



VERIFICATION REPORT TITLE

REFORESTATION OF DEGRADED FOREST
RESERVES IN GHANA



Document Prepared By RINA SERVICES SPA

Project Title	Reforestation of degraded Forest Reserves in Ghana
Version	5.0Aa
Report ID	2021 IQ MD 27

Report Title	Verification Report “Reforestation of degraded Forest Reserves in Ghana”
Client	FORM Ghana Ltd

Pages	35
Date of Issue	26/04/2022
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Summary:

A brief description of the verification and the project

The project aims at reforestation of 20,000 ha in degraded forest reserves in Ghana. Currently, 1,476 hectares in the Asubima Forest Reserve are realized, which is the first project instance of this grouped project with the start date being 1 March 2008. In addition to this also 1,738 hectares are realized in Afrensu Brohuma Forest Reserve, which is the second project instance of this grouped project with a start date of 1 March 2011. A further 8,878 hectares have been planted in the Tain II forest reserve, which is the third instance of this grouped project with a start date of 1 March 2013. The project foresees an average expansion of 1000 hectare per year, adding new project areas and instances.

The purpose and scope of verification

The report summarizes the findings of the verification of the project, performed based on VCS criteria, VCS AFOLY criteria and CDM methodology, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The objective of the verification is to have an independent review ex-post determination by a Designated Operational Entity (DOE) of the monitored GHG removals by sink that have occurred as a result of the VCS registered project during a defined monitoring period. Certification is the written assurance by the DOE, during specific period, the project activity achieved the net GHG removals by sink as verified.

The scope of the verification is to verify that:

- The actual monitoring system and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- The GHG removals by sink data and express a conclusion with a reasonable level of assurance about whether the reported GHG removals by sink data are free from material mis-statement;

- The reported GHG emission data is sufficiently supported by evidence.

Verification shall ensure that the reported GHG removals by sink are complete and accurate in accordance with applicable VCS and VCS AFOLU criteria in order to be certified.

The monitoring period : 01-July-2019 to 31-July-2021

The method and criteria used for verification

Verification is conducted using RINA procedures in line with the requirements specified in VCS Validation and Verification Manual, latest version available, relevant decision of the VCS Board and applying auditing techniques. RINA assesses and determines that the implementation and operation of the project activity, and steps taken to report GHG removals by sink comply with the VCS and VCS AFOLU criteria and relevant guidance provided by the Board. The verification assessment involved a document review of the relevant documentation and the remote-site visit.

Verification does not mean to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improved of the monitoring.

The number of findings raised during verification

No findings have been raised during the actual verification.

Any uncertainties associated with the verification

The project activity complies with all the verification criteria has no restrictions or uncertainties with respect to the compliance of the project with the VCS verification criteria.

Summary of the verification conclusion

FORM Ghana Ltd has commissioned RINA to carry out the verification and certification of GHG removals by sink reported for the registered project activity "Reforestation of degraded Forest Reserves in Ghana", VCS project ID 987 for the monitoring period 01-July-2019 to 31-July-2021.

The project was validated by SCS Global Services (validation report No. VCS_FORM-Ghana_FINAL Validation Report version 1.0 of 17/01/2013) and it was registered on 07/03/2013. The GHG removals by sink were calculated on the basis of the approved methodology AR-ACM0003 Afforestation and reforestation of lands except wetlands, version 02.0, and the monitoring plan included in registered PDD version 1.0 of 14/01/2013 and updated PDD version 1 of 19/07/2019. In conclusion, it is RINA's opinion that the project activity "Reforestation of degraded Forest Reserves in Ghana", as described in the Monitoring Report (MR) version 1.0 of 31 July 2021, meets all relevant requirements for VCS and VCS AFOLU activities and correctly applied the baseline and monitoring methodology AR-ACM0003 Afforestation and reforestation of lands except wetlands, version 2.0. Hence RINA is able to certify that the GHG removals by sink from the project during the monitoring period from 01-July-2019 to 31-July-2021 amount to 460,371 tCO₂e, the total number of 414,333.9 tCO₂e GHG credits are eligible to be issued as VCU's considering 46,037.1 GHG credits to be deposited into the AFOLU pooled buffer account.

CONTENTS

1	Introduction	5
1.1	Objective.....	5
1.2	Scope and Criteria	5
1.3	Level of Assurance.....	6
1.4	Summary Description of the Project	6
2	Verification Process.....	7
2.1	Method and Criteria.....	7
2.2	Document Review	7
2.3	Interviews.....	10
2.4	Site Inspections.....	11
2.5	Resolution of Findings	12
2.6	Eligibility for Validation Activities	12
3	Validation Findings.....	12
3.1	Participation under Other GHG Programs	12
3.2	Methodology Deviations.....	12
3.3	Project Description Deviations.....	12
3.4	Grouped Project	13
4	Verification Findings.....	15
4.1	Project Implementation Status	15
4.2	Safeguards	17
4.3	AFOLU-Specific Safeguards	17
4.4	Accuracy of GHG Emission Reduction and Removal Calculations	18
4.5	Quality of Evidence to Determine GHG Emission Reductions and Removals	22
4.6	Non-Permanence Risk Analysis.....	23
5	Verification conclusion	31
	APPENDIX X: <NA>	33

1 INTRODUCTION

1.1 Objective

This summarizes the findings of the verification of the project, performed based on VCS and VCS AFOLU criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting. The objective of the verification is to have an independent review ex-post determination by a Designated Operational Entity (DOE) of the monitored GHG removals by sink that have occurred as a result of the registered VCS project activity during a defined monitored period. Certification is the written assurance by the DOE that, during a specific period, a proposed VCS project activity achieved the net GHG removals by sink as verified.

The objective of the verification is to verify:

- the extent to which methods and procedures, including monitoring procedures, have been implemented in accordance with the validated project description. This includes ensuring conformance with the monitoring plan;
- the extent to which GHG emission reductions and removals reported in the monitoring report are materially accurate.

1.2 Scope and Criteria

Verification shall ensure that the reported GHG removals by sink are complete and accurate, according ISO14064-3 standard, the following principles are applied to ensure that the GHG related information is true and fair account: relevance, completeness, consistency, accuracy, transparency and conservativeness.

The scope of verification takes into account the physical boundaries (project sites) and the temporal boundaries of the project activity (length of the monitoring period) and includes at least:

- Organizational boundaries of the GHG project and its baseline scenarios;
- Physical infrastructure, activities, technologies and processes of the organization of GHG project;
- GHG sources, sinks and/or reservoirs;
- Types of GHGs;
- Period.

To ensure conformance of the project with the VCS rules, the assessment is performed against the most recent version of the following criteria:

- VCS Program Guide
- VCS Standard
- VCS AFOLU (sectoral scope 14) Requirements
- VCS Non-Permanence Risk Tool
- Applicable methodology

1.3 Level of Assurance

In order to detect errors, omissions and misstatements in emission removal being claimed by project participants in the monitoring report, the materiality have been applied by RINA.

- a) In planning the verification RINA is able to understand the environment in which the project activity operated, the sources of the project emissions and leakage within the project boundary, the monitoring activities, the equipment used to monitor or measured activity data, the origin and the application of data used to calculate the emissions, data flow, the internal quality control systems and the overall organization with respect to monitoring and reporting.
- b) A verification plan and intensive sampling has been designed to minimize risks that a material discrepancy would not be detected. The field data of the monitored parameters are verified according the sampling described in the following sections. The use of spreadsheets shows the adequate controls related to data updates, version tracking, traceability and security.
- c) During the verification, any individual or aggregate errors, omission or misstatement identified, which resulted in discrepancies have been considered material and requested to be corrected.

RINA confirms that the claimed emission reductions are free from material errors, omissions or misstatements with a reasonable level of assurance, and proceeded with the verification defined in the verification plan.

1.4 Summary Description of the Project

The project is reforestation of degraded forest reserves in Ghana, under grouped project

The project aims at reforestation of 20,000 ha in degraded forest reserves in Ghana. Currently, 1,476 hectares in the Asubima Forest Reserve are realized, which is the first project instance of this grouped project with the start date being 1 March 2008. In addition to this also 1,738 hectares are realized in Afrensu Brohuma Forest Reserve, which is the second project instance of this grouped project with a start date of 1 March 2011. A further 8,878 hectares have been planted in the Tain II forest reserve, which is the third instance of this grouped project with a start date of 1 March 2013. The project foresees an average expansion of 1000 hectare per year, adding new project areas and instances.

FORM Ghana Ltd who is responsible for plantation establishment and maintenance as terrain preparation, plant propagation, thinning, pruning, weeding, clear cutting, security and fire management implements the project activity. The implementation status of the technologies/ measures in the project activity has been elaborated in the monitoring report.

Project proponent (PP) Form Ghana Ltd. has a land lease agreement with traditional landowners and the Government of Ghana for reforestation of the project area to restore productive forest in the degraded forest reserves. This lease construction is part of the presidential policy to restore degraded forest reserves in Ghana, which is a strong policy instrument showing the commitment of the Government of Ghana to conserve, restore and promote the sustainable use of forest resources in the country.

Form Ghana is a company limited under Ghanaian law, established in 2007. Their plantations in Asubima and Afrensu Brohuma Forest Reserves are certified according to the principles and criteria of the Forest Stewardship Council (FSC) since January 2010. Tain II Tributaries Forest Reserve is managed along the same lines but currently not certified. The FSC certificate demonstrates the commitment and adherence of Form Ghana to the highest sustainability standards of both social and ecological aspects. The VCS carbon project is implemented according to the same high operational standards.

Project activities comprise CO₂ sequestration in tree plantations with exotic and indigenous tree species, natural forest restoration in riparian buffer zones and harvesting of high-quality timber. Project activities are carried out and monitored according to approved project methodology AR-ACM0003: Afforestation and reforestation of lands except wetlands --- Version 02.0 for a project period of 40 years. This monitoring period covers the period from 01/07/2019 to 31/07/2021 and in this period a total of 414,333.9 GHG emission removals have been generated.

2 VERIFICATION PROCESS

Verification process and validation process of new project activity instance into the grouped project is described in the following sections.

2.1 Method and Criteria

Verification/Validation is conducted using RINA procedures in line with the requirements specified in the VCS Validation and Verification Manual, latest version available, ISO14064-3 standard and applying standard auditing techniques. RINA assesses and determines that the implementation and operation of the project activity, and steps taken to report GHG removals by sink comply with the VCS criteria. The process involved a document review of relevant documentation and remote site audit due to COVID pandemic. Verification/Validation is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

2.2 Document Review

The monitoring report version 1.0 of 31/07/2021 /01/, the GHG removals by sink calculation provided in the form of a spreadsheet (VCS Calculations Form Ghana 2021) /03/, were assessed as part of the verification. In addition, the PD version 1 of 31/07/2021 /02/, in particular new instance compliance was reviewed.

The following documents were reviewed or referenced to ensure conformance of the project to the VCS rules and methodology applied:

No.	Author – Title – References to the document
1	Form International B.V.: Monitoring Report – version 1.0 of 31/07/2021
2	Form International B.V.: Project Design “Reforestation of Degraded Forest Reserves in Ghana”, version 1 of 31/07/2021
3	Form International B.V.: GHG removals spreadsheet calculation: VCS Calculations Form Ghana v.3- of 31/07/2021
4	Form International B.V.: Non-Permanence Risk Report – version 1.0 of 31/07/2021
5	RINA Services Spa: Verification Report 2019DGMD8 monitoring period 02/04/2018 to 30/06/2019, version 0.0Aa of 08/11/2019
6	SCS GLOBAL SERVICES: Validation Report – version 1.0 of 17/01/2013
7	PSP Scanned plot Tain II- dated - 07/04/2021
8	PSP Monitoring -field sheet – circular plot – Akumadan
9	Forest Management Plan – Tain Tributaries Block II Forest Reserve, Ghana, Form International, Hattem, of May 2016
10	IUCN Forest Conservation Programme: Forest Protection in Ghana
11	FSC Forest Management/Chain of Custody (FM/COC), CERTIFICATION CODE: CU-FM/COC-811445, Valid until: 18 January 2025
12	Form Ghana- Teak growth and yield model of October 2019
13	FSC internal Audit Report -Form Ghana Limited- Berekum of July 2021
14	Forestry Commission- Benefit sharing agreement for public – private partnership, dated 14/05/2013
15	Forestry Commission – Land Lease for Accessing Degraded Forest Reserve Land for public private partnership, dated 14/05/2013
16	Form International: Social and Environmental Impact Assessment – Form Ghana, reforestation project in Tain Tributaries Block II Forest Reserve, Ghana of 24/02/2015
17	Form Ghana: Environmental & Social Monitoring report Q4 2018 Tain II plantations, version 01 dated 09/01/2019
18	Form GHANA Ltd.: Protocol 13 Monitoring (last revision of 07/10/2018)
19	Form GHANA Ltd.: Protocol 7 Grievance Redress Mechanism (last revision of April 2021)
20	Form GHANA Ltd.: Protocol 28 Community Development Plan (last revision of 20/05/2019)
21	Form GHANA Ltd: Protocol 6 Stakeholder Engagement Plan (last revision 25/11/2019)
22	Form Ghana: 2020 PSP Data Akumadan
23	Form Ghana: 2020 PSP Data Tain II Fr
24	Form Ghana: 2020 PSP Data Teak 2016 Stand Tain II Fr
25	Form Ghana: 2021 PSP Data 2016 Stand Tain II Fr

26	Form Ghana: 2021 PSP Data Akumadan
27	Form Ghana: 2021 PSP Data Tain II Fr
28	Form Ghana: (a) Stakeholder meeting dated July and December 2019 at Akumadan (b) Akumadan stakeholders meeting date – 08/09/2020 and list of stakeholders (c) Akumadan stakeholders minutes of meeting
29	Form Ghana: (a) Stakeholder meeting dated 28 th June 2019 and 13 th Dec 2019 at Berekum (b) Berekum stakeholders meeting date – 11/09/2020 and list of stakeholders (c) Berekum stakeholders minutes of meeting
30	Form Ghana: Akumadan 1 st Biannual stakeholders meeting – 10/08/2021
31	Form Ghana: PSP Monitoring Training Certificate, dated 19/01/2021
32	Form Ghana: PSP training on Establishment and Monitoring of Permanent Sample Plots, of 1-3 February 2021
33	VCS Standard version 3.7 of 21/06/2017
34	VCS Validation and Verification Manual version 3.2 of 19/10/2016
35	VCS Agriculture, Forestry and Other Land Use (AFOLU) Requirements version 3.6 of 21/03/2018
36	VCS AFOLU Non-Permanence Risk Tool version 3.3 of 19/10/2016
37	CDM EB: AR-ACM0003 Afforestation and reforestation of lands except wetlands, version 02.0 of 04/10/2013.
38	CDM EB: Methodological tool Estimations of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity – version 02.0.
39	The REDD desk – REDD in Ghana http://theredddesk.org/countries/ghana
40	CDM EB: A/R Methodological tool for estimation of change in soil organic carbon stock due to the implementation of A/R project activities, version 01.1.10
41	Worldwide Governance Indicators 2017 – Daniel Kaufmann and Aart Krayy http://info.worldbank.org/governance/wgi/#home
42	KML file of the location, describing the exact location of the project activity

2.3 Interviews

During the period from 25/08/2021 to 26/08/2021, the remote-site audit was carried out and the following personnel associated with the project proponent and implementing partner were interviewed:

Interviewee	Date	Subject
Jan van der Sijde	25/08/2021	Operational management structure; crediting period; actual implementation and operation of the project activity; QA/QC procedures; records and storage data; ER calculation; field measurements.
Folkert Jager		Forest management plan.
Alexander Amoako		Project benefits.
Sammuel Ampofo		New plantation and growth rate of saplings
Ronja Knippers	26/08/2021	Community involvement
Tieme Wanders		Field measurements; record data.

2.4 Site Inspections

The auditing team could not visit the site due to COVID-19 pandemic and subsequent travel restrictions. The VVB could not postpone the site visit due the prevailing uncertainty in travel restrictions and the deadline for completion of the project as per the VCS standard requirements and signed contract between the VVB and the PP /103. Additionally, it is noted that there is no mandatory VCS Program requirement that mentions that a site visit must be conducted (even for forestry projects).

However, to make sure that the VVB complies with the clause 4.1.2 of VCS Standard Version 4.0, all the information provided in the MR and ER spread-sheets was verified during the desk-review phase. In addition, the VVB also checked the documents against credible sources and interviews with concerned stakeholders. The VVB carried out the audit by other means of standard auditing techniques, which included video conference calls, videos of the site, videos of the project site, publicly available documents, raw data sheets and interviews via MS team. The same is as per the VCS- COVID travel guidance (<https://verra.org/covid-19-travel-guidance/>).

During the desk assessment of the project, the auditing team assessed the implementation and operation of the proposed project activity, project area, selection of sample plots, SOPs in place for measurement and silviculture operations, field measurement data, interviewed key personnel of the plant to crosscheck the procedure adopted in field measurements, crosschecks between field data and ER sheets. The values used in the ER calculations were confirmed by means of checking the videos of sample plots provided by the client. Also, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

Any potential or actual material discrepancies identified during the verification process are solved through the issuance of findings. The types of findings issued are the following:

- 1) CAR (Corrective Action Requests) is raised if one of the following occurs: (i) non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient; (ii) mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate emission reductions; (iii) issues in a FAR during validation to be verified during verification have not been resolved by the PP.
- 2) CL (Clarification Request) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.
- 3) FAR (Forward Action Request) is raised during verification for actions in the monitoring and reporting require attention and/or adjustment for the next monitoring period.

During the verification, no findings are raised.

2.5.1 Forward Action Requests

No remaining Forward Action Requests from previous verification /5/.

2.6 Eligibility for Validation Activities

NA

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project Reforestation of degraded Forest Reserves in Ghana is not registered under any other GHG program, nor are the areas under this project used in other GHG programs under the same or a different name. VVB has assessed the same by referring to VCS and other GHG programs through the portals and found it to be correct.

3.2 Methodology Deviations

No deviations from the methodologies and tools used during this project were undertaken.

3.3 Project Description Deviations

Volume calculations for indigenous trees and stands

During this monitoring period, the method of calculating the volumes of indigenous trees and stands in the baseline calculations as well as the monitoring data was changed from the pantropical model previously used to a model specific for tropical forest trees and stands in Ghana, as described by Aabeyir et al. (2020). Given that the parameters in this model were estimated based on trees from stands with a similar species composition and similar climatic circumstances, they can be assumed to be more accurate to our data than the pantropical model used previously. Moreover, the model was based on destructive sampling and thereby on very accurate AGB numbers for the included trees.

This change does not impact any other part of the methodology, nor the additionality. The baseline scenario likewise stay the same, with the exception that the baseline values for indigenous trees are affected by the changed volume formula for indigenous trees.

3.4 Grouped Project

VVB did perform the remote site audit due COVID pandemic situation and there was no physical site visit. Before the remote site audit, it was discussed with PP on the selection of the site for sampling.

It was confirmed by the PP that only few field members are available, hence the remote site visit was conducted with the limited availability of resources. However, the area and the sample size of the project area (2500 Ha) included in this monitoring period (2019 -2021) was calculated by using the statistical software (Raosoft) and it was confirmed with client that during the remote site audit around 334 Ha of area was to be covered under remote site audit and the same was surveyed by the field team in Ghana.

The newly planted areas are part of existing TAIN II instance and there are no new instances added to the project in the monitoring period between 2019 and 2021. The project consists of three different reforestation types:

- teak (monoculture, 20-year rotation),
- Gmelina (monoculture, 12-year rotation) and
- mixed indigenous trees (restoration, no rotation).

Currently, 3214 hectares of both teak and indigenous forest have been realized in Asubima Forest Reserve and Afrensu Brohuma Forest reserve. These two adjacent Forest Reserves in the north of the Ashanti region form the first 2 instances of this grouped project. In 2019 a third instance was added to the project, where 7,498 hectares of Teak, Gmelina and indigenous forest have been realized in the Tain II Forest Reserve in the Brong Ahafo region. The project foresees an average expansion of 1000 hectare per year, adding new project areas and instances.

Quality and completeness of evidence, data and documentation relating to the new project activity instances.

Form Ghana has several nurseries, both at the sites and in-field, with a mission to produce high quality seedlings for the establishment of 1500ha of plantations per year in Ghana. The main nursery in Akumadan has:

- A yearly production of 2.500.000 (genetically) high quality teak (*Tectona grandis*) seedlings
- A yearly production of 500.000 seedlings of indigenous species.

Teak', is the principle species planted by Form Ghana in Asubima Forest Reserve, Afrensu Brohuma Forest Reserve and Tain II Forest Reserve.

In addition to teak, several tree species native to Ghana are planted. These species are introduced to enhance biological diversity of the forest estate, diversify the number of commercial tree species and restore ecological functions of the area.

In degraded forest areas with more remaining tree cover, PP prevents further degradation by the prevention of further logging, conversion to agricultural land and wildfires in these areas. Besides these protective measures, assisted natural regeneration (ANR) is applied to increase the speed of forest restoration in these areas.

Form Ghana has several nurseries, both at the sites and in-field, with a mission to produce high quality seedlings for the establishment of 1500ha of plantations per year in Ghana.

Pruning is undertaken mainly to clean part of the stem from branches, which leads to higher timber quality. One year after each thinning, the stand is pruned. Which is then repeated every other year or as necessary

The project shall be additional following the applicable CDM Tool

FORM Ghana adheres to strict compliance with all laws, statutes and regulatory frameworks in Ghana that apply to the company, including international conventions. Compliance with these laws and regulations is i.e. part of the annual FSC internal and external audits.

Apart from the prevention of erosion, sedimentation and water pollution, the buffer zones are developed to restore and maintain an ecological network of natural forest supporting a wide range of plant and animal species. No harvesting is allowed in the buffer zones, allowing for considerable carbon stock enhancement and maintenance. At the start of the project (baseline situation), the buffer zones are highly degraded and not homogeneous. There are patches of fallow grassland with remaining indigenous trees, agricultural land, and patches of degraded forest.

The identified credible alternative land use scenario are: (a) continuation of the pre-project land use (mosaic of illegal subsistence farming and grassland with scattered trees and patches of degraded forests); (b) commercial reforestation/plantation without VCS certification; (c) modified Taungya system (MTS) and community forest management; (d) sustainable commercial reforestation without VCS certification. All of them are consistent with enforced mandatory applicable laws and regulations in Ghana. Scenario (b), (c) and (d) are prevented by barriers of social and financial nature; therefore the credible baseline scenario is the continuation of the pre-project land use. The land lease agreement with the National Forestry Commission was signed on 2013 /14/.

It is confirmed that the methodology requirements are met, complete set of baseline alternatives have been identified and justified relevant for the project, conservativeness principle is applied to select the scenario that will result in the fewest GHG emission removals.

Identified baseline scenario

As discussed in the previous paragraph, the credible baseline scenario is identified as the continuation of the pre-project land use (mosaic of illegal subsistence farming and grassland with scattered trees and patches of degraded forests).

A non-permanence risk buffer assessment shall be performed for each new project area and applied for buffer determination. Please refer to section 4.6 of this report.

Leakage shall be assessed for each new project area following the applicable CDM tool. Leakage is defined as any increase in GHG emissions that occurs outside the project boundary and the type of leakage considered for the project activity, in accordance with §3.6 of the VCS AFOLU requirements /35/ is the “activity-shifting leakage occurs when the actual agent of deforestation and/or forest or wetland degradation moves to an area outside of the project boundary and continues its deforestation or degradation activities elsewhere”.

PP shall have the right of use for each new project area. A land lease for accessing degrading forest reserve lands for forest plantation development was signed between the PP and National Forestry Commission on 2013 /15/ and at the same time was also signed the benefit sharing agreement between the PP, the National Forestry Commission and Berekum Traditional Council to guarantee the access of land /14/.

Shall be managed according the same sustainability principles as described in the PD. The project activity is managed according the forest management plan /09/ that is in compliance with the principles described in the PD /17/ /2/. Even if the project is not yet certified, it is also managed in accordance to FSC standard for forestry management.

The new project instance added in this verification period is compliant with the eligibility criteria set out in the PD, the evidences provided are complete and accurate and confirmed by the mean of the field visit. It is RINA opinion that the inclusion of the new project activity instance is valid.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The registered project activity aims the reforestation of approximately 20,000 ha in degraded forest reserves in Ghana as Grouped project. Currently the following are realized:

Forest Reserve	Abbreviation	Year	Teak (ha)	dSOC teak	Indigenous (ha)	dSOC indigenous	Gmelina (ha)	dSOC gmelina
Asubima	ASU	2008	225.0	1143.0			0	0
Asubima	ASU	2009	511.7	2599.2			0	0
Asubima	ASU	2010	538.3	2734.7	47.68	242.2087067		0
Afrensu Brohuma	AFR	2011	845.6	4295.4	181.48	921.8967301		0
Afrensu Brohuma	AFR	2012	666.2	3384.2	80.423647	408.5425236		0
Tain II	TAIN	2013	573.8	2914.7	26.73	135.7852083		0
Tain II	TAIN	2014	1849.9	9397.3	194.19	986.4620124		0
Tain II	TAIN	2015	1098.1	5578.4	93.25	473.6988653	4	20.31952237
Tain II	TAIN	2016	87.6	445.1		0		0
Tain II	TAIN	2017	567.0	2880.2	82.56	419.3949418		0
Tain II	TAIN	2018	1597.5	8115.1	306.51	1557.034201	5	25.39940297
Tain II	TAIN	2019	863.2	4384.8	363.06	1844.301448	25	126.9970148

The reserves are located in the dry semi-deciduous forest zone and the terrain is covered with a very open canopy alternating with sandy-rock patches. Four different reforestation types have been identified: teak plantation, indigenous plantation, gmelina plantation and buffer restoration. Project implementation consist in the following strata: 2008, 2009, 2010 in Asubima Forest Reserve; 2011, 2012 in Asubima Forest Reserve; 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020 & 2021 in Tain II Forest Reserve /03/.

It is confirmed:

- GHG removals generated are not included in an emission trading program or any other mechanism that includes GHG allowance trading;
- The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification;
- The project participated or been rejected under any other under any other GHG programs since validation or previous verification;
- The project contributes to sustainable development. The project offers long-term employment to local people and provides alternative income for farming, making communities less dependent on their crop yield. Other benefits to the local socio-economic situation are improvements to the road network and improved knowledge regarding fire combating and other safety regulations /16/.

By means of the remote site audit and interviews with PP and local stakeholders, RINA has assessed that all physical features of the project description specified in the PD /02/ are in place and confirms that the implementation and operation, including the monitoring of the project activity has been conducted in accordance with the description contained in the PD(s).

Regarding project implementation, project description, implementation of monitoring plan and completeness of the monitoring system were assessed by document review, discussion/interview with PP and assessment during the remote site audit and VVB found that there are no material discrepancies in the project implementation.

4.2 Safeguards

4.2.1 No Net Harm

The social and environmental impact assessment of Asubima Forest Reserves was conducted in 2007 and assessed at the time of project validation /6/, while for Afrensu-Brohuma was conducted on 2012 /5/ and for Thain II on 2015 /16/. The assessment concluded that the project would bring positive environmental and social benefits to the area. From the environmental point of view it is likely to result in increased biodiversity and increased conservation value of the project area, while from the social sustainability the project offers long-term employment to local people, providing alternative income for farming, making communities less dependent on their crop yields. Globally, as it is also confirmed during the interview with local people, the project has positive effect on the pressure of natural forests and sustainable development.

4.2.2 Local Stakeholder Consultation

A stakeholder committee is established and regulated in accordance with internal PP's procedures for grievance mechanism /19/, community development plan /20/ and stakeholder engagement plan /21/. Moreover during the interview with the local people it is confirmed their involvement. Therefore, the PP has adequate instruments taken into account the stakeholder's demands and complaints and giving them appropriate response.

During the 2019-2021 monitoring period, stakeholders were consulted through stakeholder meetings. The stakeholders meeting took place on 28th June and 13th December in Berekum, July and December of 2019 in Akumadan, 8th September 2020 in Akumadan, 11th September 2020 in Bekerum, 10th August 2021 at Akumadan and 31st August 2021 in Berekum. /28//29/

4.3 AFOLU-Specific Safeguards

As per section 3.16.9 of VCS standard version 4.1, AFOLU projects that do not impact local stakeholders, projects are not required to meet the requirements set out in Sections 3.16.11– 3.16.18 of the VCS standard. RINA team confirms that the proposed project activity does not impact local stakeholders, which is discussed in section 4.2.2 above. Also, PP has carried out Socio-economic Impact Assessment for all locations to promote participation by local communities, private and government agencies in the assessment and review of proposed actions. PP has confirmed in the section 5.2 of the MR that there would be no harvesting (clear felling) after the crediting period is concluded. Also PP has confirmed that permanence of their carbon stock will be maintained and the remnant trees will not be felled but added as a constant to the value total C_{tree}. Only silvicultural practices may be implemented such as thinning and pruning.

PP has provided the carbon sequestration calculation i.e., VCS_calculations Form Ghana_ excel spreadsheet (Annex 1 VCS Calculations Form Ghana 2021, V2.xlsm – EP Overview & FG VCS Monitoring Report 2021 Including LTA V5, Page 44, Table 12), which contains the LTA calculations.

The updated long-term average (LTA) in the Monitoring Report is a total of 1,308,765.5 VCU's VVB assessed the annual change in GHG benefit, that is the additional GHG emissions reduced or removed each year in the project scenario ($PEt - PEt-1$). The expected total GHG benefit for every year to the date GHG emission reductions and removals from the project scenario minus the baseline scenario ($PEt - BEt$). The long-term average GHG benefit (LA) has been determined by averaging the expected total GHG benefit for the length of the project.

The amount of credits issued to the project begins when the project is reducing or removing emissions in the project scenario relative to the baseline scenario (i.e, year six). For each year, the net removals are issued as credits until the long-term average is reached. In this case, the long-term average is reached in year 11.

Also, it has been confirmed that the ERRs presented in the monitoring report do not exceed the LTA. Gmelina is not yet part of the carbon credits. The Gmelina spp. is only presented in the strata. In the monitoring report, the carbon is only calculated for the teak and indigenous strata. This is to confirm that carbon from Gmelina is not yet part of the VCU's claimed.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

As described in section 3.2 of this report no methodology deviations are applied. RINA was able to understand the environment in which the project activity operated, the sources of GHG removals within the project boundary, the monitoring activities, the equipment used to monitor or measured the activity data, the origin and application of data used to calculate the GHG removals, data flow, the internal quality control system and the overall organization with respect to monitoring and reporting. After the field measurement the data are transferred into the computer and checked by different people and then submitted to project manager for further cross-checking /3/.

Data and parameters fixed ex-ante as listed in the monitoring report /1/ have been cross-checked and reviewed as applicable against the PD and monitoring plan /2/, the applied methodology /37/ and other relevant VCS documentation. The following list shows the default values used in this verification for GHG removals calculation:

Data/Parameter	Description	Value
a_{IND}	This converts DBH and height into total aboveground tree biomass or volume	0.058
b_{IND}	This converts DBH and height into total aboveground tree biomass or volume	0.999
D_{IND}	Average wood density for Indigenous forest	kg m ⁻³ 458
R_{mix}	Root to shoot ratio for mixed tropical broadleaf species, Converts the above-ground biomass to the above- and below-ground biomass	1.22
CF_{IND}	Carbon fraction indigenous trees. Amount of carbon in dry matter	0.49
	Form factor remnant teak	0.36
BEF_{TEAK}	Biomass expansion factor teak, Converts trunk biomass to total above and belowground tree biomass.	1.53
D_{TEAK}	Teak wood density. The density for teak to determine dry weight	ton m ⁻³ 0.55
CF_{TEAK}	Carbon fraction Teak. Fraction of carbon in dried teak	0.495
D_{YORK}	York wood density, The wood density of Broussonetia papyrifera	kg m ⁻³ 506
D_{CASSIA}	Cassia wood density, The wood density of Cassia siamea	kg m ⁻³ 640
$D_{GMELINA}$	Gmelina wood density, the density for teak to determine dry weight	ton m ⁻³ 0.45
$BEF_{GMELINA}$	Biomass expansion factor Gmelina, Converts trunk biomass to total aboveground tree biomass	1.15
$SOC_{REF, i}$	soil organic carbon stock	ton C ha ⁻¹ 41
$f_{LU, i}$	SOC stock change factor for land use	0.70
$f_{MG, i}$	SOC stock change factor for management regime	1.12
$f_{IN, i}$	SOC stock change factor for input of organic matter	0.935

RINA confirms that the parameters listed above are fixed ex-ante and used for baseline and project emissions calculation in accordance with the applied methodology and methodological tools and they are the same used at the validation stage.

Data and parameters monitored. The following list shows the monitored parameters during the actual monitoring period, with monitoring frequency as annually, and used for GHG removals calculation. During the field visit, the PPs monitoring team demonstrated the way of measuring the trees and collecting the necessary data according the monitoring plan. The trees that are included in the area are painted using chalk to put a number in each tree; DBH is measured using the measuring tape and Suunto inclinometer to measure the tree height. While trees are measured, the field data sheet is filled writing per each numbered tree the species name, the diameter, the height and also the tree condition (e.g. if it is dead/almost dead, if it is a coppice, if it is suitable for thinning, etc). The field inventory practices were adequate and in conformance with the monitoring plan and represent little risk of material discrepancy.

The monitoring report describes the quality assurance and control procedures. There are monitoring team consisting of monitoring manager, QC officer, monitoring supervisor, data entry officer, assistant supervision, GPS operator and monitoring assistant.

During the verification process and remote site audit it was discussed with the monitoring team at the field level and confirmed that there are no manual transposition errors between data sets.

Data/Parameter	Description	Assessment
a _{age, IND}	Constant to convert biomass to age for mixed tropical trees	Converts biomass to stand age (or vice versa) as one of two used parameters and is an indicator of the AGB in an old growth forest, the data is monitored annually, the applied value is 26.11401
Form factor teak, f _{TEAK}	Conversion factor of cylinder measured from DBH and height to trunk volume	Depending on age between 0,66 and 0,34. The following formula based on measurement taken on the field, is used to determine the form factor per teak plant year: $\ln(V) = b_1 + b_2 \ln(d) + b_3 \ln(h)$ $b_1 = -9,605$ $b_2 = 1,955$ $b_3 = 0,799$
A _(PLOT,i)	Total area of sample plots.	Total area of sample plots (ha) is measured annually according the approach described in the validated PD /2/. The cumulative sample plot area is at least 1% of the stratum area. Each plot is established to be 0.08 ha, depending on the soil inclination and shape of the plot /2/, and the determination has been done using GIS and GPS in the field.
H	Total Height of trees	Depending on age between 0,5 and 30 meters
DBH	Diameter of trees at 1.3m height	Depending on age, between 0 and 45 cm
	Area of the tree biomass stratum.	The area is identifies by teak, indigenous, gmelina and buffer restoration as per the following table /2/.

RINA confirms that:

- The validated monitoring plan has been properly implemented and followed by the PPs;

- The responsibilities and authorities for monitoring and reporting are in accordance with the responsibilities and authorities stated in the validated monitoring plan;
- Quality assurance and quality control procedures have been applied in accordance with the validated monitoring plan;
- The monitoring has been carried out in accordance with the validated monitoring plan.

Calculation GHG removals by sinks: According to the applied methodology /16/ the carbon stock changes in dead wood and litter is excluded for accounting of carbon stock; shrubs biomass is neglected since the presence in the project area. For accounting the baseline GHG removals the same baseline is considered for the three forest reserves: the tree biomass is reduced due to cutting of trees and passing of bush fire /5/ /6/; moreover due to the change in carbon stock in trees in the project strata is conservatively estimated to zero since: no harvest has occurred in the stratum since the previous verification /9/ /10/; the stratum are not affected by any disturbance that would decrease the carbon stock in trees /29/; the tree crown cover in the stratum are not decreases since the previous verification, the PP is not allowed without obtaining the appropriate permit by Forestry Commission. Therefore, based on the above assumptions the baseline GHG removals account to 0 /3/. The project is stratified based on planting year, and four different reforestation type are in place: teak plantation, indigenous plantation, gmelina plantation and buffer vegetation. The total change in selected carbon pools in teak strata and indigenous strata is the change in tree biomass and soil organic carbon where:

$$\Delta CP_t = \Delta C_{TREE} + \Delta C_{SOC}$$

The change in carbon stock in tree biomass (teak and indigenous) is calculated according to the methodological tool /38/ by estimating the biomass of each plant year during the period between two points of times. According to the PP's monitoring protocol /17/ the monitoring starts 3 years after planting when trees have a size where a DBH can be measured; therefore, the planting years from 2017 to 2019 are not measured for the monitoring purpose. The total tree biomass is calculated based on field measurement in permanent sampling plots by summing the biomass of all individual trees measured in each sample plot. The associated uncertainty in teak strata is less than 10% (8.2%), therefore there is no need to apply uncertainty discount; while the associated uncertainty in indigenous strata is 28.9%, according to the methodological tool /19/ the uncertainty discount of 75% is applied. The change in tree biomass in teak strata account to 355,032 tCO₂e, and in indigenous strata account to 56623.4 tCO₂e.

The change in **soil organic carbon** is calculated according to the methodological tool /40/ as shown in the registered and revised PD /2/ /20/ and it is fixed for the first 20 years after plantation establishment. The change in soil organic carbon in teak strata account to 47,872 tCO₂e and indigenous strata to 6989 tCO₂e.

The total change in selected carbon pools is calculated as following:

$$\Delta CP_t = \Delta C_{TREE} + \Delta C_{SOC}$$

$$56623.4 \text{ tCO}_2\text{e} + 6,989 \text{ tCO}_2\text{e} = 63,612 \text{ tCO}_2\text{e}$$

Applying conservative approach, the buffer vegetation is not included in the GHG removals calculation. According to the applied methodology, leakage due to displacement of agricultural activities account to 0. Baseline net GHG removals are estimated according the applied methodology and methodological tool. The change in biomass is conservatively estimated as zero since the following conditions are met in the strata:

No harvest has occurred in the stratum since the previous verification as confirmed by the PP during the field visit, applying the procedure part of the forest management plan /11/ /12/;

The stratum was not affected by any disturbance that would decrease the carbon stock in trees as confirmed by PSP monitoring reports /7/ /8/ /17/;

Inventory data demonstrates that the tree crown cover in the stratum has not decreased since the previous verification.

The net GHG removals are calculated according the following formula:

$$\Delta C_{AR-VCS,t} = \Delta C_{ACTUAL,t} - \Delta C_{BSL,t} - LK_t$$

GHG emission removals in the buffer vegetation is 0 not included in this monitoring report, $\Delta C_{AR-VCS,t} = \Delta C_{AR-VCS,t,TEAK} + \Delta C_{AR-VCS,t,IND}$

Therefore, $\Delta C_{AR-VCS,t} = 402,904 + 57,967 = 460,371 \text{ t CO}_2\text{e}$

RINA confirms that:

- All data and parameters were monitored in accordance with the validated monitoring plan /20/;
- The values reported in the monitoring report /1/ were verified against the data presented in the GHG removals calculation spreadsheet /2/;
- The calculation of the GHG removals have been carried out in accordance with the formulae and method described in the validated monitoring plan /20/ and applied methodology /16/;
- IPCC default values and other reference values have been correctly applied in the calculation in accordance to the validated PD /20/.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

As described in the previous section the calculation of the net GHG removals have been carried out in accordance with formulae and method described in the validated monitoring plan /20/ and applied methodology /16/. Monitoring team with specific task and responsibilities is involved in the monitoring of the plantations to ensure the correct implementation of PSP measurements, clear and correct recording on field sheets maintenance and completeness of equipment, taking correct field measurements, data analysis and reporting and quality assurance of PSP monitoring. The monitoring team was observed during the field visit taking the field measurements and reporting the field sheets. Before the monitoring campaign the monitoring team is trained /23/.

The monitoring equipment are: (a) GPS for the determination of geographical coordination of plot location and project boundaries; (b) fibre-glass tape for the determination of sample plot area; (c) calliper for the determination of DBH; (d) measurement stick together with a fibre-glass for the determination of height of species; (e) clinometer for the determination of slope of sample plot area.

RINA confirms:

- The reliability of the evidences, and sources and nature of the evidence for the determination of GHG removals;
- The information flow from data generation and aggregation, to recording, calculation and final transportation into the monitoring report are adequate to the nature of the project monitoring;
- That the monitoring equipment used are not equipment subjected to calibration and by the field visit there is the evidence of the right use of the GPS and the all other manual equipment.
- KML file of the location provided by the PP describes the exact location of the project activity/42/

4.6 Non-Permanence Risk Analysis

In accordance with the VCS AFOLU requirements /15/ the project's non-permanence risk report /4/ is assessed, considering the internal risks, the external risks and the natural risks. The overall non-permanence risk rating accounts to 5.50 which is below the minimum risk stated by the VCS AFOLU requirements which is set up at 10. Following the assumptions assessed for arriving to the overall risk rating.

1 Internal Risk		
Total Internal Risk		2
Project Management		
Risk factor Assessment		Risk rating
a)	Teak is known to grow well in the area and it is not native /09/, several teak plantations were observed during the remote site audit. As confirmed by the PP during the interviews the survival rate of teak after three years is for approximately 70%. The rating claim is reasonable.	0
b)	The project area of Asubima and Afrensu-Brohuma is certified under FSC Standard /11/ for forest management which expects several measures to prevent encroachment by outside actors. Tain II is not yet certified under FSC but the same forest management operation is applied. During the field visit was observed a security team suverying the area boundaries and interior. The rating claim is reasonable.	2
c)	The management team is highly experienced confirmed through interview with the project team. The rating claim is reasonable.	0
d)	The dedicated full time management staff are less than 1 day from the site. The management team is located in Sunyani in Berekum Distric which is far from Tain II about 1 hour and from Asubima and Afrensu-Brohuma 3 hours. The rating claim is reasonable.	0
e)	The risk report does not claim mitigation credit for AFOLU expertise.	0
f)	A forest management plan /7/ /8/ /9/ is in place describing the policy and long term planning for the management of the company and indicates what has been achieved so far. The management plan describes the management system of the PP includes forest management objectives, the organization and responsibilities, the risk management (prevention of illegal activities, fire management and control of pests), the social plan, the environmental management and the monitoring activities. The rating claim is reasonable.	-2
Total Project Management		0

Financial Viability		
Risk Factor Assessment		Risk rating
a)	Project cash flow breakeven point is greater than 10 years from the current risk assessment	NA
b)	Project cash flow breakeven point is greater than 7 and up to 10 years from the current risk assessment	NA
c)	As declared by the PP the project cash flow breakeven point is expected to be in 2023 and the cash flow out includes project implementation costs and costs associated with GHG credit generation. The rating claim is reasonable.	1
d)	Project cash flow breakeven point is 4 years or less from the current risk assessment	NA
e)	Project has secured less than 15% of funding needed to cover the total cash out before the project reaches breakeven	NA
f)	Project has secured 15% to less than 40% of funding needed to cover the total cash out required before the project reaches breakeven	NA
g)	Project has secured 40% to less than 80% of funding needed to cover the total cash out required before the project reaches breakeven	NA
h)	As declared by the PP the project has secured 100% of the funding needed to cover the total cash out before the project reaches break even. The rating claim is reasonable.	0
i)	Please refer to (h)	-2
Total Financial Viability		-1

Opportunity Cost		
Risk Factor Assessment		Risk rating
a)	NPV from the most profitable alternative land use activity is expected to be at least 100% more than that associated with project activities; or where baseline activities are subsistence-driven, net positive community impacts are not demonstrated	NA
b)	NPV from the most profitable alternative land use activity is expected to be between 50% and up to 100% more than from project activities	NA
c)	NPV from the most profitable alternative land use activity is expected to be between 20% and up to 50% more than from project activities	NA
d)	As per the additionality demonstration, the continuation of the pre-project land use, mosaic of illegal subsistence farming and grassland with scattered trees and patches of degraded forest is the baseline scenario /37/. According the social and environmental impact assessment the project would bring positive environmental and social benefits to the area. From the environmental point of view it likely to result in increased biodiversity and increased conservation value of the project area, while from the social sustainability the project offers long-term employment to local people, providing alternative income for farming, making communities less dependent on their crop yields. A benefit sharing agreement for forest plantation development is also signed between the PP, the Forestry commission and the representative of the district traditional council /14/. Globally, as it is also confirmed during the interview with local people, the project has a positive effect on the pressure on natural forests and on sustainable development. The rating claim is reasonable.	0
e)	NPV from project activities is expected to be between 20% and up to 50% more profitable than the most profitable alternative land use activity	NA
f)	NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity	NA
g)	Mitigation: Project proponent is a non-profit organization	NA
h)	The PP signed with the Forestry Commission a land lease for access to degraded forest reserve lands for developing commercial plantation /15/ valid for 50 years. The rating claim is reasonable.	-2
i)	Mitigation: Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years	NA
Total Opportunity Cost		-2

Project longevity		
Risk Factor Assessment		Risk rating
a)	Without legal agreement or requirement to continue the management Practice	NA
b)	The project longevity is set up at 50 years according the agreement signed with the Forestry Commission a land lease for access to degraded forest reserve lands for developing commercial plantation /15/ valid for 50 years. The rating claim is reasonable.	5
Total Project Longevity		5

2 External Risk		
Total External Risk		0
Land tenure and resource access/impacts		
Risk factor Assessment		Risk rating
a)	Ownership and resource access/use rights are held by same entity(s)	NA
b)	Land is owned by traditional land owners, governed by the Ghana Government. The agreement signed with the Forestry Commission a land lease allow the PP for access to degraded forest reserve lands for developing commercial plantation /14//15/ valid for 50 years. The rating claim is reasonable.	2
c)	No disputes exist over land tenure rights, confirmed during the interview with PP and by verifying the land lease document during the remote site audit. The rating claim is reasonable.	0
d)	No disputes exist over access/use rights, confirmed by the interview with PP and local communities during the field visit. The rating claim is reasonable.	0
e)	WRC projects unable to demonstrate that potential upstream and sea impacts that could undermine issued credits in the next 10 years are irrelevant or expected to be insignificant, or that there is a plan in place for effectively mitigating such impacts.	NA
f)	Project area is protected by legally binding commitment through the agreement signed with the Forestry Commission a land lease for access to degraded forest reserve lands for developing commercial plantation /14//15/ valid for 50 years. The rating claim is reasonable.	-2
g)	No disputes exist over land tenure rights, confirmed by the interview with PP and local communities during the remote site audit visit. The rating claim is reasonable.	0
Total Land Tenure		0

Community Engagement		
Risk Factor Assessment		Risk rating
a)	As per the social and environmental impact assessment /16/ no people were living in the project area and they are not living in the project anymore as confirmed by PP during the remote site audit. The claim is reasonable.	0
b)	Less than 20 percent of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted, confirmed during the interview with PP. The claim is reasonable.	0
c)	According to the social and environmental impact assessment /16/ the project would bring positive environmental and social benefits to the area. From the environmental point of view it likely to result in increased biodiversity and increased conservation value of the project area, while from the social sustainability the project offers long-term employment to local people, providing alternative income for farming, making communities less dependent on their crop yields. A benefit sharing agreement for forest plantation development is also signed between the PP, the Forestry commission and the representative of the district traditional council /14/. Globally, as it is also confirmed during the interview with local people, the project has a positive effect on the pressure on natural forests and on sustainable development. The rating claim is reasonable.	-5
Total Community Engagement		-5

Political Risk		
Risk Factor Assessment		Risk rating
a)	Governance score of less than -0.79	NA
b)	Governance score of -0.79 to less than -0.32	NA
c)	As per Worldwide Governance Indicators 2017 published by World Bank /41/ the governance score is calculated as 0.033.	2
d)	Governance score of 0.19 to less than 0.82	NA
e)	Governance score of 0.82 or higher	NA
f)	REDD+ and other initiatives within the forestry sector have been identified as key aspects to address environmental degradation in Ghana /39/.	-2
Total Political Risk		0

Natural Risk		
Risk Factor Assessment		Risk rating
a)	Fire (F) The plantation (Teak and indigenous) is relatively high resistance to fire damage even if fire remain the greatest risk for plantation. Fire management is employed to reduce fire risk focusing on fuel load reduction, fire breaks, establishment and training of a fire squad and awareness raising on the risk of fire for local people /09/. During the remote site audit and it was discussed and interviewed with PP and found that there is existence of fire tower and recovery of rain water. Score 2 is reasonable applied. (Rating risk 0.50)	0.5
b)	Pest and diseases outbreaks (PD) The plantation (Teak and indigenous) is not very susceptible to pests and disease; the PP reduces the risk of potential infections keeping a healthy nutrient balance and preventing damage /09/. No fire events occurred in the project boundary during the monitoring period. The environmental & social monitoring report /17/ confirms that no pests and disease were found in the plantation. Score 2 is reasonable applied. (Rating risk 1)	1
c)	Extreme weather (W) Less than of 5% of the carbon stock could be affected by extreme weather as heavy winds combined by heavy rainfall. The PP apply thinning regime which takes stability of the stands into accounts. Score 2 is reasonable applied. (Rating risk 1)	1
d)	Geological risk (G)	NA
e)	Other natural risk (ON)	NA
Total Natural Risk		2.5

In conclusion, the non-permanence risk rating determined by the PP is in accordance with the VCS AFOLU requirements and the risk rating of 10% is applied to calculate the AFOLU pooled buffer account, which accounts to 46087.1 tCO₂e deducted from the total GHG removals.

5 VERIFICATION CONCLUSION

RINA Services Spa (RINA) has performed the verification of the GHG removals by sinks reported for the grouped project Reforestation of degraded Forest Reserves in Ghana, for the period 01/07/2019 to 31/07/2021 with regard to the relevant requirements for VCS and VCS AFOLU project activities.

The project participant is responsible for:

- For the preparation of GHG removals data and reported GHG removals by sinks from project on the basis set out in the monitoring plan contained in the validated PD version 1.0 of 04/10/2013 and updated PD version 1 of 31/07/2021.
- The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG removals by sinks of the project.

Based on the documented evidence and corroborated by an on-site assessment RINA can confirm that:

- The project complies with the verification criteria for projects and their GHG emission removals set out in VCS Version 3;
- The project has been implemented and operated in accordance with the project description and subsequently validated variations;
- The new instance added complies with the eligibility criteria stated for the inclusion of new instance in the grouped project;
- The monitoring report version 1.0 of 31/07/2021 and other supporting documents provided are complete and verifiable in accordance with the applicable VCS and VCS AFOLU requirements;
- The monitoring is in place as per the applied baseline and monitoring methodology;
- The monitoring complies with the monitoring plan in the validated and updated PD;
- The monitoring plan in the validated and updated PD is as per the applied baseline and monitoring methodology.

It is RINA's opinion that the GHG removals by sinks stated in the monitoring report version 1.0 of 31/07/2021 are fairly stated. The GHG removals by sinks were calculated correctly based on the approved monitoring methodology and the monitoring plan contained in the validated and updated PD. Hence, RINA is able to certify the following GHG removals:

Verification period: from 01/07/2019 to 31/07/2021

During the year 2020 there was no audit conducted and the vintage of 2020 is included at the end of 2021. However, the vintages have been fixed annually as per the requirements.

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2019 (July 1st – December 31st)	0	110609.0	0	110,609.0
2020 (January 1st – December 31st)	0	221,218.1	0	221,218.1
2021 (January 1st – July 31st)	0	128,543.9	0	128,543.9
Total		460,371	0	460,371
10% AFOLU Pooled buffer account		46,037.1		414,333.9



**CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE**

Si attesta che il sig./sig.ra:

Vinay SINGH

We declare that Mr/Mrs/Ms:

è qualificato come¹:
is qualified as:

CDM-TEC, CDM-VAL, CDM-VER,
REG-EXP², ITRP

per le seguenti aree tecniche:
for the following technical areas:

1.2. 14.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
14.1	Forestry	14

in accordo alle istruzioni della Unità Certification Innovation and Sustainability.
in accordance with the instructions of the Certification Innovation and Sustainability Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	04/05/2020	First Issue
1	23/07/2021	Technical reviewer

Il Resp. CEINS
Head of CEINS


¹ Legend:

VAL:	Validator	CDM: Clean Development Mechanism
VER:	Verifier	VCS: Verified Carbon Standard
TEC:	Technical Expert	GS: Gold Standard
TL:	Team Leader	SCS: SocialCarbon Standard
FIN-EXP:	Financial Expert	Ji: Joint Implementation
DET:	Determiner	

² India, Kenya, Uganda, Sri Lanka, Thailand, Mauritius.

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

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Page 1 of 1



CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:

Geisa Maria Principe BRANCO SAETTONI

We declare that Mr/Mrs/Ms:

è qualificato come¹:
is qualified as:

CDM-TEC, VAL, VER, TL, ITRP, REG-EXP²

per le seguenti aree tecniche:
for the following technical areas:

1.1, 1.2, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal Energy generation	1
1.2	Energy generation from renewable energy sources	1
13.1	Waste Handling and Disposal	13

in accordo alle istruzioni della Unità Certification Innovation and Sustainability.
in accordance with the instructions of the Certification Innovation and Sustainability Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	27-08-2009	-
10	31-03-2017	Added qualification as ITRP
11	07/12/2018	Added qualification as REG-EXP
12	15/11/2019	Update qualification with "Sampling and surveys for CDM PAs and PoAs"

Il Resp. CEINS
Head of CEINS


¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS: Gold Standard
SCS: Social Carbon Standard
JI: Joint Implementation

² Argentina, Perú, Colombia, Mexico, Honduras, Panama, Dominican Republic, Guatemala

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports



**CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE**

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Gustavo Goes Lima

è qualificato come¹:
is qualified as:

CDM, VCS, SCS - TEC

per le seguenti aree tecniche:
for the following technical areas:

14.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
14.1	Afforestation and reforestation	14

in accordo alle istruzioni dell'unità Sustainability Compliance & New Scheme Development Coordination.
in accordance with the instructions of the Sustainability Compliance & New Scheme Development Coordination Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	26/05/2021	First Issue

Il Resp. CEINS
Head of CEINS



¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS4GG: Gold Standard For Global Goals
SCS: SocialCarbon Standard
JI: Joint Implementation

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Page 1 of 1