

Sustainability Monitoring Report Form

MONITORING REPORT

Title of the programme of activities (PoA)	Gigawatt Global Programme of Activities	
Gold Standard reference number of the PoA	GS3587	
Version number(s) of the PoA and CPA Passports applicable to this monitoring report	PoA Passport: Version 3.0 CPA 0001 Passport: Version 6.0	
Coordinating/managing entity (CME)	Gigawatt Global Coöperatief U.A.	
Version number of this monitoring report	03	
Completion date of this monitoring report	26/04/2018	
Monitoring period number and dates covered by this monitoring report	Monitoring Period	Dates covered
	M#1	23 October 2015 – 28 Feb 2017
Monitoring report number for this monitoring period	01	
Host Party(ies)	Host Party(ies) of the PoA	Is this a host Party to a specific-case CPA covered in this monitoring report?(yes/no)
	Rwanda	Yes
Sectoral scope(s)	Scope 1: Energy industries (renewable- / non-renewable sources)	
Monitored emission reductions (tCERs)	12,369 tCO ₂ e	
Sustainable development scoring for specific-case CPA in the PoA covered in this monitoring report	SD indicator Category	Scoring
	Environment	0
	Social Development	+
	Economic and technological development	+

PART I - Programme of activities

SECTION A. Description of PoA

A.1. Brief description of the PoA

The purpose of the Gigawatt Global Programme of Activities (hereafter referred as the PoA) is to support the development and implementation of utility scale solar photovoltaic (PV) projects in Rwanda, thereby displacing grid-connected, fossil fuel based electricity generation, by promoting grid-connected renewable energy based electricity generation. As such, the PoA will contribute to reduction of greenhouse gas (GHG) emissions as well as to other aspects of sustainable development.

Gigawatt Global Coöperatief U.A., a renewable energy company focused on the development and management of utility-scale solar power plants in emerging markets, is the Coordinating/Managing Entity (CME). This PoA will work as an umbrella organization, facilitating access to the carbon market to solar PV power plants by decreasing the carbon development and management costs.

Under the programme, Gigawatt Global Coöperatief U.A. acting as Coordinating/Managing Entity (CME) will own and be responsible for:

- Preparation of all the CDM and Gold Standard documentation;
- Liaise with the Designated National Authorities and other government entities on matters related to the implementation of the PoA and inclusion of future power plants;
- Receive and compile data from each power plant required for annual emission reduction and sustainable development impact monitoring;
- Coordinate monitoring activities and data management during the lifetime of the PoA;
- Contract an independent auditor to verify compliance with CDM and GS rules;
- Prepare and submit monitoring reports to determine the amount of emission reductions and sustainable development impacts and facilitate the auditing of the same;
- Act as the focal point with the CDM Executive Board and the GS Secretariat on matters related to the PoA;
- During the lifetime of the PoA, maintenance of all monitoring reports of all CPAs in accordance with record keeping systems;

The CME will enter into contractual agreements with all CPA implementing entities as a precedent to inclusion into the programme. The agreements will summarize roles and responsibilities regarding the implementation of the individual projects as CPAs. The agreements will ensure that the CME will have control of all records and information related to the implementation of individual CPAs and will be in a position to ensure that each CPA is being implemented according to the provisions as outlined in the CDM PoA-DD/CPA-DD and GS PoA and CPA Passports. The agreement will also put in place measures, which avoid double counting of the proposed CPA.

CPA implementing entities will normally be a Special Purpose Vehicles (SPVs) that will be responsible for:

- Implementation of the power plant
- Operate and maintain the power plant for the duration of the project;
- Keep records of parameters as per the monitoring plan and provide hard and electronic records to CME on a regular basis
- Make available staff to support validation and verification

Individual CPAs (solar PV power plants) will displace grid-connected, fossil fuel based electricity generation through the promotion of renewable energy based electricity generation and thereby reducing greenhouse gas (GHG) emissions. By the avoidance of GHG emissions, Rwanda and Gigawatt Global Coöperatief U.A. will be promoting climate change mitigation actions.

In addition to climate change mitigation benefits, the programme is expected to contribute to sustainable development in the following ways during its lifetime:

- The programme is expected to support projects that will provide reliable electricity to the national electricity grid. This is in line with Rwanda's Vision 2020, which places infrastructural advancement and energy generation as one of the pillars that are necessary in transforming Rwanda to a middle income earning economy.¹
- The programme is expected to support projects that will provide local employment opportunities during the construction and operation phase.
- The programme is expected to support projects that will improve the hydrocarbon trade balance through reduction of oil imports used for electricity generation.
- The programme is expected to support projects that will result in the transfer of state-of-the-art technology in utility scale power generation from solar PV sources to the Rwandan population. The transfer of technology and know-how will be directly replicable to other future solar PV energy projects.

The assessment of the sustainable benefits attributable to the project form a central part of this report and a comprehensive report on the specific case CPA is thus provided in Part II of this report.

A.1.1. Specific-case CPA(s) covered in this monitoring report

Reference number of the specific-case CPA included in the PoA as of the end of this monitoring period	Title, identification/reference number and version number of the generic CPA to which the specific-case CPA applies	Crediting period dates of the specific-case CPA	Is this specific-case CPA covered in this monitoring report? (yes/no)
ASYV 8.5MW Solar PV Project (CPA-001)	CPA type I: Greenfield small-scale solar PV power plants/units in Rwanda applying automatic additionality (version 1.0)	23/10/2015 – 28/02/2017	Yes

A.2. Contact information of the coordinating/managing entity (CME) and/or responsible persons(s)/entity(ies)

CME: Gigawatt Global Coöperatief U.A.
 Contact: Rietland Park 125, 1019 DT, Amsterdam, The Netherlands
 Email: michael@gigawattglobal.com

PART II - Specific-case component project activity(ies)

SECTION B. Description of specific-case CPA(s)

Only one specific case CPA has been implemented and included in this monitoring period. The CPA falls under generic CPA type I: Greenfield small-scale solar PV power plants/units in Rwanda applying automatic additionality (version 1.0)

Further information on the implementation of the CPA is provided in section B.1 below:

¹ Republic of Rwanda (2000), Rwanda Vision 2020

B.1. Brief description of implemented specific-case CPA(s)

The ASYV 8.5MW Solar PV project (CPA-001) forms part of the Gigawatt Global Programme of Activities, which seeks to promote grid connected renewable energy projects in Rwanda. The CPA falls under CPA type I “Greenfield small-scale solar PV power plants/units in Rwanda applying automatic additionality”, which is one of the five CPA types eligible for inclusion under the PoA.

The CPA has installed a new renewable energy power plant at a site where none existed prior to the implementation of the project activity (Greenfield plant). The CPA is located in Rwamagana District, Rubona Sector, Karambi cell at the Agahozo-Shalom Youth Village (ASYV), approximately nine kilometres from the main Kigali-Kagitumba highway. The site is about 50km from Kigali, Rwanda’s capital.

The CPA uses solar photovoltaic (PV) modules with a single axis tracking system. The CPA has a peak output capacity of 8.5 MWp consisting of 28,360 solar PV modules and covering 16 hectares.² For the first monitoring period (23 Oct 2015 to 28 Feb 2017) the net electricity generation amounted to 18,745 MWh corresponding to emission reductions of 12,369 tCO₂e. Electricity generated was evacuated to the Rwandan national electricity grid via the utility company owned transmission lines. The CPA therefore achieves CO₂ emission reductions by displacing electricity generated by fossil fuel powered plants connected to the national electricity grid.

In addition to emission reduction benefits outlined above, the CPA as part of the Gigawatt Global Programme of Activities is perceived to have contributed to sustainable development benefits in the following ways:

- The project is providing clean and reliable electricity to the national electricity grid. This is in line with Rwanda’s Vision 2020, which places infrastructural advancement and energy generation as one of the pillars that are necessary in transforming Rwanda to a middle income earning economy.³
- The project provided employment to the local population during the construction stage and continues to do so at the operation phase.
- The project is improving the hydrocarbon trade balance through reduction of oil imports used for thermal electricity generation.
- The project is resulting in the transfer of state-of-the art technology in utility scale power generation from solar PV sources to the Rwandan population. The transfer of technology and know-how will be directly replicable to other future solar PV energy projects.

The above sustainable development benefits form a central focus of this report and are thus further discussed in more detail in the next sections of this report.

The figure below shows the schematic mounting structure of the CPA:

² Feasibility Study for Solar PV power plant in Rwanda (2012)

³ Republic of Rwanda (2000), Rwanda Vision 2020



Figure 1: Mounting structure of the CPA

The major milestones achieved during the implementation of the project activity are summarized in the table below.

Milestone	Date	Documentary Evidence
Agreement reached between the Government of Rwanda and Gigawatt Global Rwanda Ltd.	5 November 2012	MoU with the Government of Rwanda
Conclusion of the Environmental Impact Assessment	November 2012	Environmental Impact Assessment Report
Feasibility Studies for the project is finalized	28 December 2012	Feasibility Studies Report.
Approval of the Environmental Impact Assessment	9 January 2013	EIA Licence from Rwanda Development Board
Financial close (CDM Start Date)	14 February 2014	Financial close documents
Project construction is commenced	February 2014	Public media ⁴
Commissioning Date	18 September 2014	Letter from the utility
CDM PoA registration and CPA inclusion – Start of the crediting period	23 October 2015	UNFCCC website

B.2. Geographical references or other means of identification of the location of the specific-case CPA(s)

The project is located in Rwamagana District, Rubona Sector, Karambi cell at the Agahozo-Shalom Youth Village (ASYV), approximately nine kilometres from the main Kigali-Kagitumba highway and about 50 km from Kigali.

The table and diagram below shows the geo-coordinates and location of the project site respectively.

Table 6: Project location coordinates

Latitude	Longitude
- 2.024050°	30.377978°
- 2.027697°	30.379181°
- 2.028694°	30.375042°
- 2.026692°	30.374444°

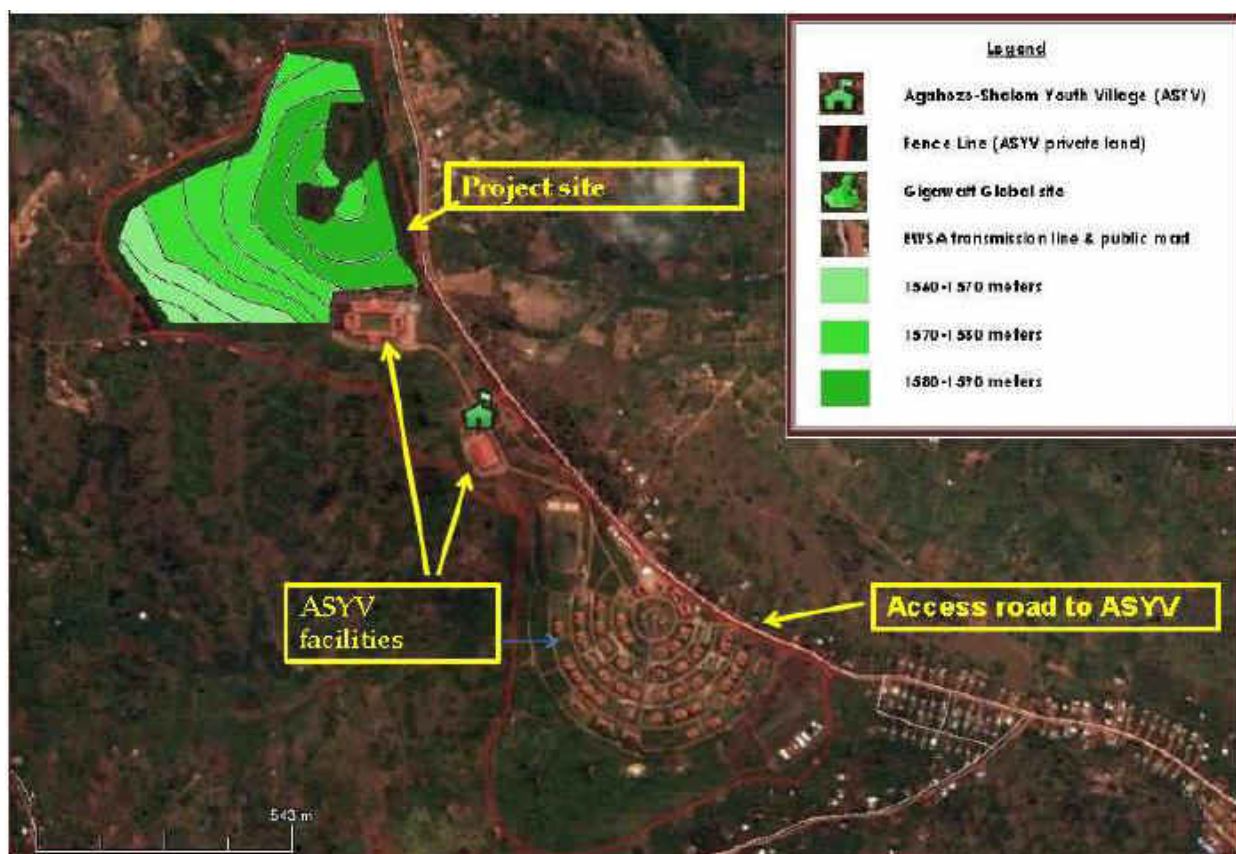


Figure 2: Location of the CPA

SECTION C. Post-registration sustainability monitoring plan changes to specific-case CPA(s)

Not applicable

SECTION D. Description of the Sustainability Monitoring Plan and Process

D.1. Monitoring Process

Overall authority and responsibility for monitoring rests with the CME, who is also responsible for managing the emission reduction monitoring and verification process.

In order to enable verification of emission reductions and sustainable development impacts each CPA must maintain credible, transparent and adequate data measurement, collection, estimation and tracking systems. The following monitoring procedures and responsibilities apply.

CPA implementing entity

Each CPA implementing entity under the PoA is responsible for the technical aspects related to on-site monitoring such as:

- Employment and training of personnel responsible for gathering and recording monitoring data on emission reductions and sustainable development indicators
- Appropriate storage of data
- Submission of monitoring data to the CME

The CPA implementing entity for the CPA 0001 has appointed a monitoring officer who will be in charge of the CPA's monitoring responsibilities as described above.

The table below shows an overview of the organizational structure for the operation and data monitoring of the CPA.

Title	Reports to	Roles and Responsibilities
Managing Director	Board of Directors	• Overall guidance and management • Receive information of decisions by the managers. • Provide final quality control of documents and contracts • Sign off final approval on documents and contracts • Be accountable for results, omissions, errors, etc • Lead the management system improvement process • Supervise manager-level staff
Asset Manager	Managing Director	• Overall guidance on operations and maintenance of the power plant/CPA for the duration of the project • Overall guidance on record keeping of electricity generation and provide quality control. • Overall guidance on employment and training of personnel responsible for gathering and recording monitoring data • Overall guidance on the collection of monitoring data • Provide supervision to the site manager
Site Manager	Asset Manager	• Responsible for operations and maintenance of the power plant/CPA for the duration of the project • Employment and training of personnel responsible for gathering and recording monitoring data • Provide supervision on the monitoring of relevant parameters • Maintenance of all equipment and machinery during the lifetime of the power plant • Ensure compliance with day-to-day tasks of the power plant e.g. inspections • Ensure adherence with the HSE regulations • Ensure adherence with the onsite emergency an evacuation procedures • Address any concerns from the local community in consultation with the local government and the project manager. • Provide supervision to the technical officers
Monitoring and Technical Officers	Site Manager	• Under supervision of the site manager, ensure the maintenance of the all equipment and machinery during the lifetime of the power plant. • Collection of monitoring information • Under supervision of the site manager, ensure adherence to the HSE procedures.

The following parameters are being monitored:

Parameter	Description	Type of CPA
<i>Sustainable Development Parameters</i>	Sustainable Development benefits can broadly fall under Environment, Socioeconomic Development and Economic and Technological Development. The key parameters highlighted in section D.2 and E. below.	All

Gigawatt Global Coöperatief U.A. - Coordinating/managing entity

The CME is responsible for the following:

- Training of CPAs on CDM and GS monitoring requirements;
- Receiving monitored data from the CPA Implementer;
- Storage of data for at least two years after the end of the last crediting period or the last issuance of CERs, whichever occurs later;
- Crosscheck of monitored data with a
- Confirm that the CPA has operated the power plant in line with relevant regulations
- Preparation of monitoring report;

The CME carries out a quality control on the data upon receipt as described below and stores them in the electronic database. Subsequently to this, the CME is responsible for preparing monitoring reports for submission to the DOE for verification on a regular basis.

The CME has made provisions for electronic data storage in a centralized database that is capable of storing data for at least two years following the end of the last crediting period or the last issuance of CERs, whichever will come later. The electricity data is stored together with copies of evidence to cross-check for quality control. Such evidence include but not limited to records of invoices to the utility or proof of payment of the invoices.

The database contains the following information:

- Name of the CPA
- CPA implementing entity and contacts
- GPS coordinates
- Technical description
- Installed capacity
- Number of verifications and associated monitoring periods
- Monitored data/parameters and relevant evidence
- Emission reductions monitored

Training

Before the start of the crediting period of CPA 0001, the CME provided training and guidance regarding the implementation of the monitoring plan. The training included:

- CDM and GS project cycle and the significance of monitoring
- Management structure and work scope
- Components of the monitoring plan
- QA/QC procedures
- Monitoring report template
- Preparation for verification
- Questions and answers

D.2. Specific CPA - Monitoring Parameters

The project has monitored the following sustainable development monitoring parameters :

Sustainable Development Indicator	Monitoring Parameter	Type of monitoring (qualitative/quantitative)	Score
Air Quality	1. Use of water sprinklers during construction to avoid dust	Qualitative	0
	2. Vegetation coverage within the project site	Qualitative	0
Soil condition	1. Absence of signs of water eroded landscapes and soil accumulation or deposits on the project site.	Qualitative	0
Other pollutants: Noise pollution	1. Utilisation of protective gear to employees working near machines emitting more than 70db.	Qualitative	0
Other pollutants: Solid waste pollution	1. Records of safe solid waste disposal	Qualitative	0
Biodiversity	1. Number of Erythrina abyssinica trees relocated	Quantitative	0
	2. Vegetation cover on areas that were previously identified for landscaping	Qualitative	+
Quality employment	1. Training records for employees during construction and operation period	Quantitative	+
	2. Feedback loop between the employee and the employer e.g. suggestion box	Quantitative	+
Quantitative employment and income generation.	1. Number of jobs created to Rwandans during construction period	Quantitative	+
	2. Number of jobs created to Rwandans during operation period	Quantitative	+
Human and institutional capacity	1. Number of trainings carried by the project implementer for employees of the power plant	Quantitative	+
	2. Number of excursions to the power plant by various institutions will be recorded as part of training programmes.	Quantitative	+
	3. Number of students receiving solar technology / engineering training	Quantitative	+
Technology transfer and technological self-reliance	1. Number of trainings carried ou by the project implementer for employees of the power plant.	Quantitative	+
	2. Number of excursions to the power plant by various institutions will be recording as part of training programmes.	Quantitative	+
	3. Number of students receiving solar technology/ engineering training	Quantitative	+
Access to affordable and clean energy services	1. Amount of electricity generated from solar PV source.	Quantitative	+

SECTION E. Specific CPA - Monitoring Data and Parameters

No	1
Indicator	Air quality
Mitigation measure	Use of water sprinklers during construction to avoid dust, site vegetation
Chosen parameter	Parameter 1: Use of water sprinklers during construction to avoid dust

		Parameter 2: Vegetation coverage within the project site
Current situation of parameter		Parameter 1: There is no dust caused by any construction activity Parameter 2: Natural vegetation is kept on the entire site. bamboo and vetiver grass (<i>Chrysopogon zizanioides</i>) planted on the site substantial spaces, Grass and weaker vegetation is subject to trimming (brush cutting or using hand slathers) to be left in situ on site to allow seeding and not subject to collection, vegetation is kept at acceptable height (however not less than 10cm from the ground). Larger woody shrubs are pruned or removed and collected
Estimation of baseline situation of parameter		Parameter 1: No dust was produced previous to construction Parameter 2: Project site was covered with natural vegetation
Way of monitoring	How	Parameter 1: Daily site observation to determine frequency of water sprinklers used during the construction phase Parameter 2: Monthly site observation
	When	Parameter 1: Daily during construction period Parameter 2: Monthly
	By who	Scatec Solar Africa (Pty) Ltd
Rationale/Evidence		Parameter 1: Frequency of water sprinkling of site during construction in order to limit dust emissions was monitored as part of the EIA compliance requirements reported in at least annual Environmental and Social Monitoring Reports. Thus at least annual Environmental and Social Monitoring Reports will be used to evidence the regular use of water sprinklers during construction period. Parameter 2: Vegetation coverage is monitored on a monthly basis as part of the EIA compliance requirements reported in at least annual Environmental and Social Monitoring Reports. Thus at least annual Environmental and Social Monitoring Reports will be used to evidence the vegetation coverage of the project site

No	2
Indicator	Soil condition
Mitigation measure	The following steps have been taken to ensure that soil condition is maintained by avoiding soil erosion: • Drainage system to direct and control water flow from hilltop to Lake Mugesera water system • Natural vegetation is kept on the entire site – vegetation cover keep the soil intact and not easily subject to erosion • Mango trees, bamboo and vetiver grass planted on the site substantial spaces expected to both stabilise the soil and slow down the flow of water • Filling of gullies (if any) with a mixture of gravel and sand and cover with cohesive soil has been achieved especially after heavy rainfall.
Chosen parameter	Absence of signs of water eroded landscapes and soil

		accumulation or deposits on the project site.
Current situation of parameter		No signs of water eroded landscapes and soil accumulation or deposits on the project site as a result of implementation of mitigation measures
Estimation of baseline situation of parameter		No signs of water eroded landscapes and soil accumulation or deposits on the project site
Way of monitoring	How	Site inspection of eroded landscapes and soil accumulation or deposits as well as appropriate condition of mitigation measures
	When	Weekly during construction period and at least monthly during operations
	By who	Scatec Solar Africa (Pty) Ltd
Rationale/Evidence		An appropriate drainage system has been installed and the project site has been well landscaped during the monitoring period and no signs of soil erosion appeared. Evidence is provided in annual Environmental and Social Monitoring Reports

No		3
Indicator		Other pollutants: Noise pollution
Mitigation measure		Providing protective gear to employees working near machines emitting more than 70db.
Chosen parameter		Utilisation of protective gear to employees working near machines emitting more than 70db.
Current situation of parameter		Absence of Noise
Estimation of baseline situation of parameter		Absence of Noise
Way of monitoring	How	Based on induction training introducing the required use of protective gear, workers signed attendance sheet. Regular monitoring of use of protective gear took place through site inspection during the construction period
	When	During construction period, monitoring was done on a weekly basis. No monitoring takes place during operational phase as no heavy machinery is used during the operation of the plant.
	By who	Scatec Solar Africa (Pty) Ltd
Rationale/Evidence		Site induction manual and training attendance sheet are provided

No		3
Indicator		Other pollutants: Solid waste pollution
Mitigation measure		Safe solid waste disposal.
Chosen parameter		Records of safe solid waste disposal
Current situation of parameter		Solid waste management systems in place
Estimation of baseline situation of parameter		Absence of solid waste
Way of monitoring	How	The management of solid waste pollution is controlled by putting in place measures that reduce, re-use, recycle and safely dispose of any waste matter that cannot be reused. This is monitored by assessing the records of solid waste disposal.
	When	Monitoring is done on a monthly basis
	By who	Scatec Solar Africa (Pty) Ltd
Rationale/Evidence		Records of solid waste management with external service providers as well as annual Environmental and Social Monitoring Report

No		4
Indicator		Biodiversity
Mitigation measure		Relocation of protected plant species found on the site during the clearing of the land for construction.
Chosen parameter		Parameter 1: Number of <i>Erythrina abyssinica</i> trees relocated Parameter 2: Vegetation cover on areas that were previously identified for landscaping
Current situation of parameter		Parameter 1: One <i>Erythrina abyssinica</i> tree was successfully transplanted to construction free area. Parameter 2: Natural vegetation is kept on the entire site while mango trees, bamboo and vetiver grass have been planted on the site. The extensive amount of mango trees, bamboo and vetiver grass is expected to have significant beneficial impact on the environment. Amongst other beneficial impacts; interspersing of the vetiver grass and mango trees plantation is expected to improve the ecological integrity within ASYV ambit. Due to good average rainfall at the region, no artificial irrigation system established for sustenance of the plantation. Faunal activities within ASYV ambit is encouraged to ensure sound ecological management. Nesting and/or burrowing activities are to be encouraged.
Estimation of baseline situation of parameter		Parameter 1: Presence of a single <i>Erythrina abyssinica</i> tree on site Parameter 2: Area covered by planted grass and natural vegetation
Way of monitoring	How	Parameter 1&2: The continuous presence of the single <i>Erythrina abyssinica</i> as well as the vegetation cover will be inspected through monthly site inspections
	When	Parameter 1&2: Site inspections will be carried out on a monthly basis
	By who	Scatec Solar Africa (Pty) Ltd
Rationale/Evidence		Evidence will be provided through annual Environmental and Social Monitoring Report. Additionally, evidence of engagement of contractors for vegetation management will be provided.

No	5
Indicator	Quality of employment
Mitigation measure	N/A
Chosen parameter	Parameter 1: Training records for employees during construction and operation period Parameter 2: Feedback loop between the employee and the employer e.g. through suggestion box
Current situation of parameter	Parameter 1: 61 employees have received training on HSE during the plant operation and 147 employees during the construction period. Specialised trainings were furthermore carried out where 2 employees received standard first aid certification, 4 received 1 st level solar maintenance certification, 1 received SCADA systems operation certification and 2 received meter calibration certification using the Kocos Metes 320 testing

		Parameter 2: The project provides a grievance mechanism for workers to raise workplace concern. All employees are informed of this mechanism at the time of recruitment or no later than before start of any work on site. The grievance mechanism procedural steps are set out below. 0 number of complaints have been filed during this monitoring period.
Estimation of baseline situation of parameter		Parameter 1,2: No power plant hence no employment opportunities.
Way of monitoring	How	Parameter 1: Training records of workers and professional training certificates for workers Parameter 2: The Grievance mechanism procedural steps are set out below: •Security personnel will keep the grievance book and will be instructed to provide the book (in request) to all persons to write or log their grievances. •The complainant to write or log grievances on the new page – all the grievances to be confidential. •Security personnel to notify Plant Supervisor of any complaints or grievances •The complainant should not be victimized by any manner. •The Plant Supervisor or his/her appointee to check the grievance book on regular intervals but not exceeding 48 hours. •The Plant Supervisor or his/her appointee to follow up and act on the grievance as soon as possible •The Plant Supervisor or his/her appointee to give feedback to the complainant and all affected parties. •The Plant Supervisor or his/her appointee to advise the complainant about the right to refer the matter to the project superior or other authorities if he/she is not satisfied with the outcome. •The Plant Supervisor to upload any grievances recorded on the grievance book into internal organisation mechanism.
	When	Parameter 1: Annual monitoring Parameter 2: Annual compilation of complaints filed in the grievance book
	By who	Scatec Solar Africa (Pty) Ltd
Rationale/Evidence		Parameter 1: Training records and professional training certificates Parameter 2: Grievance book

No	6
Indicator	Quantitative employment and income generation
Mitigation measure	N/A
Repeat for each parameter	Parameter 1: Number of jobs created to Rwandans during construction period Parameter 2: Number of jobs created to Rwandans during operation period

Current situation of parameter		Parameter 1: • 147 Rwandans were employed during construction period Parameter 2: • 2 employees full time for operational and maintenance • 4 semi-permanent employees to support O&M staff • 23 employees employed for mango trees, vetiver and grass plantation • 17 employees employed for module washing • 6 employees employed for grass cutting • 9 security guards employed
Estimation of baseline situation of parameter		Parameter 1&2: No employment opportunities were created in the absence of the power plant
Way of monitoring	How	Parameter 1&2: Employment records will be summarized on an annual basis in Environmental and Social Monitoring Reports
	When	Annually
	By who	Scatec Solar Africa (Pty) Ltd
Rationale/Evidence		Employment records will be summarized on an annual basis in Environmental and Social Monitoring Reports

No		7
Indicator		Human and institutional capacity
Mitigation measure		N/A
Chosen parameter		Parameter 1: Number of trainings carried by the project implementer for employees of the power plant. Parameter 2: Number of excursions to the power plant by various institutions will be recorded as part of training programmes. Parameter 3: Number of students receiving solar technology / engineering training
Current situation of parameter		Parameter 1: Four different trainings were carried out where 2 employees received standard first aid certification, 4 received 1 st level solar maintenance certification, 1 received SCADA systems operation certification and 2 received meter calibration certification using the Kocos Metes 320 testing system. 147 employees during construction and 61 employees during operation received HSE training. Parameter 2: 56 individuals participated in excursions Parameter 3: 500 students at the ASYV orphanage now have access to solar PV technology and engineering education
Estimation of baseline situation of parameter		Absence of a power plant hence no human capacity development benefits from the project.
Way of monitoring	How	Parameter 1: Review of training record certificates Parameter 2: Review of excursion record certificates Parameter 3: Review of ASYV education records
	When	Monitoring and recording done at least on an annual basis
	By who	Scatec Solar Africa (Pty) Ltd
Rationale/Evidence		Parameter 1: Review of training record certificates

	Parameter 2: Review of excursion record certificates
	Parameter 3: Review of ASYV education records

No		8
Indicator		Technology transfer and technological self-reliance
Mitigation measure		n/a
Chosen parameter		Parameter 1: Number of trainings carried ou by the project implementer for employees of the power plant. Parameter 2: Number of excursions to the power plant by various institutions will be recording as part of training programmes. Parameter 3: Number of students receiving solar technology/ engineering training
Current situation of parameter		Parameter 1: arameter 1: Four different trainings were carried out where 2 employees received standard first aid certification, 4 received 1 st level solar maintenance certification, 1 received SCADA systems operation certification and 2 received meter calibration certification using the Kocos Metes 320 testing system. 147 employees during construction and 61 employees during operation received HSE training Parameter 2: 56 number have visited the site on educational trips. Parameter 3: 500 students at the ASYV orphanage now have access to solar PV technology and engineering education in general, which is provided by GWG.
Estimation of baseline situation of parameter		Parameter 1&2,3: Absence of a grid connected solar PV power plant would lead to no technology transfer and technological self-reliance
Way of monitoring	How	Parameter 1: Review of training certificates Parameter 2: Review of excursion records Parameter 3: Review of ASYV education records
	When	Parameter 1&2,3: Review carried out on annual basis
	By who	Scatec Solar Africa (Pty) Ltd
Rationale/Evidence		Parameter 1: Certificates awarded to successful trainees. Parameter 2: A list of institutions that have visited the site. Formal correspondence/Letters sent to the institutions giving formal authorisation to visit the power generation site. Parameter 3: Review of databse of registerd ASYV students that have access to solar PV technology and engineering education

No	9
Indicator	Access to affordable and clean energy services
Mitigation measure	n/a
Chosen parameter	Parameter 1: Amount of electricity generated from solar PV source.

Current situation of parameter		Parameter 1: During the monitoring period, the CPA has generated 18,745 MWh– this supplies sufficient electricity for 15,000-18,000 households in Rwanda on an annual basis
Estimation of baseline situation of parameter		Parameter 1: An equivalent amount of electricity would have been generated from thermal power plants running fossil fuels.
Way of monitoring	How	Parameter 1: Electricity generation from the power plant which is from solar will be monitored continuously.
	When	Parameter 1: The quantity of electricity supplied to the grid will be monitored continuously, measured hourly and recorded at least monthly.
	By who	Scatec Solar Africa (Pty) Ltd
Rationale/Evidence		Parameter 1: Energy reports with power generation data over a given number of months. Invoices to the utility company indicating the amount of power sold to the utility company.

SECTION F. Specific CPA – Overview of Emission Reductions and Sustainable Development Impacts

Greenhouse Gas Emission Reductions (GHG)

Specific-case CPA reference number	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e) achieved in the monitoring period
				Total amount
CPA 0001	12,369	0	0	12,369
Total	12,369	0	0	12,369

Sustainable Development Impact

Sustainable Development Indicator	Score
Air Quality	0
Soil condition	0
Other pollutants: Noise pollution	0
Other pollutants: Solid waste pollution	0
Biodiversity	+
Environment	0
Quality employment	+
Quantitative employment and income generation.	+
Human and institutional capacity	+
Social Development	+
Technology transfer and technological self-reliance	+
Access to affordable and clean energy services	+
Economic and technological development	+

Appendix 1. Contact information of coordinating/managing entity and/or responsible persons/entities

Coordinating/managing entity and/or responsible person/entity	☒ Coordinating/managing entity ☐ Person/entity responsible for completing the CDM-MR-FORM
Organization name	Gigawatt Global Coöperatief U.A.
Street/P.O. Box	Rietland Park 125
Building	-
City	Amsterdam
State/Region	-
Postcode	1019 DT
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Appendix 2. Relevant pictures



Source: Gigawatt Global Limited: Planting grass as a long term solution to dust control, soil erosion and enhanced air quality and biodiversity



Source: Scatec Solar Africa: Planting grass as a long term solution to dust control, soil erosion and enhanced air quality and biodiversity



Source: Scated Solar Africa: Interpsacing of vetiver and bamboo grass as a long term solution to dust control, soil erosion and enhanced air quality and biodiversity



Source: Scated Solar Africa: Stormwater disposal method



Source: Gigawatt Global. Erythrina abyssinica tree to the left and mango seedlings to the right.



Source: Scatec Solar Africa: Working on Mango tree plantation



Source: Scatec Solar Africa: View of Erythrina abyssinica



Source: Scatec Solar Africa: Bamboo grass that has been cleared from site and is donated to the local livestock farmers



Source: Scatec Solar Africa: Waste Management on site (left) and HSE firefighting training (right)



Source: Scatec Solar Africa: Workers with protective gear



Source: Scatec Solar Africa: Workers with protective gear