



Monitoring report form for CDM project activity
(Version 08.0)

MONITORING REPORT

Title of the project activity	Taraila Small Hydroelectric Project of Ginni Global Ltd.		
UNFCCC reference number of the project activity	0376 ¹		
Version number of the PDD applicable to this monitoring report	02		
Version number of this monitoring report	01		
Completion date of this monitoring report	29/07/2021		
Monitoring period number	04		
Duration of this monitoring period	01/09/2010 to 10/10/2017 (inclusive of both dates)		
Monitoring report number for this monitoring period	01		
Project participants	Ginni Global Ltd. (India) Bunge Emissions Fund Limited (Switzerland) EDF Trading Limited (United Kingdom of Great Britain and Northern Ireland)		
Host Party	India		
Applied methodologies and standardized baselines	AMS-I.D.: Grid connected renewable electricity generation --- Version 8.0 ² Standardized baselines: Not Applicable		
Sectoral scopes	Sectoral Scope 1: Energy Industries (renewable - /non-renewable sources)		
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013 until 31 December 2020	Amount achieved from 1 January 2021
	48,351 tCO ₂ e	101,626 tCO ₂ e	0 tCO ₂ e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	179,225 tCO ₂ e		

¹ <https://cdm.unfccc.int/Projects/DB/TUEV-SUED1145360501.38/view>

² https://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_88PZMJZZR5KRJ6L9V7AXGGWHG7W2HH

SECTION A. Description of project activity

A.1. General description of project activity

The Taraila project is run-of-the river small hydroelectric project (project activity), without involving storage of water, located on Taraila Nallah, a tributary of Baira Nallah in district Chamba, Himachal Pradesh. The project have an installed capacity of 5.0 MW. The project activity generates electricity and sell it to the state grid, Himachal Pradesh State Electricity Board (HPSEB) through Power Purchase Agreement (PPA) contract.

The purpose of the project activity is to generate electricity by using the renewable hydraulic resources to meet the ever-increasing demand for energy in the region. The development of the project activity reduces the Green House Gas (GHG) emissions produced by the regional grid generation mix, which is mainly dominated by fossil fuel based power plants.

Ginni Global Limited (GGL), which is the owner of the project activity believes that the project activity has the potential to shape the economic, environmental and social life of the people in the region.

The project activity is likely to have beneficial effect on agriculture, rural industries and employment in the region. Government of India has stipulated the following indicators for sustainable development in the interim approval guidelines³ for CDM projects.

- Social well being
- Economic well being
- Environmental well being
- Technological well being

Total emission reductions in this monitoring period:

The net electricity supplied to the grid by the project during the monitoring period, i.e. from 01/09/2010 till 10/10/2017 is 157,870 MWh. Thus, the emission reductions amount to 149,977 tCO₂e.

A.2. Location of project activity

Host Party(ies)	:	India
Region/State/Province etc.	:	Himachal Pradesh
District	:	Chamba

GPS Coordinates:

Latitude:	32.9086° N
Longitude:	76.1475° E

³ Ministry of Environment and Forest web site: http://envfor.nic.in/cdm/host_approval_criteria.htm



A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India	Ginni Global Pvt. Ltd. (Private Entity)	No
Switzerland	Bunge Emissions Fund Limited	No
United Kingdom of Great Britain and Northern Ireland	EDF Trading Limited	No

A.4. References to applied methodologies and standardized baselines

Title: AMS.I.D 'Grid connected renewable electricity generation' Version 08⁴

Main Category: Type I - Renewable Energy Projects

Sub Category: I.D- Grid connected renewable electricity generation

⁴https://cdm.unfccc.int/UserManagement/FileStorage/CDMWF_AM_88PZMJZZR5KRJ6L9V7AXGGWHG7W2HH

The reference has been taken from the indicative simplified baseline and monitoring methodologies for small-scale CDM project activity categories -Version 8

A.5. Crediting period type and duration

Type of crediting period : Fixed (10 years)

Start date of crediting period : 11/10/2007

End date of crediting period : 10/10/2017

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

The Actual Technical Specification of the equipment installed is as follows-

S.No.	Machine/ Parts	Specifications	Quantity/No	Manufacturer	Supplier
1.	Synchronous Generator	Mod. SPA 710,KVA 3125, RPM 1000,6600 volt , S.No. - 151035,151036.	02	WEG Ind.	Weg Equipmentos Electricos SA Brasileira
2.	Horizontal Francis Turbine	Head -184m, Discharge - 1.6 m ³ /s, Speed 1000rpm, Output 2620 kw,	02	Flovel	Flovel Mecamidi Energy Pvt. Ltd. Fariadabad
3.	MIV	Butterfly Valve, Valve Size - DN 650mm. Class PN -25	02	VA TECH	VA TECH Escher Wyss Flovel Ltd. Haryana India.
4.	GLOP	OA : NZHV142 CKT : HS64.1 - A 1861-3 SV NO : 2866,2865 GA 312444831 WK NO : 52/06 P/L 314144220 CARD NO. HPNV142B	02	Rexroth	Bosch Rexroth India Ltd. municipal, 31 Survey No37/1 Andrahali, Bangalore 560091
5.	OPU	OA : NZHV142 CKT : HS64.1 - A 1862-3 SV NO : 2864 GA 312444832 WK NO : 52/06 P/L 314144221 CARD NO. HPNV142A	02	Rexroth	Bosch Rexroth India Ltd. municipal, 31 Survey No37/1 Andrahali, Bangalore 560091

Starting date of operation of the project activity:

The project activity was commissioned on 17/10/2007 and have been in operation since then.

Information regarding actual operation of project activity during the monitoring period:

No significant breakdowns / overhauls of equipment occurred during the monitoring period.

Events / situations that occurred during the monitoring period:

There were no events / situations during the monitoring period which would have any impact on the applicability of the methodology.

B.2. Post-registration changes

B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

There is no request for deviation applied during this monitoring period.

B.2.2. Corrections

There are no corrections in the current monitoring plan.

B.2.3. Changes to the start date of the crediting period

The start date of the crediting period has been changed to 11/10/2007 to 10/10/2017 from 01/02/2007 to 31/01/2017⁵.

B.2.4. Inclusion of monitoring plan

There has not been any change in the monitoring plan during the current monitoring period.

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

There are no permanent changes applied during this monitoring period.

B.2.6. Changes to project design

There are no changes to project design of the registered project activity.

B.2.7. Changes specific to afforestation or reforestation project activity

Not Applicable as this project is not afforestation or reforestation project activity.

SECTION C. Description of monitoring system

The monitoring plan for the project activity mainly consists of the monitoring of energy exported to and imported from HPSEB by GGL. The net electricity exported to HPSEB is calculated as the difference of these two parameters. One set of main meter and check meter are provided at the interconnection point for monitoring the energy exported to and imported from HPSEB.

The general principles for monitoring the parameters are as follows:

- Frequency
- Registration and reporting
- Reliability
- Experience and training

Frequency of monitoring

Monthly joint meter reading of main and check meters installed at interconnection point shall be taken and signed by authorised officials of GGL and HPSEB at 12.00 hours on the first day of every month.

Registration and reporting

Records of this joint meter reading at interconnection is maintained by GGL. Monthly reports stating the generation, auxiliary consumption, and net power export is prepared by the shift in-charge and verified by the plant manager.

⁵ <https://cdm.unfccc.int/Projects/DB/TUEV-SUED1145360501.38/view>

Reliability

Payments to GGL by HPSEB and emission reduction calculations are based on net energy supplied by GGL at interconnection point. For measuring the delivery and import of energy by GGL at interconnection point, one set of main meter and check meter shall be provided by GGL and HPSEB respectively at interconnection point.

GGL as well as HPSEB keep requisite sets of metering equipment, duly tested/calibrated, as spares, for replacement as and when required. Main or Check meter are replaced by spare set of meter with, mutual consent of the parties when a faulty meter is required to be removed.

The Main and Check meter installed at interconnection point are jointly inspected and sealed on behalf of the parties and shall not be interfered with, by either party except in presence of the other party.

The main and check meter are test checked for accuracy every six months. If during half yearly test check, main meter is found to be within permissible limits of error and check meter is found to be beyond permissible limits, then billing as well as emission reduction calculation is as per main meter as usual. The check meter is calibrated or replaced with spare tested calibrated meter, as may be necessary.

If during half yearly test check, the main meter is found to be beyond permissible limits of error but check meter is found to be within permissible limits, then billing as well as emission reduction calculation for the month and upto date and time of the calibration/replacement of defective main meter shall be as per check meter. The main meter is immediately calibrated or replaced with spare tested calibrated meter, as may be necessary where after billing as well as emission reduction calculation is as per main meter.

If during half yearly test checks, the main meter and check meter are both found to be beyond permissible limits of error, then both meters are immediately replaced with spare calibrated meters and correction is applied to data recorded by main meter to arrive at correct energy figures for billing as well as emission reduction calculation purposes for period of two months prior to the month in which test check has been done and upto time of calibration/replacement of defective meter.

While taking joint meter reading, if the difference between data recorded by main and check meter is found to be outside the permissible limits, then both the meters are tested. Pending such calibration of main meter, billing, payment as well as emission reduction calculation is provisionally based on energy recorded by check meter and are subject to adjustment on testing of check meter. If both main and check meters are found to be beyond permissible limits of error, the energy recorded by main meter for previous billing month and upto date of removal of such meter in current month shall be corrected by applying appropriate correction factor. If on testing error in main meter is within accuracy limit and check meter is beyond accuracy limit, the main meter reading shall be used for billing as well as emission reduction calculation and check meter is recalibrated. However, if check meter is found to be within accuracy limit and error in main meter is beyond accuracy limit, then check meter reading is used for billing as well as emission reduction calculation purposes for previous billing month and till the time main meter is recalibrated.

If during joint meter reading both the main and check meters are found to be non-operational, then energy figures for billing as well as emission reduction calculation for previous month are computed on a mutually agreeable basis between GGL and HPSEB

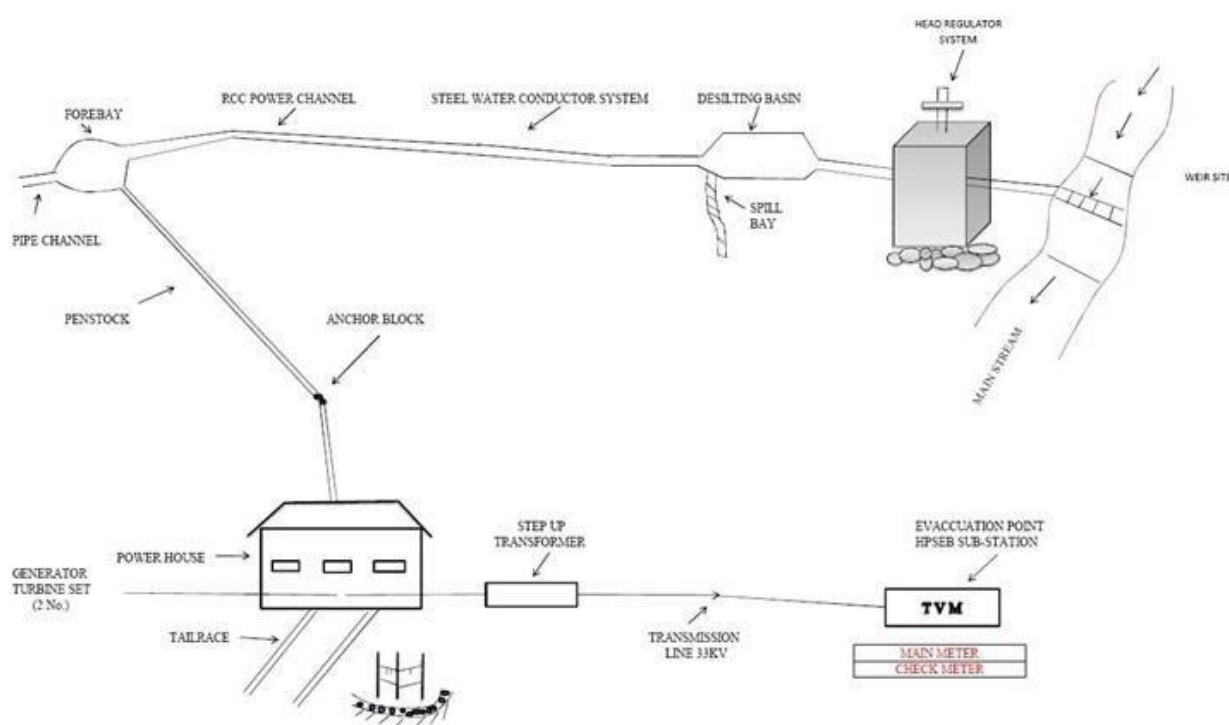
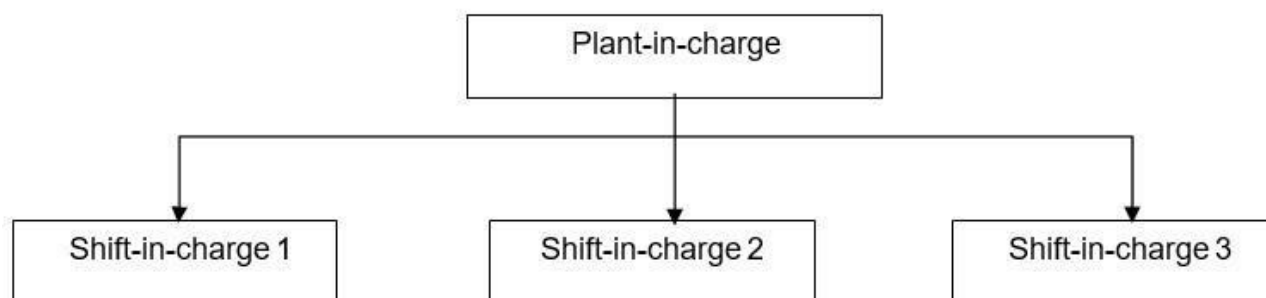
GGL shall archive and preserve all the monthly bills raised against net saleable energy for at least two years after end of the crediting period

Records of joint meter reading at interconnection are maintained by GGL. Monthly reports stating the generation, auxiliary consumption, and net power export are prepared by the shift in-charge and verified by the plant manager.

Experience and training

The plant manager is qualified diploma/degree engineer with 5-7 year experience in power industry. All the shift incharges are diploma/degree holders and underwent related training including data monitoring, report generation etc.

Organizational Structure



Line Diagram of the project activity indicating monitoring points

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data/Parameter	EFy
Unit	kgCO ₂ /kWh
Description	CO ₂ baseline emission factor for the electricity displaced due to the project activity
Source of data	The baseline emission factor for the project activity has been calculated in the registered PDD using the power generation mix and recent capacity additions of Northern Regional electricity grid

Value(s) applied	0.95
Choice of data or measurement methods and procedures	The emission factors are based on the IPCC guidelines for National Greenhouse Gas Inventories
Purpose of data/parameter	For the calculation of the Baseline Emission
Additional comments	This parameter is fixed ex-ante for the entire crediting period.

D.2. Data and parameters monitored

Data/Parameter	Energy exported
Unit	kWh
Description	Electricity exported by the project activity to HPSEB
Measured/calculated/default	Measured
Source of data	Monthly Joint Meter Readings taken at the interconnection point in the presence of officials of GGL and HPSEB
Value(s) of monitored parameter	187,745
Monitoring equipment	<p>Location: 33kV sub-station</p> <p>Operating from 10.06.2009 to 10.12.2009</p> <p>Type: Electronic Trivector Energy meter</p> <p>Accuracy class: 0.2s</p> <p>Serial number: 07033694 (Main Meter)</p> <p>Model No.: ER300P</p> <p>Meter Manufacturer: L&T</p> <p>Measurement Range: 0.00 to 999,999.99</p> <p>Calibration Agency: Power Grid Corporation of India Ltd. Measurement principle: 4 quadrant bidirectional meter</p> <p>Calibration frequency: Six months</p> <p>Type: Electronic Trivector Energy meter</p> <p>Accuracy class: 0.2s</p> <p>Serial number: 07033704 (Check Meter)</p> <p>Model No.: ER300P</p> <p>Meter Manufacturer: L&T</p> <p>Measurement Range: 0.00 to 999,999.99</p> <p>Calibration Agency: Power Grid Corporation of India Ltd. Measurement principle: 4 quadrant bidirectional meter</p> <p>Calibration frequency: Six months</p>
Measuring/reading/recording frequency	Recording frequency: Monthly
Calculation method (if applicable)	For meter serial numbers 07033694 and 07033704: Multiplication factor = 45000 Electrical Energy (kWh) = Difference of Meter Readings x 45000 For meter serial numbers 06675056 and 06675061: Multiplication factor = 1000 Electrical Energy (kWh) = Difference of Meter Readings x 1000
QA/QC procedures	<p>The main and check meters are jointly inspected and sealed in presence of both GGL and HPSEB and are not interfered with, by either party except in presence of the other party. The meters are test checked for accuracy every six months.</p> <p>Monthly Joint Meter Readings are taken on a monthly basis in the presence of both parties for billing purposes. The archived data will be kept for 2 years beyond the Crediting Period.</p>
Purpose of data/parameter	The Data/Parameter is required to calculate the baseline emission
Additional comments	Data will be archived electronically for a period of 2 years beyond the end of crediting period.

Data/Parameter	Energy imported
Unit	kWh
Description	Electricity imported by the project activity to HPSEB
Measured/calculated/default	Measured
Source of data	Monthly Joint Meter Readings taken at the interconnection point in the presence of officials of GGL and HPSEB
Value(s) of monitored parameter	29,875
Monitoring equipment	<p>Location: 33kV sub-station</p> <p>Type: Electronic Trivector Energy meter Accuracy class: 0.2s Serial number: 07033694 (Main Meter) Model No.: ER300P Meter Manufacturer: L&T Measurement Range: 0.00 to 999,999.99 Calibration Agency: Power Grid Corporation of India Ltd. Measurement principle: 4 quadrant bidirectional meter Calibration frequency: Six months</p> <p>Type: Electronic Trivector Energy meter Accuracy class: 0.2s Serial number: 07033704 (Check Meter) Model No.: ER300P Meter Manufacturer: L&T Measurement Range: 0.00 to 999,999.99 Calibration Agency: Power Grid Corporation of India Ltd. Measurement principle: 4 quadrant bidirectional meter Calibration frequency: Six months</p>
Measuring/reading/recording frequency	Recording frequency: Monthly
Calculation method (if applicable)	For meter serial numbers 07033694 and 07033704: Multiplication factor = 45000 Electrical Energy (kWh) = Difference of Meter Readings x 45000 For meter serial numbers 06675056 and 06675061: Multiplication factor = 1000 Electrical Energy (kWh) = Difference of Meter Readings x 1000
QA/QC procedures	<p>The main and check meters are jointly inspected and sealed in presence of both GGL and HPSEB and are not interfered with, by either party except in presence of the other party. The meters are test checked for accuracy every six months.</p> <p>Monthly Joint Meter Readings are taken on a monthly basis in the presence of both parties for billing purposes. The archived data will be kept for 2 years beyond the Crediting Period.</p>
Purpose of data/parameter	The Data/Parameter is required to calculate the baseline emission
Additional comments	Data will be archived electronically for a period of 2 years beyond the end of crediting period.

Data/Parameter	Net saleable energy
Unit	kWh
Description	Net electricity exported by the project activity to HPSEB
Measured/calculated/default	Calculated
Source of data	Monthly Joint Meter Readings taken at the interconnection point in the presence of officials of GGL and HPSEB
Value(s) of monitored parameter	157,870

Monitoring equipment	Not applicable
Measuring/reading/recording frequency	Recording frequency: Monthly
Calculation method (if applicable)	Net saleable energy = Energy exported – Energy imported
QA/QC procedures	The main and check meters are jointly inspected and sealed in presence of both GGL and HPSEB and are not interfered with, by either party except in presence of the other party. The meters are test checked for accuracy every six months. Monthly Joint Meter Readings are taken on a monthly basis in the presence of both parties for billing purposes. The archived data will be kept for 2 years beyond the Crediting Period.
Purpose of data/parameter	The Data/Parameter is required to calculate the baseline emission
Additional comments	Data will be archived electronically for a period of 2 years beyond the end of crediting period.

D.3. Implementation of sampling plan

Not Applicable

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

The baseline emissions (BE_y) for the project activity is calculated as follows:

$$BE_y = EG_{BL,y} \times EF_{CO_2}$$

Where,

BE_y is the baseline emissions for the project activity (tCO_2e)

$EG_{BL,y}$ is the electricity supplied to the grid by the project activity (MWh)

EF_{CO_2} is the combined margin emission factor calculated ex-ante, as $0.95 tCO_2/MWh$

For the monitoring period,

$$EG_{BL,y} = 157,870 \text{ MWh}$$

$$EF_{CO_2} = 0.95 tCO_2/MWh$$

Therefore,

$$BE_y = 157,870 \times 0.95 = 149,977 tCO_2e/MWh$$

E.2. Calculation of project emissions or actual net removals

As per registered PDD section E.1.2.1 there would be no project emissions of any kind due to the project activity within the project boundary since it is a run-of-river hydro power project without any storage of water.

E.3. Calculation of leakage emissions

As per registered PDD section E.1.2.2 and paragraph 12 of AMS.I.D version 08, no leakage calculation is required since the project activity is a renewable energy technology without transfer of equipment 'from' another activity or transfer of equipment 'to' another activity.

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions	Project GHG emissions	Leakage GHG emissions	GHG emission reductions or net anthropogenic GHG removals ($t CO_2e$)
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				Before 01/01/ 2013	From 01/01/ 2013 until 31/12/ 2020	From 01/01/ 2021	Total amount
Total	149,977	0	0	48,351	101,626	0	149,977

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante for this monitoring period in the PDD (t CO ₂ e)
149,977	179,225

E.5.1. Explanation of calculation of “amount estimated ex ante for this monitoring period in the PDD”

As per registered PDD, the estimated amount of ex ante emission reduction for a year, that is 365 days, is 25,190 tCO₂e. The no. of days in current monitoring period from 01 Sept 2010 to 10 Oct 2020 comes out to be 2,597 days. Thus, applying unitary method, the amount of emission reductions estimated ex ante may be determined as below: -

$$= (25,190 \times 2,597) / 365$$

$$= 179,225 \text{ tCO}_2\text{e (Rounded down figure)}$$

During the present monitoring period, actual emission reductions achieved are 149,980 tCO₂e whereas estimated emission reductions was 179,225. The project witnessed 16.32 % decrease in emission reductions as compared to ex-ante emissions, which is due to natural phenomena and nature dependent.

E.6. Remarks on increase in achieved emission reductions

During the present monitoring period, actual emission reductions achieved are 149,980 tCO₂e whereas estimated emission reductions was 179,225. The project witnessed 16.32 % decrease in emission reductions as compared to ex-ante emissions, which is due to natural phenomena and nature dependent.

E.7. Remarks on scale of small-scale project activity

The project is a renewable energy project with an installed capacity of 5.0 MW and is less than 15 MW. This meets the eligibility criteria for small-scale CDM project activities.

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
08.0	6 April 2021	Revision to: <ul style="list-style-type: none"> • Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).
07.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period; • Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes; • Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; • Make editorial improvements.
06.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 01.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: <ul style="list-style-type: none"> • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB 70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: monitoring report		