with 18 staff which are trained by the project owner. After some years the permanent staff has been reduced to 11. Some administration jobs could be reduced due to more experience. Some work was outsourced to service providers	VVB has verified the result from list of permanent employees and the confirmations of the job training and found that its fulfils the targets. Moreover, VVB has also found that The area of the project site belongs to the poorest areas of Vietnam. Thus, every job in the field of industry and technology is important.
6.	Quantitative employment and income generation	Number of local workers and labor contracts and salary level of the employed staff - ratio between the genders	In the baseline situation no staff was employed	Labor contracts and annually assessment of the salary level, number of employed women vs. men	The company started with 18 staff which are trained by the project owner. After some years the permanent staff has been	VVB has verified the result from the salary list for the permanent staff and found that The set targets are

S.no	Indicator	Chosen Parameter	Baseline Situation of the parameter	Way of Monitoring	Result	VVB Conclusion
					reduced to 11. Some administration jobs could be reduced due to more experience. Some work was outsourced to service providers	met.
7.	Balance of payments and investment	Reduced coal importation per year	For the electricity production coal was used	Total electricity generated in MWh multiplied with 0.641 t coal/MWh (average consumption according to the calculation of the CM in the PDD of coal thermal power plants).	The hydropower plant produced in the monitored crediting period net 45,960.252 MWh. Thus the coal consumption of Vietnam is about 29,460 tons less with the La La hydropower project. With an average coal price of 60 USD/tcoal around 1.8 Mio fuel costs could be saved (means around 66% of the total	VVB has verified the result from Monitoring report - sold electricity to the grid and found that The projected electricity production according to the feasibility study was much higher than the actual production during the crediting period the project could reduce around 30'000 tons of coal during the

S.no	Indicator	Chosen Parameter	Baseline Situation of the parameter	Way of Monitoring	Result	VVB Conclusion
					investment costs according to the PDD).	first crediting period.
8.	Technology transfer and technological self-reliance	Number of trainings and site visits for guests and outsiders	the parameter was not measured.	Number of trainings or site visits organized for outsiders	The company makes annually regular trainings for the staff. The visitors are not listed. The effect of technology transfer for visitors is not measurable	VVB has verified the result and found that it meets the set targets.
9.	Other pollutants (including blasting)	Noise measurement during construction.	the parameter was not measured.	Measurements during construction	The noise level was measured at the quarrying and the plant site during construction (April and October 2012). The Vietnamese noise level of 70 dB(A) could be met during the measurements.	VVB has verified the result from Environmental Impact Assessments (EIA) 2012 and found Target for noise level during construction of the plant was met
10.	Other pollutants: compensation procedure	all compensations are made according to	the parameter was not measured.	Measurements during construction	The compensation was finished at the time of validation.	VVB has verified the result from Land use right and

S.no	Indicator	Chosen Parameter	Baseline Situation of the parameter	Way of Monitoring	Result	VVB Conclusion
		law			There were no complaints after construction. With hanging complaints the land use right were not issued.	found that The compensation was made according to VN law under the control of the local government. There were no legal conflicts during this process.

Relevant SDG outcome has been included in ER sheet and have been found correct.

During the interviews with PP, the verification team confirmed that there is a grievance book at project site. Every stakeholder has access to the grievance register and can lodge grievance any time. Same if any is resolved as per the standard operating procedures of the company. By checking grievance book submitted by PP, it was able to confirm there are no comments received from the local people for the present monitoring period. Local people are happy with the implementation of the project activity as it entrust employment and improve living standard of local people and villagers.

Assessment team also checked that the projects are not receiving any other form of renewable energy credit and Thus, double counting for the current monitoring period is ruled out.

Assessment team also checked the other registry like UNFCCC and VCS and found that project is registered with CDM mechanisms¹⁰ (UN4626).

In Summary, it is Applus+ Certification's opinion that the monitoring of the project owner regarding to sustainability is in line with requirement of the GS4GG guideline.

Summary of ex-post values of each Sustainable targets outcome for the current monitoring period

¹⁰<https://cdm.unfccc.int/Projects/DB/RWTUV1301377895.16/view>

Item	Baseline estimate	Project estimate	Net benefit
Affordable and Clean Energy	13,693.233 MWh	13,693.233 MWh MWh	13,693.233 MWh MWh
Decent Work and Economic Growth	0 Training provided to O&M Staff 0 employment generation	Total 18 people employed and 18 training conducted	Total 18 people employed and 18 training conducted
SDG 13: Climate Action	0 tCO ₂ e	7,884 tCO ₂ e	7,884 tCO ₂ e

Comparison of actual value of outcomes with estimates in approved CDM PDD/ Transitional Annex

SDG	Values estimated in ex ante calculation of approved PDD for this monitoring period	Actual values achieved during this monitoring period
13	10,993 tCO ₂ e	7,884 tCO ₂ e
7	18,967.59 MWh	13,693.233 MWh
8	10 people employment and 01 trainings/year	Total 18 people employed and 18 training conducted

3.6 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

As a result of verification of the ER calculation process, the assessment team confirmed that all the parameters required for the determination of the emission reductions have been included in the Monitoring Report Version 01 & Monitoring report Version 05 and corresponding ER calculation spread-sheets and are consistent with the applied methodology AMS.I.D version 16 and the monitoring plan contained in the CDM registered PDD and GS Transitional Annex.

After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the Monitoring Report Version 01 & Monitoring report Version 05 and corresponding ER calculation spread-sheets. The verification process for the same has been clearly described in above section of the report. See below for the detailed data:

The baseline emissions are the product of electrical energy baseline EGy expressed in MWh of electricity produced by the renewable generating unit multiplied by an emission factor.

$$BE_y = EG_y \times EF_y$$

Where,

EGy = Total quantity of net electricity delivered to the national grid

EFy = Baseline emission factor = 0.5764 tCO₂e/MWh

$$BE_y = 13,693.233 \times 0.5764$$

$$= 7,884 \text{ tCO}_2\text{e (rundown values)}$$

$$\text{Since } ER_y = BE_y$$

$$\text{Therefore, } ER_y = 7,884 \text{ tCO}_2\text{e}$$

Project emissions:

The project is a Hydro power project, no fossil fuel is be consumed according to the methodology AMS.I.D version 16 & according to registered PDD, $PE_y = 0 \text{ tCO}_2\text{e}$.

Leakage:

As per AMS.I.D version 16 and CDM PDD, leakage emission is considered zero

Emission reductions:

Thus the emission reductions are:

$$ER_y = BE_y - PE_y - LE_y$$

$$= 7,884 - 0 - 0 = 7,884 \text{ tCO}_2\text{e}$$

The actual achieved emission reduction for this monitoring period is 28% lower than estimated value in the CDM PDD/Transitional Annex. The reductions in actual emission reduction are justified, since during the current monitoring period, the plant achieved lower PLF value. Also being a hydropower project, the generation is nature dependent. Further no design change in the project activity has taken place.

3.7 Management and Operational System

The responsibilities of data measurement, collection, verifying, archiving etc. have been clearly defined in the CDM registered PDD/ Transitional Annex. The same practice is followed onsite and it is confirmed by the assessment team during the interviews with PP. The data related to ER calculation as well as data monitoring, collection process etc. have been internally reviewed by the management of the Monitoring team regularly. The responsibility of each function is consistent with the monitoring plan in the CDM registered PDD and Transitional Annex.

The information flow of each parameter has been verified by the assessment team via interviewing with responsible personnel.

It's verified during the interviews with PP & document review, the monitoring procedure as well as the internal quality management and control procedures are stipulated in the CDM registered PDD/ Transitional Annex. The monitoring personnel have been interviewed by the assessment team and it's confirmed that the monitoring is implemented as per the CDM registered PDD/ Transitional Annex. Also the training record has been checked by the assessment team and it is confirmed that the monitoring personnel are get sufficient train to perform the monitoring.

All the data and documents, either hard copies or soft copies, is kept for two years after the end of the last crediting period or the last issuance of GSCERs for this Project, whichever occurs later.

4. **REFERENCE**

LIST OF DOCUMENTS	
S. No.	Document/Evidence/Reference/Web link, Version, Date
1.	Monitoring Report Version 01 dated 31/05/2020, Final Monitoring report version 05 dated 30/01/2023
2.	ER sheets Version 01 dated 28/05/2020 Final ER Sheets version 2.1 dated 02/05/2022
3.	CDM registered PDD: https://cdm.unfccc.int/Projects/DB/RWTUV1301377895.16/view Transitional Annex as per GS4GG requirement.
4.	AMS.I.D version 16 "Tool to calculate the emission factor for an electricity system"
5.	CDM validation and verification standard for project activities, Version 03.0
6.	GS4GG guideline
7.	Training records of the employees (both skilled/non-skilled)
8.	O&M policy
9.	Monthly reports issued by state utility and invoices raised by PP for the complete monitoring period
10.	Calibration certificates of the complete monitoring period
11.	Commissioning certificates for power plant
12.	Log book records for scheduled maintenance of the power plant for the complete monitoring period
13.	Sample work contract for both skilled and non-skilled manpower
14.	CSR report
15.	Grievance register
16.	HSE procedures
17.	Power purchase agreement
18.	O&M agreement
19.	Technical manual from the Manufacturer
20.	Employment records

5. **FINAL VERIFICATION STATEMENT**

Applus+ Certification has been engaged by Ecotawa AG to perform the 1st periodical verification of the "La La Hydropower Project, Vietnam" (GS Ref. No. GS 840).

The management of Ecotawa AG is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring

Plan in the CDM registered PDD/ Transitional Annex and the applied methodology AMS.I.D version 16.

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board and Gold Standard. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. A reasonable level of assurance has been achieved during this verification. The verification can confirm that:

- the project is operated as planned and described in the project design document and PDD approved by the EB and GS;
- the monitoring plan is as per the applied methodology;
- the monitoring in Monitoring Report is as per the CDM PDD and the monitoring plan approved by the EB and GS;
- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

In our opinion, the GHG emission reductions for “La La Hydropower Project, Vietnam” for the monitoring period 01/10/2017 - 29/04/2019 (Both days included) as reported in Monitoring Report, prepared on the basis of the project’s Monitoring Plan are fairly stated.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: 01/10/2017 - 29/04/2019 (Both days included)

Verified emissions in the above reporting period:

Leakage emissions	0 tCO ₂ e equivalents
Project emissions	0 tCO ₂ e equivalents
Baseline emissions	7,884 tCO ₂ e equivalents
Emission reductions	7,884 tCO ₂ e equivalents

Date: 21/02/2023

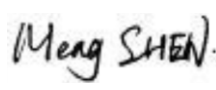
Lead Auditor: Dr. Atul Takarkhede

Tech. Expert: Dr. Atul Takarkhede

Tech. Reviewer: Mr. Simon Shen

Approver (*Applus+ Certification VVB Technical Manager*)

Mr. Agustín Calle de Miguel

ASSESSMENT TEAM	
Team Leader Dr. Atul Takarkhede	Technical Reviewer: Mr. Simon Shen
Signature: 	Signature: 
Approver: Mr. Agustín Calle de Miguel	
Signature: 	

Appendix 1: Corrective Action Request/Clarification Request/Forward Action Request resolution table

FARs from VALIDATION:

Type:	☐ CAR ☐ CL/CR ☒ FAR	Number:	01
Raised by:	TUV Nord	Ref. to checklist in above tables:	NA
Description of the audit finding		Date:	23/09/2020
FAR # 1: During the site visit of 1st monitoring period verification, the verification team needs to conduct interviews with local stakeholders. The following are the main issues shall be verified during the first verification: 1. The do-no-harm assessment as given in the GS Passport. Please explain in the MR along with Supporting documents. Supporting documents needed to be submitted to the VVB. Supporting documents needed to be submitted to the VVB. 2. The scoring of the SD indicators in relation to the local stakeholders consultation (blind scoring and consolidated scoring), and the site conditions observed during the visit. Please explain in the MR along with Supporting documents. Supporting documents needed to be submitted to the VVB. 3. The assessment of the sustainability monitoring plan for the positively scored SD indicators shall be revisited and checked for appropriateness. Please explain in the MR along with Supporting documents. Supporting documents needed to be submitted to the VVB. 4. Fulfilling the GS special requirements for hydro projects. As per Annex C – GS version 2.2: 6 criteria is very critical for Hydro projects: 1) Competing use of water resources 2) Minimum ecological flow 3) Impact on groundwater level 4) Design and effectiveness of fish passage(s) 5) Sediment management plan 6) Mitigation measures for reducing soil erosion. Please discuss these 6 points (3rd party opinion/report) in detail in the MR and provide supporting to the VVB. 5. Stakeholder comments on the construction and operation of the hydro power plant. Please explain in the MR along with Supporting documents. Supporting documents needed to be submitted to the VVB. 6. The local stakeholders shall be interviewed on the stakeholder feedback round, and an opinion of the effectiveness of the Continuous process during present verification shall be provided. Please explain in the MR along with Supporting documents. Supporting documents needed to be submitted to the VVB. 7. The VVB is requested to conduct onsite interview with local stakeholders regarding SD, DO NO HARM, GS special requirements on hydro as well as comments on project construction and operation during the first verification and include a detailed summary in verification report. Please explain in the MR along with Supporting documents. Supporting documents needed to be submitted to the VVB.			
Project Participant's response		Date:	29/11/2020
The criteria according to toolkit version 2.2., Annex C have been integrated into the adapted monitoring report. Evidences have been mentioned and documents are provided to the VVB			
Documentation provided as evidence by Project Participant			

File 14: already submitted with the version 1 of the monitoring report.

File 29: Confirmation for the Irrigation Rights of the people in the area of the project.

File 30: License on Surface water usage & exploitation

Auditor's assessment comment	Date:	24/05/2022
1. PP has revised MR to include do-no-harm assessment which is checked by VVB. The supporting documents were submitted which were reviewed and found acceptable. This part of FAR is closed. 2. The scoring of SD indicators is not found in the MR. This part of FAR is Open. 3. VVB has assessed the positively scored SD indicators which are detailed in the revised MR and found appropriate. The supporting documents are submitted to the VVB which were checked and confirmed. Hence this part of FAR is closed. 4. PP has detailed GS special requirements for hydro projects in the MR which are found appropriate and were confirmed based on the supporting evidences. Hence this part of FAR is closed. 5. The same is not found in the MR and hence this part of FAR is Open. 6. Details regarding stakeholder feedback round are not found in the MR and hence this part of FAR is Open. 7. VVB during onsite visit has interviewed local stakeholders and discussed about the GS requirements as mentioned and the Project specific data was found appropriate. VVB observations are included in the verification report. Hence this part of FAR is closed. FAR is Open		
Project Participant's response	Date:	25/01/2023
2. The scoring of all SD indicators are integrated in the Monitoring Report version 5.0, under chapter B.1 5. The stakeholder comments have been integrated in the Monitoring Report version 5.0 under chapter B.4. The stakeholder feedback round was made during the remote audit. Additional to this feedback round also interviews made in the framework of a movie about the La La Hydropower Project were integrated. 6. Details about the feedback round is integrated in part B.4 of the adapted Monitoring Report.		
Documentation provided as evidence by Project Participant		
- Monitoring Report version 5.0 - Video: GS verification meeting (remote audit), 23/09/2020, File 32 - Video concerning the La La Hydropower Project Vietnam, File 30 - Attendance list for the GS remote verification audit, File 31		
Auditor's assessment comment	Date:	21/02/2023

1. VVB has verified the scoring of the SD indicators mentioned in the section B.1 of the MR and found correct. Hence accepted.
 5. VVB has verified the revised MR version 05 mentioning the SFR details and found correct. Hence accepted.
 6. VVB has verified the revised MR version 05 mentioning the SFR details and found correct. Hence accepted.
- FAR closed.**

Type:	☐ CAR ☐ CL/CR ☒ FAR	Number:	02
Raised by:	Sukanta Das	Ref. to checklist in above tables:	NA
Description of the audit finding	Date: 23/09/2020		
FAR#2: In relation to the GS Special Guidance on Hydropower Projects on minimum flow and free fish migration upwards and downwards , the VVB verification team shall check : 1. The verification team shall verify whether the minimum flow maintained by the hydro project is as per the MONRE recommended flow of 0.3 m3/s, and obtain local opinions and inputs on the same. Please explain in the MR along with Supporting documents. Supporting documents needed to be submitted to the VVB. Supporting documents needed to be submitted to the VVB. 2. The valve structure of the dam and its effectiveness in allowing the migration of fish. Verification VVB shall also ensure field observations to be provided as part of the first monitoring report along with supporting evidences. In case the design proves not to be effective enough in aiding fish migration, recommendations on available alternatives and compensation measures, mitigation measures shall be discussed and monitored accordingly. Please explain in the MR along with Supporting documents. Supporting documents needed to be submitted to the VVB.			
Project Participant's response	Date: 02/12/2020		

1. In the document made by the project owner in August 2007 (see file 31) the flow of La La river from 1981 to 2005 was collected. The data shows that La La River depends very much on the precipitation. Within two days, the flow can go up from 4.36 to 74.89 m³/s (see September 7 to 9, 2000). In some days in June 1987, the natural flow of La La River was even below 0.3 m³/s (see June 19 to 21, 1987). The immense changes of the natural flow cannot be influenced much by a reservoir with a retention time of around 3 hours (calculated on the useful volume of the reservoir during average flow of 2.75 m³/s). The small size of the reservoir can also be seen in the change of the water level by using the water for the electricity production: change of 0.7 m within 2 hours (see file 21.6).

Why MONRE decided in the water use certification 0.3 m³/s is not clear. We guess that this was more or less the measured natural minimum flow between 1981 and 2005. Now MONRE changed the rule about minimal flow with new circular 64/2017/TT-BTNMT. According to this document the minimum flow must be designed based on the lowest minimum flow of that river.

The company has to maintain the minimum flow river based on the requirements of the government. Otherwise, they will be withdrawn exploitation permit. Based on File 6 "association of reservoir operation procedure", when coming-in capacity < min capacity used for HPP operation or water level under dead level, the project owner must stop the plant and maintain the annual minimum flow of the river (article 8, 1.3). Moreover, this document also regulated that the regulation regime of reservoir must follow decree 112/2008/NĐ-CP must maintain the minimum flow of the river downstream of the river (article 9).

As already mentioned in the monitoring report, the opening at the dam body must always be open and release permanently a flow of 0.3 m³/s. In order to check a minimal flow over one year the average annual flow can be estimated with the produced electricity: During the monitored period the average flow of La La river must be between 1.25 and 2.18 m³/s (including the permanent minimum flow of 0.3 m³/s). These average annual flows show that these figures are in the range of the annual flows measured between 1981 and 2005 (see file 32).

2. The dam was built at the place of a waterfall of around 10 meters in order to make full use of the natural slope. Therefore, also in the baseline situation the fish migration between the two river section was very limited (or even impossible except for some exotic species). With the dam we have more or less the same situation with very reduced fish migration options between the two sections. Through the permanent opening in the dam body the fish migration is even better than before. The fish migration could not be controlled. During heavy rains with water flow up to 75 m³/s the dam will be overflowed with around 70 m³/s. In this case the downstream migration is very probable.

For the fish migration and the permanent flow through the silt sewer at the bottom of the dam a control camera should be installed in future for getting proves of minimum flow and fish migration.

Documentation provided as evidence by Project Participant

File 32 Flow measurement of La La River 1981 to 2005.

File 21.6 (already submitted with the MR).

Auditor's assessment comment	Date:	24/05/2022
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1. PP has revised MR to include details about requirement to maintain minimum flow in the river. During site visit, VVB confirmed that the dam under the Project Activity has a sediment flushing channel which is a permanent opening a minimal flow of 0.3 m³/s is ensured. Hence this FAR is closed.
2. VVB during onsite visit checked and confirmed the valve structure of the dame and its effectiveness. Hence this part FAR is closed.

FAR is closed.

Compilation and Resolutions of CARs, CRs and FARs

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	01
Raised by:	Sukanta Das	Ref. to checklist in above tables:	NA
Description of the audit finding		Date:	23/09/2020
During the document review it was observed that the details of feeder i.e. Sub-station to which Hydro power plant is connected is missing in the MR. Corrective action is sought in the respective section of the MR			
Project Participant's response		Date:	02/12/2020
The substation is mentioned in chapter 3.1 under measuring system as well as in Figure 1 "Grid connection scheme with metering system" the substation is mentioned. The electricity produced in La La Hydropower Plant is supplied to 110 kV Khe Sanh Station.			
Documentation provided as evidence by Project Participant			
File 2 and File 3 - power purchase contracts have already been submitted with the 1st version of the MR.			
Auditor's assessment comment		Date:	21/05/2022
Section 3.1 and figure 1 provides information about sub station i. e. 110 kV Khe Sanh station which is checked and accepted. This CAR Is closed.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	02
Raised by:	Sukanta Das	Ref. to checklist in above tables:	NA
Description of the audit finding		Date:	23/09/2020
In accordance with the Project Standard Ver.02, Para 260, Project Participant should provide Operation Log book records to VVB Team in orders to verify that VVBs any plant shutdown happen or affects the calculation of GHG emission reduction or net anthropogenic GHG removal. Moreover, the supporting document regarding the breakdown details are also not provided to the assessment team. Corrective action is sought in the respective section of the MR and supporting documents for further analysis			
Project Participant's response		Date:	02/12/2020

The logbook was kept in the HPP and recorded all the daily activities including emergency, break down, reason, etc. The aim of this logbook is to supervise plant activities and measure power production of the plant to report with Board Management if needed. Therefore, if the HPP was shut down or affect the power production that is used to calculate GHG emission reduction, it will be recorded immediately in this logbook.

Documentation provided as evidence by Project Participant

Please see attached file 29: Logbook Hydropower Plant La La 2012 to 2019

Auditor's assessment comment	Date:	21/05/2022
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VVB has verified the file 29 and found the data mentioned in the MR consistent with the submitted documents.

CAR closed.

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	03
Raised by:	Sukanta Das	Ref. to checklist in above tables:	NA
Description of the audit finding	Date:	23/09/2020	
Following are the observation on the ER sheet: 1. The cross checks mechanism i.e. energy generation vs Invoice is not included in the ER sheet as per the requirement of Methodology. 2. The estimated calculation is not correct. The pro-rata calculation for estimated emission reduction is missing in the ER sheet. Appropriate correction is sought in the respective section of the MR. 3. The project emission calculation is not part of ER sheet. Corrective action is sought. 4. The billing period and monitoring period mismatch procedure is not detailed out in the MR. Corrective action is sought. The ER value is not rounded down which is not conservative. Corrective action is sought. The emission reduction calculation is thus reserved till the submission of proper documents			
Project Participant's response	Date:	02/12/2020	

1) The cross checks mechanism has been integrated in File 23 "CER-Spreadsheet of the first Monitoring Period". In the sheet "InputData Supply PEG" the meter reading is inserted as well as the document source (meter readings). Thus, all input data can be cross checked with the metering system/invoices.

2) The estimated emission reduction in the MR (front page) has been corrected. The estimated emission reduction calculation has been integrated into the CER Spreadsheet.

3) The project emission calculation is integrated in the CER-Spreadsheet (see File 23, Sheet: "CER-Spreadsheet")

4) The construction of the hydropower plant needs more time than projected. The monitoring period was therefore changed one year (from 2011 to 2012). In May 2012 the hydropower plant was still not completed. In October 2012 the hydropower project started the production. This miss-matching is mentioned in E.5.1 "Explanation of calculation of "amount estimated ex ante for this monitoring period in the PDD".

The ER values are estimated conservative: 1) From the amount of electricity supplied to the grid (this value integrates already the consumption as a minus supply - see functioning of the bi-polar meter system) the amount of consumption is again subtracted. Thus we calculate the consumption twice!

2) In the CER Spreadsheet it can be shown, that all calculated ER are rounded down. Therefore, all values are conservatively calculated.

All documents for the emission reduction are submitted now.

Documentation provided as evidence by Project Participant

File 23: CER Spreadsheet adapted, version 2
 Adapted monitoring report (front page)

Auditor's assessment comment	Date:	23/05/2022
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1. The assessment team checked File 23 "CER-Spreadsheet of the first Monitoring Period". The sheet "InputData Supply PEG" VVBs not provide input data for "the sold electricity to EVN (invoice/receipt" which is mentioned as cross check mechanism in "additional comments" for the parameter PEG_{y,net}. Hence this part of CAR is open.
2. The revised value for estimated emission reductions for the current monitoring period as mentioned in the ER sheet and MR is 10,933 tCO₂e. However, assessment team has considered 19 months as a part of calculation which is not matching with the monitoring period. Further, MR mentions ER value as 10'933 in table 1 which shall be corrected. Hence this part of CAR is open.
3. The project emission calculation is integrated as a part of ER sheet and same is checked and confirmed. Hence this part of **CAR is closed**.
4. Current monitoring period is 01/10/2017 - 29/04/2019. The ER sheet provides input data and other data for complete billing period from year 2012. PP shall correct this mis match and provide details only for current monitoring period. Hence this part of CAR is open.
5. The ER value shall be round downed (e.g. refer cell X 35 in CER-Spreadsheet) and same shall be mentioned in the MR. Hence this part of CAR is open

CAR is open.

Project Participant's response	Date:	24/01/2023
Necessary changes have been made in ER sheet and the MR.		
Auditor's assessment comment	Date:	21/02/2023
VVB has verified the revised MR and the ER sheet and found the data consistent. Hence accepted. CAR closed.		

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	04
Raised by:	Sukanta Das	Ref. to checklist in above tables:	NA
Description of the audit finding	Date:	23/09/2020	

Following discrepancies are observed for the monitoring plan:

1. As per the registered PDD, Net electricity supplied by the project activity to the grid, in the year *y* is denoted by **PEG_{y,net}** while MR says **EG_{y,net}**. Please check for this and all other parameters from the registered PDD. Moreover, the parameter primary source of data is Measurements records collected by La La Hydropower Plant together with Electricity Viet Nam (EVN). The same is not submitted to the assessment team. The generation can be checked by the sales receipt. The sales receipt is also not submitted to the assessment team. Corrective action is sought for the same.
2. As per the registered PDD, Surface area of the poundage for full volume: The surface area at full volume will be measured from a detail topographical survey, maps, and satellite pictures. The document is not submitted and hence parameter is reserved.

Following discrepancies are observed for sustainable Monitoring plan:

1. Air quality: As per the registered passport the parameter is measured by Air pollution measurement and noise measurement by 3rd part. The 3rd part report is not submitted to the assessment team. The parameter is thus reserved.

2. Water Quality and Quantity: As per the registered passport the parameter will be monitored by the following method:

- Quality: analysis through 3rd party. The 3rd party report is not submitted.
- Quantity: proof of permanent opening in the dam body with release of minimal flow of $\geq 0.3 \text{ m}^3/\text{s}$ through a construction measure. The project owner has to report to MONRE about the water inflow to the reservoir and the flow after dam and after powerhouse. The report to MONRE is not submitted providing proof that minimal flow of $\geq 0.3 \text{ m}^3/\text{s}$

3. Soil Condition Tree planting / lubricants I soil / Erosion: As per the registered passport the parameter is monitored in following way:

Visual soil erosion in the dam and reservoir area (**proof with pictures**). Lubricants in soil through construction: organoleptical monitoring after construction. If the soil is visible and oil-factory contaminated, the soil must be analysed on hydrocarbons and measures must be taken according to Vietnamese law. The documents are not submitted to the assessment team.

4. Biodiversity: As per the registered passport the parameter is monitored by following way:

Total cover area (m²) and assessment of fish species up- and downstream of the dam. The document is not submitted to the assessment team

1. Quality of employment: During the remote audit it was found that 15 full time employee and 10 part time employee works in the power plant. The training was provided yearly. However supporting Training material (Attendance sheet, Training Minutes of meeting. Training feedback etc) for the monitoring period is not submitted to the assessment team. Parameter is thus reserved.

2. As per registered Passport for parameter "Quantitative employment and income generation" the way of measure includes employment records (both Women and men as well gender ratio for full time and part time) of the employees, pay slips and attendance registers. The same is missing as document evidence and hence the parameter is reserved till further submission.

3. Balance of payments and investment: As per the registered passport the parameter is monitored following way:

Total electricity generated in MWh multiplied with 0.641 t coal/MWh (average consumption according to the calculation of the CM in the PDD of coal thermal power plants) multiplied with the average coal price of the monitored period. The same is not explained and calculated in the MR and ER sheet.

4. Technology transfer and technological self-reliance: As per the registered Passport the parameter is measured in following way: Number of trainings or site visits organized for outstand-ers. The document is not submitted to the assessment team.

5. Other pollutants (including blasting) : As per the registered Passport the parameter is measured in following way:

The noise during construction phase shall be minimized through use of registered vehicles and equipment. The detail do not forms the part of the MR.

6. Other pollutants (Compensation procedure): As per the registered passport the parameter is measured in following way:

Control of all available documents for the compensation, interview with the responsible people's committee. The document is not submitted to the assessment team.

Project Participant's response

Date:

02/12/2020

Discrepancies concerning the monitoring plan

1. The Monitoring Report was adjusted according to the PDD. The measurements records have already been submitted with the monitoring reports (see File 1 (Folder with 79 minutes on meter readings signed by both parties La La Hydropower Plant as well as Electricity of Vietnam.

2. The topographical survey was carried out during the feasibility study for the hydropower plant. The data of the survey - water level vs. area of the reservoir is an annexe of the Decision on "Issuing on reservoir operation procedure of La La hydropower Plant" issued by the People's Committee of Quang Tri Province (see file 7 of the documents submitted with the MR.

Following discrepancies are observed for sustainable Monitoring plan

1. Air Quality

The air quality is measured every year twice. The results are integrated in the environmental reports (see Folder file 15, chapters "Contents of Monitoring")

2. Water Quality, Water Quantity

The water quality was monitored by 3rd party once or twice a year. The parameters measures are: pH, DO, TSS, COD, BOD, TSS, total Nitrogen, Mineral Grease. The results of these monitoring are part of the the Environmental Reports (see File 15 Environmental Reports).

The quantity of the minimum water release was not measured because MONRE did not asked the hydropower owners to make until now. With the new regulation of MONRE, La La Hydropower Plant has to install a flow control in the channel of the permanent opening in the dam body. The measurement is only important for the sensitive area between dam and water outlet of the hydropower plant (2.4 km).

3. Soil Condition Tree planting / lubricants in soil / Erosion

The soil erosion was part of the monitoring of the Environmental Report 2013 to 2016 (Files 15.3 to 15.9). The environmental reports were carried out by 3rd party. The document was submitted to the VVB with the MR. The grease in the water is always monitored by a 3rd party and it is documented in the environmental reports (File 15).

The soil was not visible contaminated in the reservoir and dam area. See pictures below. Therefore the soil was not analysed.



Soil next to the water channel - no visible soil contamination



Soil of the street to the hydropower plant (above the powerhouse) - no visible soil contamination

There is no soil erosion in the reservoir area because the reservoir level is only varying little based on the small useful volume of the reservoir. The reservoir is surrounded by forest which protect the banks against soil erosion. After the dam the soil erosion is a natural phenomenon due to the natural flow changes of La La river (see flow mesearuments File 32). The maximum flow of La La River can go up to 75 m³/s while the maximum flow to the hydropower plant is 4.2 m³/s. That means that around 70 m³/s can flow over the dam. The dam has no mechanical spillway. Therefore, even with the dam the natural flow is still responsible for soil erosion after the dam (see pictures below).



River banks after dam with clear soil erosion and deposition of sediments (left side) due to high river flows during rainy events



Reservoir area inside the forest with dam (in the middle overflow of the dam during high flow events)

4. Biodiversity

There was not tree planting in the project area. In the reservoir area the natural forest was again expanding. The people living nearby cultivated food crops. The project area belong to a very poor area of Vietnam. Therefore it is important that people could plant food crops.

The two pictures below shows on the left side the dam area after construction (left side, April 2012) and on the right hand side this area 2020. Today, the dam site is inside a huge vegetation with natural trees in the reservoir area and food crops on the hills.



Dam site after construction, April 2012



Dam site 2020 with dense vegetation: forest trees and crop plantations (here coffee).

Fishes

There is no special fish species living in the up and downstream La La river.

The assessment of fish species could not be carried out (too complicated). As we already mentioned above the hydropower project VVBs not influence the hydrological scheme of the La La river. Therefore, also the fish species do not vary much. The dam was built in a waterfall site with no upstream migration of fishes. Thus, also the free fish migration is equal with the natural situation before the dam was built. Is it even most probable that with the reservoir the fish population was getting bigger because there is a permanent area of water (more water in the dry season than without project). The assessment of fish species was an over-ambitious monitoring target.

5. Quality of employment

The staff of the hydropower plant has annual trainings. All the staff was trained by EVN. After the successful participation on the courses the staff a confirmation. The pictures below show some examples of these confirmation. File 27 (submitted with the MR) shows the certification of the job training hold in 2018.





Operation certificates after successful participation of EVN training courses



Operation certificates after successful participation of EVN training courses

6. Qualitative employment and income generation

For evidence for the qualitative employment and income generation, there is a list of permanent staff and the monthly salary of the permanent staff.

The two documents have been submitted together with the Monitoring Report (see File 26, List of Staff and File 28, Salary List of Permanent Staff).

7. Balance of payments and investment

The income generation was integrated into the CER-Spreadsheet. The coal prices during the monitoring period was varying much (see File 33). With an average coal price of 82.8 USD/t the fuel saving costs was around 2.42 Mio. USD. Compared to the initial investment cost of 2.7 Mio USD only saving of fuel was during the monitoring period around 90 % of the investment costs (calculation of fuel saving see file 23, CER-Spreadsheet).

8. Technology transfer and technological self-reliance

File 34 is an evidence of the regular fire protection training. Site visits between surrounding hydropower projects have not been recorded - means there is no evidence for site visits.

9. Other pollutants (including blasting)

The noise level of the construction traffic and the blasting was measured by a 3rd party in the environmental report in April 2012 and October 2012. (see file 15-01 and file 15-02). The noise and the air pollution was measured during the construction at the dam area (see KK2), at the quarrying area (see KK3 of table 3 of the mentioned environmental reports) and near the powerhouse (see KK4). The Vietnamese standards could be met for the air quality (incl. dust) as well as for the noise emissions. Blasting was integrated in the quarrying area. After the construction with the starting time of the electricity production the area of dam and the area of quarrying were not anymore monitored concerning air pollution and noise. All documents (File 10-01 and 15-02) have been submitted with the MR.

10. Other Pollutants (Compensation Procedure).

The compensation process must be carried out before the project owner got the land use certificate. Without the certificate the project owner is not allowed to build up the plant.

File 35 shows the land use certificate of La La Hydropower Plant.

Documentation provided as evidence by Project Participant

Monitoring Plan

- 1) File 1 (Folder with the files 1.1 to 1.79) meter readings; the files have been submitted with the first MR
- 2) File 7 already submitted with the 1st version of the MR

Sustainable Monitoring Plan

- 1) File 15 Folder with 11 Environmental Reports (already submitted with the MR)
- 2) File 15 Folder with 11 Environmental Reports (already submitted with the MR)
- 3) File 15 Folder with 11 Environmental Reports (already submitted with the MR)
- File 32 Flow measurements of La La River 1981 to 2005
- 6) File 26 and File 28 already submitted with the MR
- 7) File 23, adapted CER-Spreadsheet and File 33, coal prices 2012 to 2019
- 8) File 34, Trainings for fire protection
- 9) File 15 and File 10-01 have been already submitted with the MR first version
- 10) File 35, Land Use Certificate

Auditor's assessment comment

Date:

23/05/2022

Monitoring plan:

1. The ex-post parameters are not consistent within the PDD and MR. PP has submitted measurement records and sales receipts which were checked to confirm the values considered and found appropriate. Hence this part of CAR is closed.
2. PP has submitted records of topographical survey carried out in year 2018 and 2019 to confirm surface area of the reservoir and the value is confirmed. Hence this part of CAR is closed.

Sustainable Monitoring Plan:

1. Air quality: PP has submitted 3rd party reports by Center of Natural Resources and Environment Monitoring which confirm that air quality is satisfactory. Hence, this part of CAR is closed.
2. Water quality and quantity: PP has submitted 3rd party reports by Center of Natural Resources and Environment Monitoring which confirm that water quality is satisfactory. Hence, this part of CAR is closed.
3. Soil condition tree planting / lubricants in soil / erosion: As a part of monitoring, PP has submitted visual proof through pictures. Further, during site visit, soil contamination due to lubricants, erosion was not observed. 3rd party environment impact assessment reports confirm that no lubricants were

found in the tested dam water samples. Hence, VVB confirms that the parameter is monitored correctly and this part of CAR is closed.

4. Biodiversity: As observed during the site visit, PP has taken up tree plantation along the dam which is further confirmed through the site photographs submitted. Hence, VVB confirms that the parameter is monitored and this part of CAR is closed.
5. Quality of employment: As observed during the site visit, periodic training activities are conducted for the project staff. PP had envisaged initially that 18 people will be required for hydro power plant operation however, currently only 11 people are employed who all are well trained in power plant operation. Hence this part of CAR is closed.
6. Quantitative employment and income generation: As observed during the site visit, more than 10 people are part of the project staff. PP had envisaged initially that 18 people will be required for hydro power plant operation however, currently only 11 people are employed. The list of employed people and their salary slips copies were assessed to confirm the employment status. Hence, this part of CAR is closed.
7. Balance of payments and investment: PP has now revised MR to include description about balance of payment and impact on coal import which is found acceptable. Hence this part of CAR is closed.
8. Technology transfer and technological self-reliance: PP has maintained record for training carried out for the project persons which were checked and confirmed. PP is not maintaining records for site visits of guests however it VVBs not have any impact on sustainable development parameter and hence acceptable. Hence this part of CAR is closed.
9. Other pollutants (including blasting): Since project is now commissioned, the noise pollution due to blasting is not applicable. PP has shared records of impact assessment carried out during construction phase of the project which confirm that noise levels were below the standard limits and hence acceptable. Hence this part of CAR is closed.
10. Other pollutants (Compensation procedure): As a local rule of land, compensation procedure shall be completed before project commissioning which is evident as the project is operational. Hence this part of CAR is closed.

CAR is closed.

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	05
Raised by:	Sukanta Das	Ref. to checklist in above tables:	NA
Description of the audit finding	Date: 23/09/2020		
Following discrepancies are observed by the assessment team: 1. The Calibration as conducted yearly VVBs not cover the monitoring period as monitoring period starts from April 2012 while 1st calibration is done in Nov 2013. Corrective action is sought for the same. The feeder wise details of the WTGs of the respective site are also missing. Corrective action is sought in the MR. 2. Energy generation report and invoices are missing for the complete monitoring period. 3. Commission Certificate is missing. Corrective action is sought in the MR. 4. The actual vs estimated value is not provided in % term. Also the detail explanation is missing in the MR.			

Based on the above observation corrective action is sought in MR and ER sheet		
Project Participant's response	Date:	04/12/2020
1. The construction of the hydropower plant needs more time than projected. The monitoring period was therefore changed one year (from 2011 to 2012). In May 2012 the hydropower plant was still not completed. In October 2012 the hydropower project started the production. This miss-matching is mentioned in E.5.1 "Explanation of calculation of "amount estimated ex ante for this monitoring period in the PDD". In October 2012 the main and the back-up meters were calibrated. One year later the in November 2013 the meters were the first time calibrated (see file 9.3). The hydropower plant. The substation is mentioned in chapter 3.1 under measuring system as well as in Figure 1 "Grid connection scheme with metering system" the substation is mentioned. The electricity produced in La La Hydropower Plant is supplied to 110 kV Khe Sanh Station. 2.) The Energy generation report is integrated in the metering reading file (see submitted file 1 - folder with 79 minutes). This minutes are signed by both parties EVN and project owner. Based on these minutes the supplied electricity have been invoiced according to the electricity purchase contracts (see file 2 and file 3 - submitted with the MR). 3) File 10 and File 25 were uploaded again as requested. 4) The actual electricity production is 54.7% of the ex ante emissions. This is added in the chapter E.5.1 of the Monitoring Report. In this chapter also the explanation of the reduced production is mentioned (see monitoring report, E.5.1). The calculation is also integrated in the CER-Spreadsheet (see adapted File 23, version 2).		
Documentation provided as evidence by Project Participant		
2) File 1, Minutes on meter reading; File 2 and file 3 - power purchase contracts. submitted with the MR. 3) file 10 and file 25 resubmitted 4) Adapted MR and adapted CER-Spreadsheet (File 23)		
Auditor's assessment comment	Date:	24/05/2022
1. Is it evident from section A. 1 and supporting document that the project was commissioned in October, 2012. The monitoring period is from October, 2017 to April, 2019. PP has submitted calibration certificates for the same which were checked by the assessment team. A delay is observed in the calibration for 2 days in year 2019. PP shall explain how it is being taken care of in the MR and ER sheet. Hence this part of CAR is OPEN. 2. PP has submitted Energy generation report and invoices for the complete monitoring period which is checked and found appropriate. Hence this part of CAR is closed. 3. PP has submitted commissioning certificates which confirm the dates mentioned in the section A.1. Hence this part of CAR is closed. 4. PP has revised section E.5 of the MR which is checked and found appropriate. Hence this part of CAR is closed. CAR is OPEN.		
Project Participant's response	Date:	04/12/2020
1. The delay of the calibration was corrected in the monitoring report during the CDM verification (issuance has already taken place). Error of meters are within permissible error and thus we had applied maximum permissible error		

factor 0.5% in export and import for the delayed calibration period in calculating emission reductions. The net electricity exported during this monitoring period is 45,928.297 MWh.		
Documentation provided as evidence by Project Participant		
The Monitoring Report and the Excel-Spreadsheet are adapted.		
Auditor's assessment comment	Date:	21/02/2023
VVB has verified the MR and the ER sheet and found that the error factor has been applied for the period in which meters were not calibrated making ER values conservative. Hence accepted.		
CAR closed.		

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	06
Raised by:	Atul Takarkhede	Ref. to checklist in above tables:	NA
Description of the audit finding		Date:	24/05/2022
1. For, "Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD" the figure shall be presented in correct format with thousand separated by `,'. Same shall be corrected in section E.4 and E.5 where value is mentioned as 7'888.			
Project Participant's response		Date:	24/01/2023
The format has been adapted in the monitoring report version 5.0			
Documentation provided as evidence by Project Participant			
- Monitoring Report Version 5.0			
Auditor's assessment comment		Date:	21/02/2023
VVB has verified the revised MR version 05 and found the format of the figures of data correct. Hence accepted.			
CAR closed.			

Appendix 2: Audit Team CVs

Name	SHORT CV. BACKGROUND INFORMATION
Dr. Atul Takarkhede	Dr. Atul Takarkhede is Ph.D. (Environmental Sciences) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical papers related to environmental sciences. He counts with more than 11 years of experience in field of Environmental Auditing, consulting and accreditation. He is an expert in ISO 9001-14001, CO2/GHG Reporting, Carbon Foot Print, Energy, Water and Waste Management reporting for organizations' environmental performance. His professional portfolio is mainly related with carrying out EIA, conducting QA/QC of EIA Reports; conducting environmental/water audits; NABET requirements appliance, functional area expert in Water Pollution & Solid & Hazardous Waste management among others. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. Currently he is associated with True Quality Certifications Private Limited and empanelled with Applus+ Certification to carry out GHG audits in the aforementioned schemes.
Mr. Sukanta Das	Mr. Sukanta Das has done M. SC in Electronics and Photonics and M. Tech in Energy technology from Tezpur Central University and Indian Institute of Technology in Bombay respectively. He is a Certified Lead Auditor for ISO 14001 EMS and ISO 9001 QMS (2008 and 2015) from International Registry for Certified Auditors (IRCA) and Certified Lean Management practitioner from Quality Council of India (QCI). He has more than 12 years of working experience at TUV Nord/Reconsult/CRA and Applus+ Certification under various categories of projects and programmes starting from Renewable to waste and supercritical GHG mitigation projects. He also worked in various Carbon foot-printing projects as well. He is empanelled with Applus+ Certification since 2015 and has been involved in more than 300 Validations and Verifications of PAs and PoAs as Lead Auditor, Technical Expert and Technical Reviewer for Renewable and non-Renewable as well as Energy Demand and Waste Management projects and programmes, and has participated in several waste management projects as Team Leader. Moreover, he also have audit experience of Warehouse Physical and Safety audits, Vendor audits among others.
Mr. Simon Shen	Mr. Simon Shen (Master's Degree in Thermal Energy Engineering, Bachelor's Degree in Environmental Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and review with Applus+, apart from the years of experience working as GHG Auditor and ISO 9001/14001 in TUV SUD for 3.5 years before he joined Applus+. Mr. Simon Shen has extensive experience also as former Applus+ Shanghai CDM Technical Manager.