VCS JOINT VALIDATION & VERIFICATION REPORT

Agroforestry Plantations in India

Report ID	22035-VCS
Project Title	Agroforestry Plantations in India
Project ID	3562
Verification period	18-June-2018 to 17-March-2024
Crediting period	18-June-2018 to 17-June-2048
Original date of issue	02/03/2025
Most recent date of issue	25/11/2025
Version	01.3
VCS Standard Version	V4.7
Client	Infinite Environmental Solutions Limited
Prepared by	4K Earth Science Private Limited

Approved by	Chandrakala R  Managing Director
Work carried out by	Ma Paa Puratchikkanal (Team Leader and Local Expert) Ms. Zainab Hassan (Technical Expert and Local Expert) Mr. Nandagopal P. (Expert to TR) Mr. Chetan S. Sharma (Technical Reviewer)

Summary:

A description of the validation and verification

4K Earth Science Pvt Ltd (4KES) has been contracted by Infinite Environmental Solutions Limited to perform joint validation and verification of the VCS grouped project 'Agroforestry Plantations in India' (VCS ID 3562) under the VCS Program. The grouped project is planned to be implemented across Gujarat and Rajasthan states of India. However, Project Activity Instance - 1(PAI-1) is implemented in three districts in Gujarat—Banaskantha, Bhavnagar, and Botad and two districts in Rajasthan—Barmer and Jalor, India. The project is implemented by Shivbhadra Agro Private Limited (SAPL) – who is the Project Proponent (PP) for the project.

The primary objective of the project is to establish a community-based, sustainable afforestation initiative that promotes carbon sequestration on degraded land through plantation activities. To achieve this, SAPL has collaborated with farmers to cultivate grafted varieties of horticultural tree species. The agroforestry approach integrates ecological restoration, carbon mitigation, socioeconomic empowerment, and ecosystem conservation while generating livelihood opportunities for rural communities.

The joint validation and verification goal is to ensure that the Project and the associated project documentation comply with all guidelines and specifications of Section 4 of VCS Standard v4.7, the applied GHG methodology " A/R-ACM0003" v02 "and its accompanying tools, as well as the VCS Non-Permanence Risk Tool, v4.2.

Prior to project implementation, the land was degraded. In the absence of the project, degradation would have continued, exacerbating the environmental challenges in both states. Both States face severe threats from drought and land degradation, which significantly impact agriculture, food security, and environmental stability.

In the first PAI-1, the following species were planted: *Punica granatum* (Pomegranate), *Psidium guajava* (Guava), *Swietenia macrophylla King* (Mahogany), and *Annona squamosa* (Custard apple). The project aims to cultivate high-quality trees for fruit production, sawn timber, transmission poles, and wood-based panel products, contributing to greenhouse gas (GHG) reduction. These species are well-suited to a variety of climatic conditions and soil types of the project areas. Additionally, the project supports sustainable income generation for small landholders by integrating horticultural species with intercropping practices. Ecological development is promoted through -in-situ soil moisture conservation techniques, pest and disease control strategies, fire prevention and plantation protection, irrigation training and capacity building. A strong focus is placed on community engagement, ensuring local participation at every stage of implementation.

The project is categorized as an afforestation activity under the VCS Afforestation, Reforestation, and Revegetation (ARR) category. Designed as a grouped project, it aims to include additional small landholders adopting improved land use management practices. Total planned project area: 25,000 ha, Area implemented in the first PAI: 502.51 ha. The project Start date is 18th June 2018 and the Crediting period is 30 years (renewable) – from 18th June 2018 to 17th June 2048.

The project design and emission removals are prepared using the A/R Large-Scale Consolidated Methodology (A/R-ACM0003) – Afforestation and Reforestation of Lands Except Wetlands, v2. Given the non-permanence risks within the AFOLU sector, a 19% buffer has been calculated using the AFOLU Non-Permanence Risk Assessment Tool, v4.2.

The method and criteria used for validation and verification

The scope of the joint validation and verification includes an independent and objective assessment of the VCS project design document, baseline study, monitoring plan, monitoring report, stakeholder and

safeguards impacts, SDG contributions, and other relevant documentation. This review evaluates the project's compliance with the VCS Validation and Verification Manual v3.2, VCS Standard v4.7, and all other applicable VCS rules and guidelines. This report is based on a comprehensive evaluation of the VCS project design document and monitoring plan, conducted using standard auditing practices, including desk reviews, site visits, follow-up actions, and an assessment of applicable approved methodologies and tools. The joint validation and verification process was completed without any identified uncertainties.

The number of findings raised during validation and verification

During the joint validation and verification process, 43 corrective actions (CARs), and 1 Forward action requests (FARs) concerning validation were raised

Any uncertainties associated with the validation and verification

4KES has no restrictions or uncertainties regarding the project's compliance with the validation and verification criteria.

Summary of the validation and verification conclusions

In conclusion, 4KES confirms that the Agroforestry Plantations in India project meets all relevant VCS standards and guidelines and has correctly implemented the approved methodology for baseline calculation, additionality determination, and emission reduction monitoring throughout its crediting period, which begins on 18th June 2018 and extends for a 30-year renewable period until 17th June 2048.

Emissions Removals:

- **Ex-ante for the entire grouped project (25,000 ha) (with LTA):**
    - Total: 4,824,945tCO_2e
    - Total after buffer deduction: 3,908,205tCO_2e
    - Annual average after buffer: 130,274tCO_2e
- **Ex-ante for the first PAI (502.51 ha) (with LTA):**
    - Total: 139,953tCO_2e
    - Total after buffer deduction: 113,362tCO_2e
    - Annual average after buffer: 3,779 tCO_2e

The VVB also concludes that the project has been implemented per the project design and monitoring plan and has accurately estimated GHG emission reductions during the monitoring period of 5.75 years (18th June 2018 – 17th March 2024).

- **Ex-post for the first PAI (502.51 ha) (With LTA):**
    - Total: 46,669 tCO_2e
    - Total after buffer deduction: 37,798 tCO_2e
    - Annual average after buffer: 6,576 tCO_2e

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1 INTRODUCTION

1.1 Objective

4KES has been appointed by Infinite Environmental Solutions Limited to perform an independent validation/verification of its VCS project the "Agroforestry Plantations in India" (VERRA ID – 3562)[1]. The objective of the validation and verification is to assess the joint project document and monitoring report (PDMR) /7/, non-permanence risk analysis /14/, emissions reductions sheets /8/ and all supporting documentation. The validation and verification objectives were established per Section 4 of the VCS Standard v4.7 and Sections 2.1.1 and 2.1.2 of the VCS Validation and Verification Manual, V3.2.

1.2 Scope and Criteria

The scope of the validation and verification is defined as an independent and objective review of the joint PDMR/7/ document, where methodological deviations and the project's compliance in relevant sections of PDMR is reviewed against the requirements of VCS Standard. 4KES has employed a risk-based approach in the validation and verification, focusing on the identification of significant risks for project implementation and the generation of emission reductions/carbon sequestration.

The scope of work covered in the validation is described below:

- To validate and verify whether the project activity meets the requirements of VCS Standard v4.7/2/, VCS Validation and Verification Manual v3.2/3/, and VCS program guide 4.3 /1/.
- To evaluate whether the baseline, monitoring plan and monitoring report are in conformance with the applied VCS methodology.
- Approved baseline and monitoring methodologies (including GHG inventories).
- To confirm that the information presented are complete, consistent, transparent, and free of omission or material error.
- Background investigation and follow-up interviews and site visit.
- Issuance of draft joint validation and verification report (JVVR) with CARs, CLs & FARs, if any
- Final validation and verification opinion
- Standard auditing methods for management systems.

[1] https://registry.verra.org/app/projectDetail/VCS/3562

- Good practice in the respective technology and sectoral scope, including environmental and safeguards principles and sustainable developmental goals.

Furthermore, the assessment team used additional documentation by third parties like reports referring to the PDMR or to the basic conditions and technical data available on public domain to assess the following: -

- Compliance with relevant law and regulations /24/
- LULC /15/ and KML /10/ data
- Land title documents (issued by the competent authorities in the region /17/ and carbon agreements between the landowners and PP /12/
- AFOLU safeguards section in PDMR/7/.
- Permanent sample plots (PSPs) data /55/

The assessment team has checked all the above-mentioned details and confirms that all the information provided is accurate. Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS guidance document.

The validation and verification are not intended to give the client any consulting services. However, clearly stated requests for clarifications and/or remedial action may provide the opportunity for the client to enhance the project design and its applicability as per VCS requirements.

1.3 Reasonableness of Assumptions and Level of Assurance

The assessment was conducted to ensure a reasonable level of assurance regarding conformance with the defined audit criteria and materiality thresholds within the audit scope. Based on the audit findings, the evaluation provides reasonable assurance that the project's GHG claims are materially accurate, conservative, and a fair representation of the GHG data and information. The technical review was performed by qualified reviewers (details mentioned in section 2.1 of this report) per 4KES's qualification scheme for VCS validation and verification.

As per Section 4.1.2 of the VCS Standard v4.7, the level of assurance and assumptions in this JVVR are deemed reasonable.

1.4 Summary Description of the Project

The primary objective of the project is to establish a community-based, sustainable afforestation initiative that promotes carbon sequestration on degraded land through plantation activities. To achieve this, SAPL has collaborated with farmers to cultivate grafted varieties of horticultural tree species. The agroforestry approach integrates ecological restoration, carbon mitigation, socioeconomic empowerment, and ecosystem conservation while generating livelihood opportunities for rural communities.

The joint validation and verification goal is to ensure that the Project and the associated project documentation comply with all guidelines and specifications of Section 4 of VCS Standard v4.7, the applied GHG methodology " A/R-ACM0003" v02 "and its accompanying tools, as well as the VCS Non-Permanence Risk Tool, v4.2.

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2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

The project activity applies approved CDM methodology A/R-ACM0003, v02[2]"/20/, categorized under sectoral scope 14. This joint validation and verification were undertaken as per VCS Standard v4.7, and its associated tools as well as applying standard auditing techniques and Validation and Verification Manual v3.2.

The joint validation and verification process is undertaken by the VVB team that involves the following:

- Contract review and appointment of audit team.
- Publication of VCS project design/description document
- Completeness Check of the documents and templates used.
- The desk review of documents and evidence submitted by the PP in context of the reference VCS rules and guidelines. (Example: Project conformance to the applied methodology, including the procedure for the demonstration of additionality specified in the methodology)
- Design the sampling plan for audit and remeasurement of the PSPs.
- Undertaking site visit, interview, and interactions with the representatives of the PP, Other Entity, project employees and local communities and other relevant stakeholders. The viewpoints collected in these interviews were considered by VVB along with onsite observation, objective evidence gathering, data production, and recorded analysis when reaching a validation and verification opinion.
- To ensure the risk of auditing error is minimized to a reasonable level and ensure effectiveness & efficiency, a project specific validation and sampling plan was developed to guide the JVV process. The methodology of the JVV and sampling plan is based on the

[2] https://cdm.unfccc.int/UserManagement/FileStorage/THNRJC15IW4K89UBE6DFZYX23OVP0Q

VCS guidance documents (section 4.1.8) and ISO 14064-3:2019 /32/. Any modifications applied to the plan were made based upon the conditions observed for monitoring to detect the processes with highest risk of material discrepancy. The samples were observed and verified in selected sample plots through on-site assessment and satellite imageries analysis.

- Reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate.
- Preparation of final validation and verification opinion.
- TR Comments and findings.
- Issuance of final JVV report.

Sample Plan for audit

The sampling plan utilized the VCS guidance documents, ISO 14064-3:2019 /32/ and the Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities Version 09.0 /36/. A random sampling was carried out of the PSPs considering a confidence interval of 95% and error of 10%. Specifically, sampling is used to select the project parcels to check their size and location, baseline practices, current biomass growth and land use rights and ownership (land documents) and terms of references signed.

As per table 2 of the Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities Version 09.0, acceptance sampling was conducted during the site visits.

For the determination of VVB"s acceptance sample size, the audit team assumed the following factors:

1. Producer risk -5% (ie, there is 5% chance that the VVB will wrongly reject the project participants" records of acceptable quality)
2. Consumer risk -20% (i.e., There is 20% chance that the VVB will wrongly accept the project participants" records of records of unacceptable quality).
3. Acceptable quality level (AQL) or the Level of Assurance- 0.5% (i.e., the proportion of discrepancies between the project participants" sample records and the VVB sample that are acceptable up to 0.5% limit)
4. Unacceptable Quality Level (UQL) – 15% (ie, proportion of unacceptable discrepancies between the project participants' or the coordinating/managing entity's sample records and the DOE sample records)
5. Validation team has determined acceptance sample size for all the sample survey parameters based on the standard "Sampling and surveys for CDM project activities and programmes of activities".[3]

From the above assumed factors, the validation team determined the minimum sample size (n) as 9 and acceptance number (c) as 0. However, the non-PSPs of about 4 numbers were also

[3] https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20210531160756223/Meth_Stan05.pdf

sampled for assessment. The actual number of sample size where the acceptance survey was done is given below:

Parameters	Producers risk	Consumers risk	AQL	UQL	Sample size	Acceptance Number
Parameters monitored through sample survey	5%	20%	0.5%	15%	9	0

The validation team conducted acceptance sampling of 13 farmers' plots (including both PSPs and non-PSPs) as part of the validation process. This assessment was carried out using both field visits and Remote Sensing analysis. The VVB has assessed 100% of the land parcels through remote sensing. The Land Use and Land Cover (LULC) analysis of all the land parcels were evaluated through Remote Sensing methods.

The sequence of the validation is given in the Table 1 below:

Table 1: Validation and verification sequence

Topic	Date
Contract signed	28/09/2022
Site Visits	13/04/2024 – 14/04/2024
Draft Findings first round	10/05/2024
Draft Findings second round	01/08/2024
Draft Findings third round	15/10/2024
Draft Findings fourth round	25/11/2025
Draft Findings fifth round	24/02/2025
Draft validation report for TR Comments	06/03/2025
Technical review on draft of the validation report	11/03/2025
Final Corrections and Finalising the validation report for Verra submission	21/03/2025
Corrections after VERRA Rd1 review	08/08/2025

Appointment of Validation Team: Based on a competence analysis and individual availabilities a validation team was appointed. Furthermore, also the personnel for the technical review and the final approval were determined. The details are given below:

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	Team Leader (Validator, Techincal and Local Expert)	IR	Puratchikkanal	Ma Paa	Central	X		X	X
2	Technical Expert	EI	Hassan	Zainab	External Expert	X	X	X	X

Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Expert to Technical Reviewer	EI	Paramesh	Nandagopal	External Expert
2	Technical Reviewer	ER	Sharma	Chetan	External Expert
3	Final Approver	IR	R	Chandrakala	Central

2.2 Document Review

The PDMR submitted by the PP was reviewed against the approved methodology, VCS and ISO requirements. The review included various documents, such as monitoring data, carbon rights contracts, management agreements, maps and GIS databases, monitoring and grievance SOPs, and biomass and carbon calculation spreadsheets. All documents were provided digitally to the audit team, and original papers and records were reviewed during the site visit.

To address the corrective actions raised during the desk review and onsite visit, the PP revised project PDMR version 1 on 26th March 2024 and developed the final version 5, dated 4th February 2025.

Appendix 2 of this report contains details of the documents reviewed during verification, while Appendix 4 outlines the validation and verification findings.

2.3 Interviews

Interviews with the PP, land owners, and other pertinent stakeholders were conducted during the visit to the project area from 13/04/2024 to 14/04/2024. Apart from the site visit, we had some initial discussions with the Infinite's Team regarding the project. The individuals chosen for the interviews were based on their involvement in the project, their ability to affect its growth at the local or regional level, and their proximity to the project area.

Meeting details with Infinite Environmental Solutions Ltd:

Sl. No.	Name of the person Interviewed	Affiliation	Date	Subject	Auditing Team Member
1	Ms. Indu Dwivedi, Senior Manager - NBS	Infinite Environmental Solutions Ltd	02/04/2024	- Roles and responsibilities - End user agreement - Technical details - Species planted - Baseline - Additionality - Without project scenario - Communities involved - Community safeguards and no harm - Risks and mitigation strategies - Non-permanence - SDGs - PAI inclusion criteria - Stakeholder consultation process - Ongoing communication channels - General governance and implementation - Monitoring database management - Monitoring procedures - Monitoring frequency - Responsibilities - Training - Feedback round	Zainab Hassan
2	Mr Pankaj Kumar Tomar, Senior Analyst				
3	Mr. Sahil Pathan, Associate Analyst				

As a result, the interviewees included employees from PP and representatives from implementation organizations.

Sl. No.	Name of the person Interviewed	Affiliation	Date	Subject	Auditing Team Member
1	Mr. Digvijay Singh Vaghela, Founder	SAPL	13/04/2024-14/04/2024	- Roles and responsibilities - End user agreement - Technical details - Species planted - Baseline - Additionality - Without project scenario - Communities involved - Community safeguards and no harm - Risks and mitigation strategies - Non-permanence - SDGs - VPA inclusion criteria - Stakeholder consultation process - Ongoing communication channels - General governance and implementation - Monitoring database management - Monitoring procedures - Monitoring frequency - Responsibilities - Training - Feedback round - Grievance Redressal Mechanism	Zainab Hassan
2	Dr. Indu Dwivedi, Senior Manager - NBS	Infinite Environmental Solutions Ltd			
3	Mr Pankaj Kumar Tomar, Senior Analyst				
4	Mr. Sahil Pathan, Associate Analyst				
5	Mr Partik Tambe, Senior Manager-Business Development, NBS				
6	Bhavesh Patel, Supervisor	SAPL			
7	Dinesh Bhai Patel, Field Coordinator				
8	Valsant Parmar, Field Officer		13/04/2024		
9	Vikas Bhai Bh. Patel, Field Officer		14/04/2024 -		
10	Suresh Bhai Bh. Patel, Field Officer				
11	Dasrath Bhai Patel, Field Coordinator				
12	Satyanarayan G. Patel, Field Coordinator				

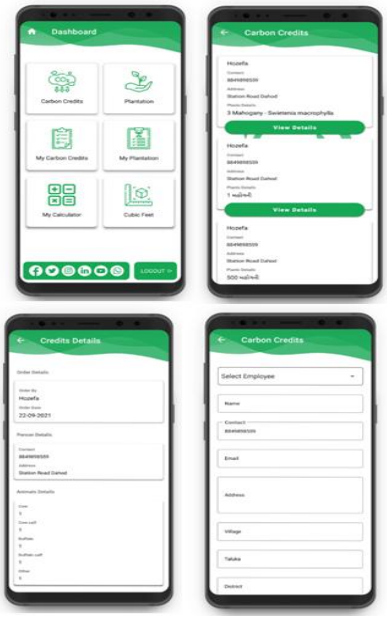
The list of beneficiaries interviewed on the ground are as following:

Farmer Name	Village	Taluk	District	State
Chaudhari Malabhai D	Limbau	Lakhni	Banaskantha	Gujarat
Rajput Ukabhai Nagjibhai	Limbau	Lakhni	Banaskantha	Gujarat
Mansengbhai Ramabhai Chaudhari	Vadgamda	Tharad	Banaskantha	Gujarat
Sureshbhai Bhemjibhai Patel	Zenta	Tharad	Banaskantha	Gujarat
Dhanjibhai Bhanjibhai Patel	Karanpura	Tharad	Banaskantha	Gujarat
Ganeshbhai Ratnaji Patel	Mithavi Rana	Vav	Banaskantha	Gujarat
Mulabhai Devaji Patel	Mithavi	Vav	Banaskantha	Gujarat
Virmabhai Jivabhai Vaghela	Chalva	Lakhni	Banaskantha	Gujarat
Narbatabhai Galabhai Patel	Lunal	Tharad	Banaskantha	Gujarat
Dhanabhai Vajabhai Vaghela	Limbau	Lakhni	Banaskantha	Gujarat

Bharatbhai Vajabhai Vaghela	Limbau	Lakhni	Banaskantha	Gujarat
Shivrambhai Patabhai Patel	Zenta	Tharad	Banaskantha	Gujarat
Devjibhai Karsanbhai Rajput	Achhvadiya	Lakhni	Banaskantha	Gujarat
Vikramsinh Bhalaji Vaghela	Deodar	Makdala Chalva	Banaskantha	Gujarat
Ratansibhai Bhanjibhai Patel	Tharad	Karanpura	Banaskantha	Gujarat
Jetshibhai Parkhabhai Patel	Tharad	Karanpura	Banaskantha	Gujarat
Mavjibhai Sendhabhai Patel	Tharad	Gadsisar	Banaskantha	Gujarat
Vikramsinh Bhalaji Vaghela	Deodar	Makdala Chalva	Banaskantha	Gujarat
Rajubhai Nagjibhai Moradiya	Charanki	Ranpur	Botad	Gujarat
Anilbhai Nagjibhai Moradiya	Charanki	Ranpur	Botad	Gujarat

During the audit, the audit team interviewed the plantation beneficiaries randomly. Questions on the baseline, project technology, additionality (indirectly), project implementation, safeguards, risks from the project, major concerns and issues, grievance mechanisms, benefit sharing mechanism, duration of contract signed, and ownership of credits were asked. The interview summary has been provided below.

Questions asked by the Validation team	Summary of Response by Stakeholders/end users
What is the total area (ha) of your project boundary?	The audit team received varied responses from each farmer
What is the project's start date?	The validation team received varied responses from each farmer.
What was/were the land use/uses at the time when project started?	Most respondents indicated that their land was agriculture land. However, they highlighted that agricultural yields were declining and no longer economically viable.
1. What is the land used 10 years before the project start date? 2. Has the land been cleared of native ecosystems within the 10-year period prior to the project start date?	1. Most respondents indicated that their land was used for agricultural activities. However, they highlighted that agricultural yields were declining and no longer economically viable. 2. The land has not been cleared of native ecosystems within the 10-year period prior to the project start date.
What activities have been carried out from the start of the project till date/or planned to be carried out? (E.g. – afforestation, gap plantation, reforestation, conservation, etc.)	Afforestation activity has been carried out in all the project areas. They also highlighted that they will be doing intercropping until feasible.
Legal and clear agreement signed between the PP and the project landowner (s) available?	Respondents have signed carbon waiver agreements with the PP for the entire project duration ensuring the project longevity of 40 years, with the option for renewal.

	The agreements and original land deeds of the farmers were checked during the site visit and found to be satisfactory. All beneficiaries have signed the agreement with the PP, and their deeds were verified during the site visit and found to be satisfactory. The PP (SAPL) maintains comprehensive records, including farmer details, signed agreements, species planted, mortality rates, and growth data. These records are managed through a custom-built app developed by the PP specifically for this project.[4]  Figure 1: Screenshots of a few pages from the app
1. Is there any statutory and customary rights of Indigenous Peoples and others within communities and other stakeholders in the project area? 2. Please mention all the statutory and customary rights that Indigenous Peoples and others within communities and other stakeholders have in the project area?	Respondents confirmed that, apart from VCS Verified Emission Reductions (VERs), all land resources—including land titles, non-timber forest products (NTFPs), water rights, and crops—remain under the ownership of farmers and the community. The project does not infringe upon any legal or customary rights of tribal people. The land belongs to the farmers, and only they have access rights.

[4] https://play.google.com/store/apps/details?id=com.techomega.a3dgreenagro

Any displacement of local communities and indigenous group happened/or planned to relocate due to the project activities?	According to the respondents, there has been no displacement of local communities or tribal groups, nor are there any plans to relocate them due to the project activities.
What are the impacts that community will have on the project implementation?	According to the respondents, they have been involved in this PAI from the beginning and have always been consulted for their feedback. The species planted and the plantation models selected were directly based on their inputs.
Is harvesting of timber, fuel-wood collection and charcoal production allowed inside the project boundary?	Harvesting is practiced; however, charcoal production is not permitted. Additionally, dead wood and litter are left in the field and are not collected for personal use.
List all the ongoing land conflicts inside the project boundary?	No ongoing conflicts were reported by any of the respondents.
1. What are the risks involved in the project boundary (e.g. natural, technical, cultural, political, etc.) (both short and long term) the communities foresee? 2. Please list if there are any anticipated negative environmental impacts associated with the proposed project activity?	1. In all project areas, respondents do not anticipate any significant natural or political risks. There is no human-wildlife conflict in the region. The only threat farmers face is from Nilgai (blue bull), which can damage the plantation. 2. Respondents do not foresee any negative impacts resulting from the project.
Policies and regulations having any impact on land-use change patterns in the area.	The project is being implemented on private, with legal agreements in place between SAPL and the landowners. Respondents noted that the project is not expected to be impacted by any changes in government regulations or policies.
Are there any communities outside the project boundary impacted positively/negatively by the project?	In response to this query, communities stated that good practices have been shared both within and beyond the project, sparking interest among others outside the project boundaries to adopt similar initiatives.
Has there been any capacity building/training programmes conducted as part of skill development of the local communities?	Respondents reported that many training, capacity-building, and awareness programs have been conducted so far. These programs primarily focused on plantation techniques, fencing, replanting saplings, weed and fire management, and strategies for climate change mitigation and adaptation.
1. Please provide a list of species planted. 2. Please list if there are any non-native species, genetically modified species, or invasive species in the project zone.	1. All respondents provided a list of species they had planted, noting that SAPL supplied the saplings based on their preferences. Beneficiaries received

	the saplings free of charge, and in cases where trees died, the PP ensured replacements by providing new saplings. 2. No such issues were reported by any of the respondents. All saplings planted are suitable for the project areas.
What is the process followed in case of mortality of saplings planted?	According to the respondents, saplings are replaced with new ones in the next planting season. The reported mortality rate is less than 10%, and the replacement planting has already been completed.
Are they aware of the Grievance Redressal Mechanism and the ongoing communication channels throughout the project's duration?	All respondents are familiar with the grievance redressal mechanism and ongoing communication channels. They reported that SAPL village representatives are consistently accessible and that they have the contact numbers of their respective representatives, who promptly forward complaints to the SAPL Head Office. Most concerns are typically addressed within 3 to 15 days. Regarding communication, village representatives are always available and hold monthly meetings. Records of these meetings were reviewed during the site visit and were found to be current. SAPL's website and the app has also the provision of registering the complaint.
Are there any risks related to human rights violations associated with the project? Has there been any incidence of discrimination against gender or marginalized communities? Additionally, does the project involve any form of child labor?	The local people mentioned that there have been no reported incidents of human rights violations. The project promotes gender equality and inclusivity by ensuring equal participation of all community members. Per the local people no child labor has been involved in any project activities. The farmers mentioned that community members can report concerns through designated channels, and all grievances are resolved in a timely and fair manner.
Are the beneficiaries aware of the carbon credits and its legal rights? Are the beneficiaries aware of the carbon project cycle and validation and verification process?	All the respondents are aware of the legal rights of carbon credits, and this has been explained to them in stakeholders' meeting and as well as when signing the carbon waiver agreement. Also, all the respondents were aware of the project cycle and the third-party audit requirements.

Are they satisfied with the project, or do they prefer to continue with the baseline practice?	The respondents were happy with the project initiatives and foresee an overall improvement in the climate, social conditions, and biodiversity of the project area.

2.4 Site Visits

The verification site inspection was conducted on 13/04/2024 to 14/04/2024. A ground inspection of the project area was conducted during the site visit and members of the verification team visited 13 samples within the project area. The following tasks were undertaken during the site visit.

- To understand and evaluate the project area/boundary, project emissions, possibility of leakage, leakage management aspects and status of project implementation till date.
- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the Monitoring Plan.
- To validate all datasets provided are in line with the methodological requirements.
- To interact with the communities directly and indirectly/ dependent/impacting/impacted by the project and understand the socioeconomic dimension of the project.
- To understand the biodiversity dimension of the project
- To check the project management, meet the management team, check the monitoring plan and it's on ground implementation practices.
- To check the project area as defined and mentioned in the PD. Legal ownership of the lands.

During site visit, the verification team performed all the above-mentioned tasks and confirmed the monitored value from PP sampling data are correct and reasonable, hence it is verified that the calculation method used in the PDMR is acceptable and correct. The site visit was conducted after the end of the first monitoring period hence, no additional evidence gathering was required. The audit dates, details of interviews and details asked are mentioned in section 2.1 and 2.2 of this report.

Figure 2: Images taken during the audit site visit

2.5 Resolution of Findings

To thoroughly address high-risk concerns in the validation results and ensure that no necessary steps are missed, 4KES uses a risk-based approach.[5] During the validation process, several

[5] Common risks include:

Data inaccuracies: Errors in measurement, calculation, or reporting during the MP.

Methodology deviations: Non-compliance with approved methods or protocols during the MP.

Boundary issues: Misrepresentation of project scope or leakage effects during the MP.

Monitoring gaps: Failures in monitoring equipment, frequency, or processes during the MP.

inconsistencies were identified. Corrective action requests (CARs) and clarification requests (CLs) were sent to the PP throughout the process. After five rounds of findings, all inconsistencies were resolved following the fifth round of feedback.

CARs and CLs require the PP to take relevant actions. Criteria for judging items as CAR or CL are as follows:

Corrective action request (CAR): The PP have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions - the Voluntary Carbon Standard's requirements have not been met, or - there is a risk that emission reductions cannot be monitored or calculated.

Clarification request (CL): Information is insufficient or not sufficiently clear to determine whether the applicable VCS requirements have been met.

FARs: To draw attention to project implementation issues that need to be reviewed during the initial project activity verification, FARs will be raised. FARs have no bearing on VCS registration requirements.

Until this data is made available to the team leader's satisfaction, the validation process may be put on hold. Information or clarifications provided as a result of a CL may also lead to a CAR.

There was a total of 43 CARs raised during the validation process, all of which were successfully handled. The list of CARs raised, the response given, the method of validation, the justifications for their closure, and references to correction in the pertinent documents are all included in this report's Appendix 4.

2.5.1 Forward Action Requests

01 Forward Action Requests (FAR) were raised and should be assessed by future verifiers. The FAR is included in this report's Appendix 4.

3 VALIDATION FINDINGS

3.1 Project Details

Based on the thorough review of the PD and supporting documents, the following conclusions have been reached:

Loss event/reversal: any loss of biomass or removal of a project parcel during the MP either due to man-made or natural cause

- The joint PDMR is accurate, providing a precise representation of the project's objectives, activities, implementation actions & activities and outcomes.
- The document is complete, including all necessary elements as required by the VCS standard v4.7 and applied VCS joint PDMR v4.4 template.
- The PDMR is transparent and provides the reader with a comprehensive understanding of the project's nature, scope, and the methods employed for achieving GHG reductions.

Therefore, the project description satisfactorily meets the VCS requirements, and the information presented is sufficient to validate the project's potential to achieve its stated carbon sequestration goals.

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Audit history	PP has provided a clear audit history. The period mentioned for the validation has been checked and is in line with the VCS Standard v4.7 section 3.9.3. The "Agroforestry Plantations in India" project initiated the joint validation and verification process under the VCS. The project's life span is from 18th June 2018 to 17th June 2048. The MP is from 18th June 2018 to 17th March 2024. 4K Earth Science Pvt. Ltd has handled the joint validation and verification process for the project.
Sectoral scope	The project falls under Sectoral Scope 14 – AFOLU – Agriculture Forestry and Other Land Use. The project activities increase net GHG removals by restoring degraded land with low agricultural output The project area LULC /15/, KML /10/, and site visit observation confirm the project sectoral scope. Hence, the project is in line with Appendix I of the VCS Standard v4.7.
AFOLU project category, if applicable	The project falls into the category of ARR category. The project area LULC /15/, KML /10/, plantation records /48/ and /49/, and site visit observation confirm the project category under the AFOLU Sectoral scope. Hence, the project is in line with Appendix I, AI.1 of the VCS Standard v4.7.
Project activity type	The project is an afforestation activity under the VCS Afforestation, Reforestation, and Revegetation (ARR) category. It has been designed as a grouped project to incorporate more small landholders adopting improved land use management practices across the project area.

General eligibility of the project to participate in the VCS Program	• The project is not excluded under Table 1 of section 2.1 of the VCS Standard v4.7. As mentioned above the project activity is an ARR AFOLU sector project which is not listed in the referred table of the section. • The project was listed on 08/11/2022, which does not meet the requirements of Section 3.8.2 of the VCS Standard v4.7. CAR 03 was raised for this issue. In response, the PP provided proof of communication with VERRA, demonstrating that the listing request was made within the guidelines of VCS Standard v4.2 applicable to the project start date. As a result, the VVB concludes that the project complies with Section 3.8.2 of the VCS Standard v4.7. The project remained listed from 8th November 2022 to 8th December 2022, with the site visit conducted on 14th April 2024, following the listing phase. Therefore, the project is in line with Section 4.1.5 of the VCS Standard v4.7. Additionally, the validation was completed within 3.5 years[6] of the project start date, confirming that the project complies with Section 3.8.3 of the VCS Standard v4.7 • The applied methodology is eligible under the VCS Program, and the PP has applied the latest version of the methodology which is 2. The methodology has no scale and/or capacity limits. • The project is not a fragmented part of a larger project. The project area LULC /15/, KML /10/, and site visit observation and interviews confirm the same.
AFOLU project eligibility, if applicable	1. The validation team reviewed the PDMR document in accordance with the VCS Standard v4.7 requirements and applied methodology. They confirmed the eligibility criteria outlined in section 1.4 of the PDMR by cross-referencing the specified requirements. Thus, the project is eligible under the VCS Standard v4.7, scopes of the VCS Program, Section 2.1.1, Sections 3.1, 3.2 and Appendix A1.1. The VVB has validated the eligibility criteria (as mentioned in section 1.4 of the PDMR) and confirms that the project activities are in line with the following: • Project meets all the VCS standard v4.7 eligibility criteria requirements. • As per sections 3.6.10 to 3.6.15 of the VCS Standard v4.7, the project meets the eligibility requirements of a grouped project. The project plans to scale up to 25,000 ha, and Section 1.5 of the PDMR clearly states that geographic areas with no initial PAIs will only be included if the same (or a more conservative) baseline scenario and additionality rationale can be demonstrated as for areas containing initial PAIs..

[6] Contract signed with 4K on 28/09/2022 and the joint validation and verification concluded on 25th February 2025

Also, for future PAIs, the PP will apply the same measures as described in Section 1.12 of the PD, following a consistent implementation approach across all PAIs. However, the specific plant species selected may vary based on beneficiaries' preferences, local ecological conditions, soil types, and climate suitability. The justification provided by the PP is considered acceptable, given that the geographical boundary of the grouped project is a huge area and depending on farmer's requirements a uniform species mix cannot be applied across the entire project boundary. This clarification has been added in Section 1.5 of the PDMR. Furthermore, variations in species selection or plantation density will not impact the baseline or additionality assessment. The PP will ensure that any new PAI adheres to the same or a more conservative baseline scenario, and that the demonstration of additionality is at least equivalent in rigor to that of the initial PAIs.

- The baseline and additionality demonstration for all project activity instances in this grouped project, shall be conducted in a consistent manner and have the same standards applied. To meet the minimum eligibility criteria, the project will define geographic areas within each instance using geodetic polygons, as outlined in VCS Standard v4.7, Section 3.6.10. The initial and future instance will cover agroforestry practices in 2 Indian states. Future instances will maintain consistency (same if not than more conservative) in baseline conditions and additionality criteria with the initial instance.

  In section 3.5 of the PDMR, PP demonstrates that common practices[7], in the PD covers the entire geographic area applying to both the initial and future instances. Laws, statutes, and regulatory frameworks (e.g., forest conservation, land-use regulations, and climate policies) are set at the national level are uniformly applicable across all Indian states. In addition, state-level policies are consistently applied within their respective state jurisdictions across the geographical boundary of the grouped project.

  In the PD section 1.5, PP has clearly mentioned that the PAIs will utilize the same baseline scenario as described in Section 3.4. following condition shall be met:

  Land is degraded or low-output agricultural land with no evidence of pre-project trees or shrubs, verified through PRA and satellite imagery. Any existing baseline trees (if present in future PAIs) are

[7] In India – agroforestry on barren/degraded farmland or homestead is not a common practice. Neither the practice is obligated by any local, regional or national laws across any states of the host country.

identified and excluded from project carbon stock monitoring and their continued existence is tracked separately.

No baseline trees are harvested, cleared, removed, or impacted by the project during the crediting period.

Shrub, dead wood, and litter stocks shall be zero because periodic agricultural activity prevents biomass accumulation, consistent with AR-Tool 14, including clause 5.12(f) and as reported in the PAI-1.

For PAI-1, all conditions for a zero-carbon baseline are met. Future PAIs may apply a zero baseline only where the same conditions are demonstrated; otherwise, any existing biomass must be accounted for and deducted.

The PAIs should exhibit characteristics related to additionality that align with the original project instance and geographic area. The future PAIs may be included only where the following conditions are demonstrated: 1) The activity is not legally mandated at national, state, or local levels. 2) Revenue from carbon credits is a significant enabling factor, and the decision to implement the activity considers carbon finance. 3) faces the same type of barriers (investment, institutional, social, or technical) as those validated for the initial PAI. 4) The activity is not common practice within the designated area.

The VVB concludes that the project applies a consistent assessment of legal requirements, common practice, and barriers across the grouped-project area (Gujarat and Rajasthan). This ensures that future PAIs follow the same additionality rationale as the initial instance, given that they operate under the same baseline conditions as smallholder farmers in PAI-1. .

As required under VCS Standard 3.6.10, PP acknowledges and based on the details provided in section 1.5 of the PD, the VVB concludes that any future expansion will require supporting evidence to ensure consistency with the initial project design and eligibility criteria. Accordingly, the grouped project area may expand geographically (in the given geographical boundary of the project) only where such consistency is demonstrated. On this basis, the VVB concludes that the PD adequately addresses VCS Standard, v4.7 Section 3.6.15, 3.6.17 and 3.6.18. .

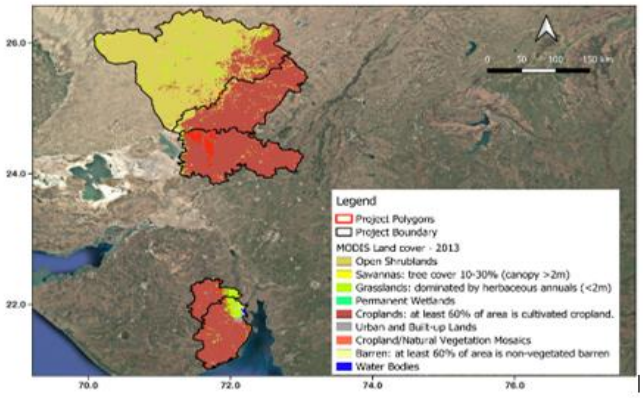
- The project has used a current and valid, approved, and up-to-date methodology to calculate its GHG reductions and removals in a conservative manner, including the full application of any tools or modules referred to by a methodology as required by Section 3.1.1 & 3.1.2 of the VCS Standard, v4.7.

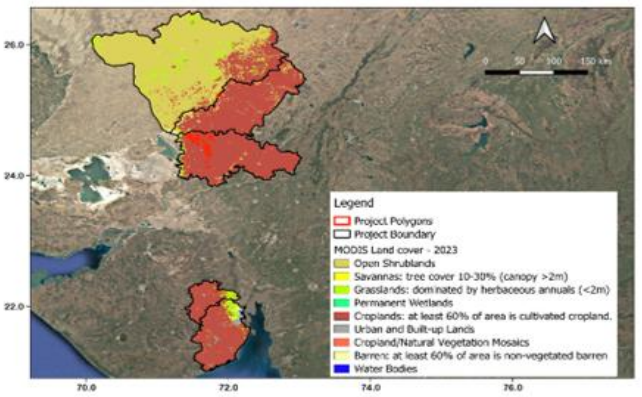
- The project meets the additionality requirements as per section 3.14 of VCS Standard v4.7.
- The proposed project activities are in line with the methodological requirements which fall within the categories that demonstrably remove net GHG emissions by implementing ARR activities.

2. The project area LULC /15/, KML /10/, and site visit observation and interviews confirm that native ecosystems have not been converted, cleared, drained, or degraded to generate GHG credits. The project restores degraded lands through ARR activities, the PP in sections 1.4.1 and 1.12 has demonstrated that the project activity restores the project area. The remote sensing, aerial imagery, and other relevant details provided with the PD confirm the same.
3. The project activity has not cleared any native ecosystem or led to conversion of the native ecosystem within the 10-year period prior to the project start date. This has been validated through the evidence provided by the PP such as Satellite Imageries, Land title document, LULC analysis etc.

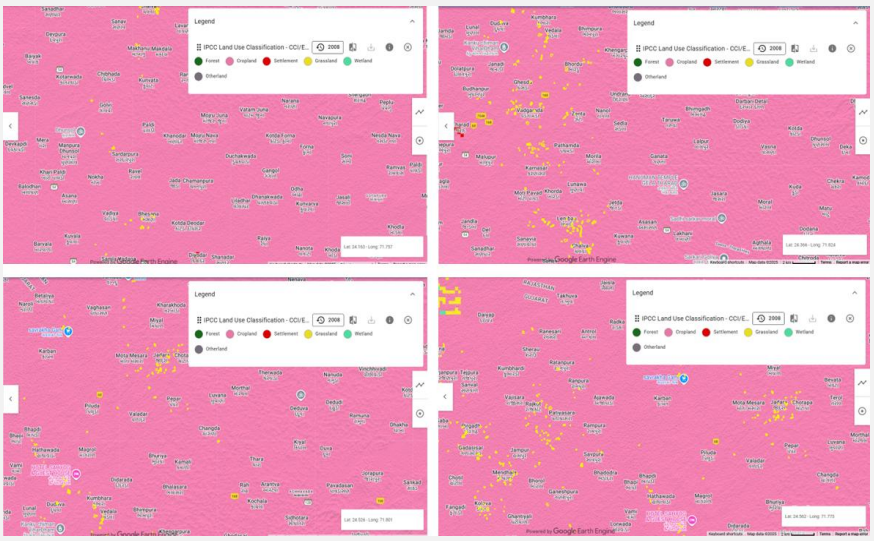
   The KML related CAR 09 were raised and resolved after several round of corrections.

   The VVB through different independent sources validated and verified the same and found that the project area falls into degraded cropland category and there is no conversion taken place within 10 years of the project start date.





Source: MODIS land cover data - https://cmr.earthdata.nasa.gov/search/concepts/C2484079608-LPCLOUD.html



Transfer project eligibility, if applicable	NA The audit team concludes that the project is not currently participating under any emission trading or other binding limit program or mechanism. This matter was discussed with PP, and they have subsequently provided an undertaking document /46/ to confirm their commitment.

Project design	The proposed project follows a grouped approach, allowing for the future inclusion of additional project activity instances. It applies a single methodology, “AR-ACM0003, v2” to design and implement the project. The project's primary objective is to restore degraded and fallow agricultural land owned by rural farmers. At the time of joint validation and verification, the project includes one active instance with provisions for future expansions. The PP has established eligibility criteria for new instances, ensuring alignment with the requirements specified in Sections 3.6.16 and 3.6.17,3.6.18 of the VCS Standard v4.7. The PP has clearly demonstrated in Section 1.5 of the VCS PDMR that both the current project instance and future additions will comply with these eligibility criteria. The audit team reviewed Sections 1.4 and 1.5 of the PDMR and assessed the implemented project activities, which focus on restoration through plantations. The assessment confirmed that these activities fall within the ARR category, contributing to increased carbon sequestration by establishing, enhancing, or restoring vegetative cover in the project areas, as defined in Appendix 1.1 of the VCS Standard v4.7. A baseline scenario assessment, conducted in consultation with participating farmers and landholders, revealed that prior land use consisted of low-output agriculture or barren, degraded land. These conditions were exacerbating land degradation, increasing vulnerability to climate change, and contributing to food insecurity. The additionality of the project has been thoroughly evaluated (refer to Section 3.4.5 of this report) using the "Combined Tool to Identify the Baseline Scenario and Demonstrate Additionality in A/R CDM Project Activities," ensuring compliance with applicable VCS guidelines. The audit team verified project area polygons and confirmed that no native ecosystems had been disturbed within the 10 years preceding the project start date. Additionally, the PP conducted a detailed LULC analysis for the enrolled lands. The VVB also verified project parcel boundaries, confirming that they do not overlap with any other AFOLU project boundaries. The audit team confirms that the current project activity instance meets the eligibility criteria specified in Section 1.5 of the PDMR, in accordance with Section 2.2 of methodology A/R-ACM0003 v02/20/ and Sections 3.6.10–3.6.16 and 3.6.19–3.6.21 of the VCS Standard v4.7. Furthermore, it is confirmed that the project is structured as a grouped project, with future activity instances to be included in compliance with the eligibility requirements outlined in Sections 3.6.16 and 3.6.17 of the VCS Standard v4.7, as referenced in Section 1.5 of the PD.

Project ownership

Land Ownership	The plantations are carried out on private lands belonging to individual farmers /17/. The legal title of the private land parcels is held with individual farmers. The audit team reviewed the land ownership which are evidenced through the land certificate records and is granted under statute.
Project Ownership	The landowners have transferred their carbon credits to the PP through a contractual agreement /12/. The carbon agreements were audited and confirmed that the project ownership is in line with the requirements of section 3.7.1, point 6 v4.7. and Section 2 of the VCS Program Definitions v4.7.

The audit team verified that the PP possesses legal ownership rights over the project areas by cross-referencing legal land ownership documents, carbon agreements, and georeferenced project location maps till the project longevity (i.e., 40 years). This confirms compliance with Section 3.7.1 (6) of the VCS Standard, an enforceable and irrevocable agreement with the holder of the statutory, property or contractual right in the land, vegetation or conservational or management process that generates GHG emission reductions or removals which vests project ownership in the PP.

The project ownership details in the form of land ownership certificates have been collected and verified physically for all the beneficiaries in the initial PAI by the PP. The certificates were collected during the household surveys.

The land ownership certificates of the beneficiaries include registration details allotted by the state government and verified by the district magistrate. These land ownership certificates are available on state government land revenue portals and the electronic versions of the same are available with the PP and were submitted for validation. The basic details related to the land ownership details have been added in the PDMR Annexure II which consists of the registration details. The table included in the Annexure II of the PDMR have the following details mentioned below:

- Name of the farmer
- Location (Village, Village council (Gram Panchayat), Block, District and State)
- Geo-Coordinates of the land parcel
- Area of the land parcel planted under project
- Species planted
- Year of Planation

	In the 1st PAI, 100% of the project area is under the PP's control. As the PP controls more than 80% of the total proposed project area during validation, Section 3.11.4(3) is not applicable. Farmers participated in the project voluntarily, following a due process based on the principles of Free, Prior, and Informed Consent (FPIC). During site visit discussions and observations, it was evident that landowners have willingly enrolled in the project. Additionally, there is no displacement of any legal or customary rights as a result of the project activities.
Project start date	The project started on June 18, 2018, which corresponds to the initiation of plantation activities within the project area. The project start date is substantiated by payment receipts /31/ for plant purchases made in the name of the project owners, which were cross verified. The PP has provided supporting documentation, including an invoice for plant purchases made in the month preceding the official start date. Additionally, a Resource Management Plan /48/ has been developed to guide the implementation of sustainable activities on the ground. This document further supports the project's start date. Site visit interviews also corroborated the timeline and details of the plantation activities. The PP confirmed that not all project parcels share the same start date. Depending on the plantation model, different parcels have varying start dates, which will impact the Emission Reductions (ER) generation timeline for the parcels. The spatial and temporal assessment of the selected land parcels within the project boundary provides verifiable evidence that emission removal activities started following the officially declared project start date of 18th June 2018. A comparative analysis of satellite imagery demonstrates that, prior to this date, the project area exhibited limited vegetative cover and minimal anthropogenic land-use intervention. In contrast, post-2018 imagery consistently reveals significant increases in vegetative density and spatial patterns indicative of agroforestry practices, such as organized planting rows and canopy expansion. These observed land cover changes correspond to the initiation of GHG removal activities, confirming that project implementation aligns with the temporal eligibility criteria stipulated under the VCS Standard (v4.7, Section 3.8).

Name	Lat, long	Remarks	Imagery evidence
Dhudabhai Vaghaji Patel	24.62790619, 71.43119410	Project activities commenced after the official start date of June	4th April 2018 before start date

			2018. Satellite imagery in April which just before the project start indicates the absence of any visible interventions in farm activities and shows clear bare land and reduced vegetation cover, whereas imagery from 2021 demonstrates clear signs of land-use change and the establishment of agroforestry activities.	 22nd Oct 2018 - start date  6th Nov 2023- after start date 
Andaji Hemaji Patel	24.51000184, 71.49948051	The project activities are not there as seen image dated 2016 while the interventions started during the project start date in second image and established	3rd March 2016 – before start date 	

			activities during the recent image dated 2023. This evidence shows a clear picture of following the project start date.	7th Nov 2018- start date  12th May – 2020 
Jagatabhai Jodhabhai Patel	24.14218705, 71.73550371	Same as above and follow the images in this row for exact project start date evidence.		5th March 2016  7th Nov 2018 – Project start date

				 15th Oct 2021 – after start date 

Hence, based on the nursery bills /31/, Resource management plan /48/, site visit interviews with the plot owners and the temporal confirmation /10/ the VVB concludes that the project commenced on and after 18th June 2018.

Based on the assessment and stakeholder confirmations during the site visit, the VVB verifies that the project start date aligns with the requirements of Section 3.8 of the VCS Standard v4.7.

Project crediting period	The project crediting period is 30 years, which starts on 18/06/2018 and ends on 17/06/2048 and that can be renewed up to 100 years. The project's longevity is 40 years, which has been confirmed through the carbon agreement /12/ signed between the PP and the farmers/landowners.
Project scale	The total estimated annual GHG emissions reductions generated during the crediting period from the PAI-1 have been calculated to be 139,953 tCO_2e and 4,665tCO_2e annually, as outlined in the PD. For the complete grouped project i.e., 25,000 ha have been calculated to be 4,824,945 tCO_2e and 160,831 tCO_2e annually (these values are with LTA and without buffer). The audit team agrees that the project is correctly classified as a regular size project, per Section 3.10.1 of the VCS Standard v4.7.

Likelihood of achieving estimated GHG emission reduction or removals	According to the Indian State of Forest Report (ISFR) 2023 /43/ by the Forest Survey of India (FSI), the average carbon stock in the Above-Ground Biomass (AGB), Below-Ground Biomass (BGB), Soil Organic Carbon (SOC), Dead Wood (DW), and Litter (Li) carbon pools for forested areas in Gujarat, Rajasthan, Tropical Thorn (Open Forest category), and Plantation (Open Forest category) is presented in the table below:

Carbon pool	t/C category wise (FSI 2023)			
	Gujarat (average)	Rajasthan (average)	Plantation OF (average)	Tropical Thorn OF (average)
AGB	18.98	15.94	10.06	7.88
BGB	6.43	6.43	2.20	3.31
SOC	44.89	42.74	49.81	19.25
DW	0.98	0.90	1.97	0.55
Li	0.85	0.56	0.38	0.40
Total t/C	72.13	66.57	64.42	31.39
Total t/CO2e	**265**	**244**	**236**	**115**

The audit team, even when considering the most conservative estimate (Tropical Thorn – Open Forest category), observed that the sequestration potential is significantly higher than what has been estimated by the PP. The PP has adopted the following ex-ante and ex-post carbon stock estimates:

- **Ex-ante first PAI:** 4.85 tC/ha
- **Ex-ante for 25,000 ha:** 1.85tC/ha
- **Ex-post:** 3.6 tC/ha

This very low estimates are considered acceptable due to the following reasons:

1. The project area is not classified as a forested region, and most of the planted species, except Mahogany (which is just 3% of the total tree planted in the PAI-1), do not contribute significantly to biomass accumulation. This may result in lower growth rates compared to designated forested areas.
2. Due to harvesting, Long-Term Average (LTA) calculations have been conducted per the VERRA guidelines.
3. The estimates have been conservatively determined, ensuring a cautious approach to carbon stock assessment.

Based on this analysis, the likelihood of achieving the estimated GHG emission reductions is considered feasible.

Technologies and measures implemented by the project activity	The project aims to remove GHGs from the atmosphere by implementing sustainable afforestation activities across multiple land areas within the project region. It seeks to restore 25,000 hectares of smallholder farmland within the proposed geographical boundary of the crediting period. The first project activity instance covers only 502.51 hectares of the total project area. Details of the technologies and measures implemented are provided in Section 1.12 of the PDMR and are deemed eligible under the VCS program. The project has and will implement the project activities that closely follow plans outlined in section 1.12 of the PDMR /7/. The project has provided 30 years Resource Management Plan /48/, which corresponds to the project activity described in Section 1.12 of the PDMR /7/. Through on-site interviews with stakeholder, and the project team and document review, the audit team confirmed that the project is committed to continue management practices, which includes harvesting and replanting, for the entire crediting period. Additionally, the project is not located within a jurisdiction covered by a jurisdictional REDD+ program.
Implementation schedule of the project activity or activities	Project Implementation and Progress The PAI-1 started plantation activities in June 2018 and was completed in December 2022, covering a total of 502.51 ha across 9 blocks in 5 districts spanning 2 states in India. The plantation involved 468 farmers and included four different species planted progressively over multiple years. The species-wise planting distribution is as follows: • *Punica granatum* (Pomegranate) is the dominant species, covering a significant portion of the plantation from 2018 to 2022. • *Psidium guajava* (Guava), *Swietenia macrophylla king* (Mahogany), and *Annona squamosa* (Custard Apple) were also planted in smaller areas. During the upcoming planting season, replacement of dead seedlings is planned to maintain a mortality rate below 10%, ensuring the sustainability of the plantation. Adopted Plantation Management Practices To support the long-term viability and productivity of the plantation, several essential management practices have been implemented, including: • Manual Weeding to prevent competition for nutrients.

- Fire Prevention Measures such as creating fire belts and removing potential ignition sources.
- General maintenance to promote healthy growth and sustainability.

GHG Emission Reduction and Monitoring: The monitoring period for the current assessment spans from June 18, 2018, to March 17, 2024. No reported loss of carbon stock has occurred during this period, indicating that the sequestration potential of the plantation remains intact. The GHG emission reductions estimated by the PP were cross-checked by the audit team. Additionally, ground samples data collected (both from PSPs and non-PSPs) during the assessment was verified. The estimations were found to be satisfactory and conservative, ensuring compliance with applicable methodology.

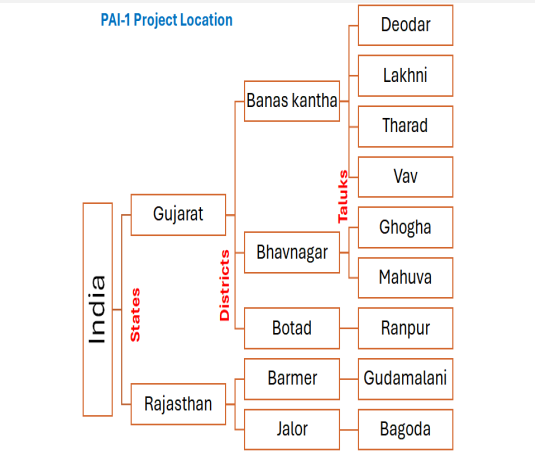
While drought-related risks are more challenging to mitigate, several adaptation strategies have been implemented to reduce their impact, including Tree replacement programs to compensate for tree mortality and maintain planned carbon sequestration levels.

Leakage: The assessment is done in section 3.4.6 of this report.

Non-Permanence Risk Management: The project has estimated buffer using VCS NPRR Tool v4.2 for managing the risks of non-permanent carbon stocks. This ensures that non-tradable buffer reserves are maintained to compensate for unforeseen reductions in carbon stocks. The detailed assessment has been done in section 3.5 of this report.

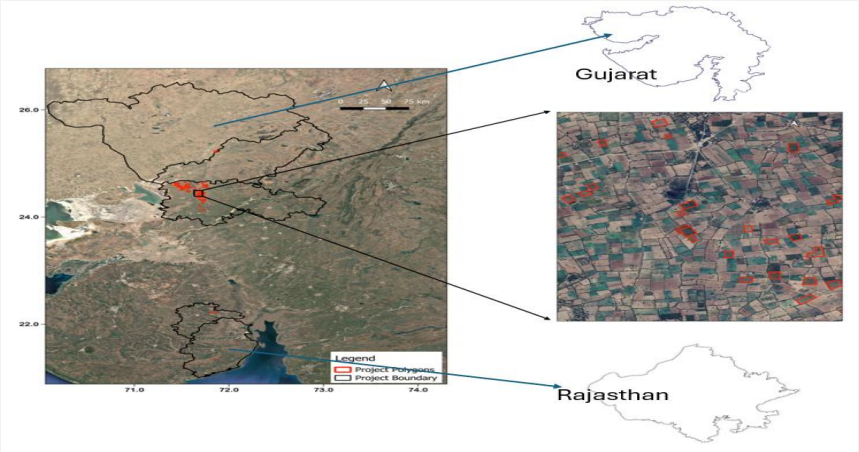
Harvesting: To date, no silvicultural activities such as pruning, thinning or harvesting have been carried out in the project area. Harvesting (clear felling) activity is still planned for future phases of the project. The harvesting of horticulture species -Pomegranate, Guava and Custard apple is in 15 years based on several agronomic and economic factors. Pomegranate, guava, and custard apple trees typically reach peak productivity within 8–12 years and by 15 years, trees may start declining in productivity due to aging, or reduced fruit quality. Periodic replacement of trees after 15 years helps maintain consistent productivity. Farmers were asked if rejuvenation pruning can help, however, in their opinion older trees may not respond well, making replanting a better option. While harvesting Mahogany (which is just 3% of the total trees planted in the PAI-1) is mostly for timber, and by 15 years, trees can yield usable timber and can help in socioeconomic development of the beneficiaries.

The PP has explicitly stated that harvesting will not begin before year 15 of each project activity. This delayed timeline allows for natural regeneration and

	stabilization of soil carbon pools. Per the management plan after harvesting trees are felled and removed carefully and no heavy machinery will be used, roots and stumps are left intact, manual replanting will be practiced (applying minimum tillage), and leaving harvest residue (Li, DW) on site. Hence, the PP will ensure the project will not lead to soil disturbance exceeding 10% of the stratum. Based on the on-site visit and desk review, it was concluded that the project implementation status reported by the PP in the PDMR is satisfactory and accurately reflects the actual on-ground activities.
Project location	The geographical boundary of the grouped project is Gujarat and Rajasthan, in India in which thePAI-1 is implemented. The future PAIs will be restricted to the geographical boundary of Gujarat and Rajasthan. The audit team has concluded the following regarding the project location: The PD defines the project area, which is 502.51 ha of degraded agricultural land belonging to small-scale farmers in Gujarat and Rajasthan in India.  The detailed information of the project locations included in the first PAI including the geodetic coordinates are provided in Section 1.13 and Annexure 2 of the PDMR. The area and location of PAI 1 have been confirmed via checking the project design, KML and shape files and /10//15//25//54/ and /41/ submitted by the PP. This area was also verified during the onsite visit audit and confirmed to be accurate. Project area boundaries have been reviewed in terms of area in ha, shape, land cover, overlapping and position accuracy. The PP has prepared a consolidated KML file of the project area covering the initial project area of 502.51 ha that has been validated. Statistic | Value

Count	530 parcels
Total area in ha	502.51

The project area is located in 5 Districts of the two Indian States spatially.



Hence, the audit team concludes that the details and supporting evidence related to the project location provided in section 1.13 of the PDMR is accurate.

Conditions prior to project initiation

The audit team has verified that the baseline land use conditions prior to project initiation are documented in Section 1.12 of the PD. A detailed baseline assessment is provided in Sections 3.4.4 and 3.5.5 of this report, based on information from Sections 3.4 and 3.5 of the PDMR, submitted supporting evidence, and observations made during the onsite visit. The project site consists of low-productivity agricultural land with declining income per unit area. Notably, no native crops or trees were removed for project implementation, and there has been no clearing or deforestation of native vegetation in the past ten years from the project start date.

The baseline conditions were further validated as part of the additionality assessment outlined in this report. The audit team confirmed these conditions through interviews with project personnel, a review of inventory data, and analysis of satellite imagery provided by the PP. Additionally, the historical and current LULC of the project area were cross-checked and verified using independent online sources /25//28//30//38//39//40//41//42//43//44/ and /45/.

The other details given by the PP related to Topography, ecosystem, climate was assessed using independent data set.

Topography

The topographical analysis is conducted using open-source Shuttle Radar Topography Mission (SRTM) satellite data with a 30-meter resolution. Slope

percentage is calculated using the Geospatial Data Abstraction Library (GDAL) in Python and reclassified according to the United States Department of Agriculture (USDA) slope classification. Elevation and slope classes are verified for the project polygons using this data.

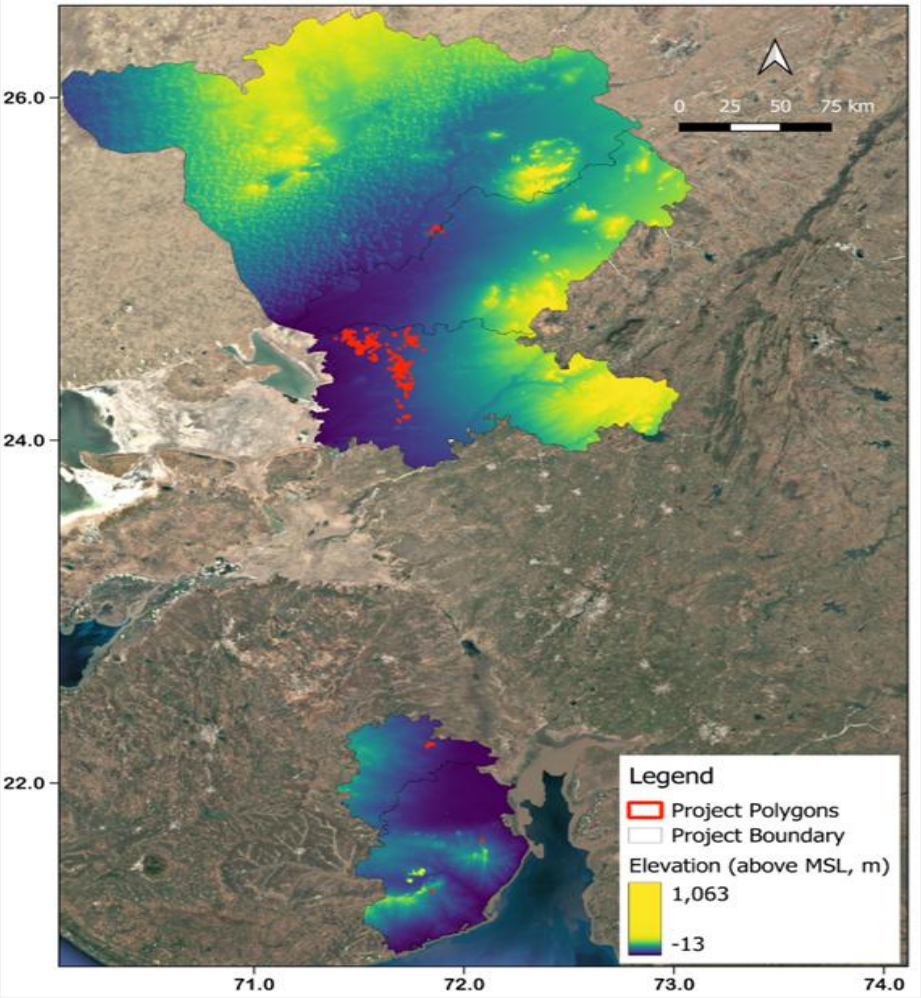
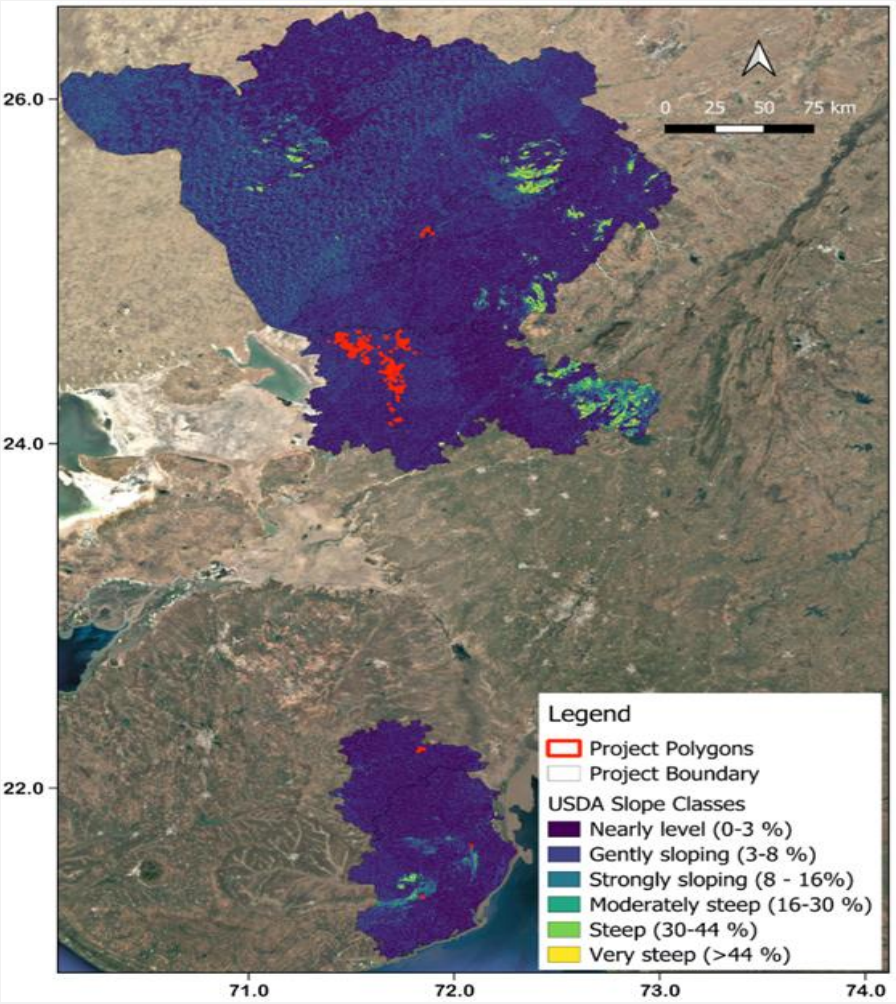


Figure 2: Elevation data using SRTM DEM satellite data.

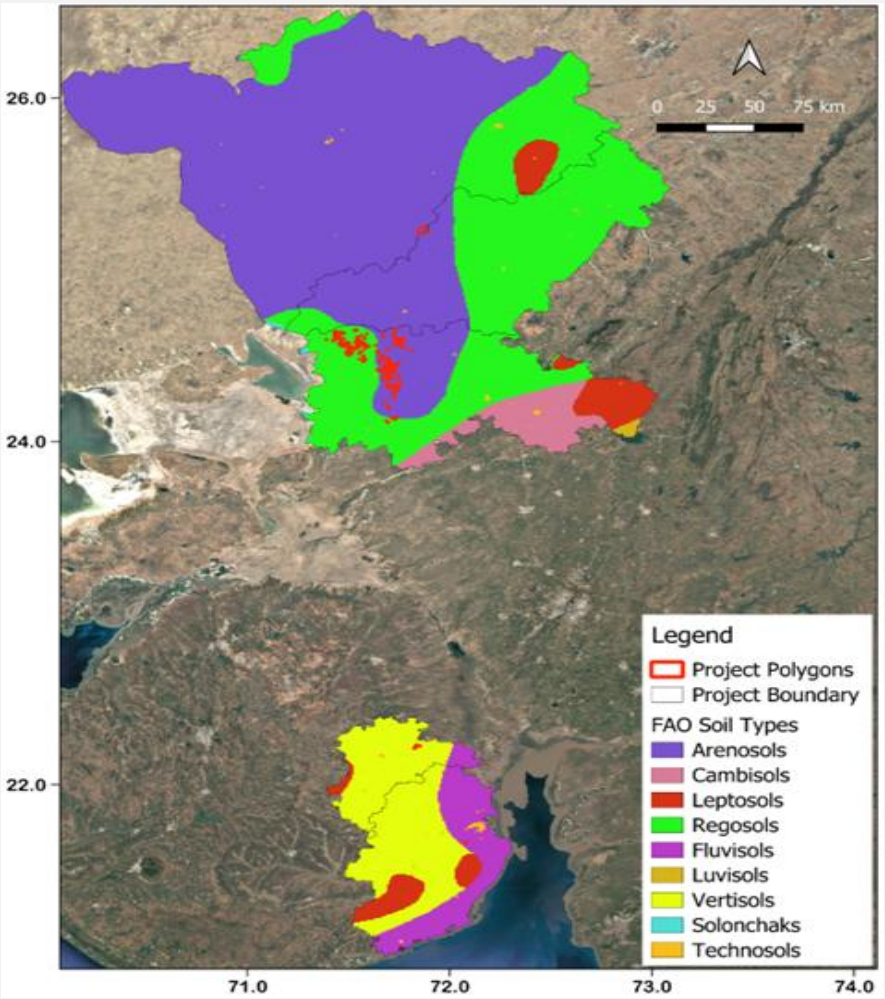


Source: SRTM DEM data - https://www.usgs.gov/centers/eros/science/usgs-eros-archive-digital-elevation-shuttle-radar-topography-mission-srtm-1

Figure 3: USDA Slope classification from SRTM DEM data

Soil Type

The Food and Agriculture Organization of the United Nations (FAO) provides soil type raster data through the FAO-UNESCO Digital Soil Map of the World (DSMW). The Harmonized World Soil Database version 2.0 (HWSD v2.0) is a comprehensive global soil inventory that offers detailed insights into soil properties, including their morphology, chemistry, and physical characteristics, with a focus on a 1 km resolution.

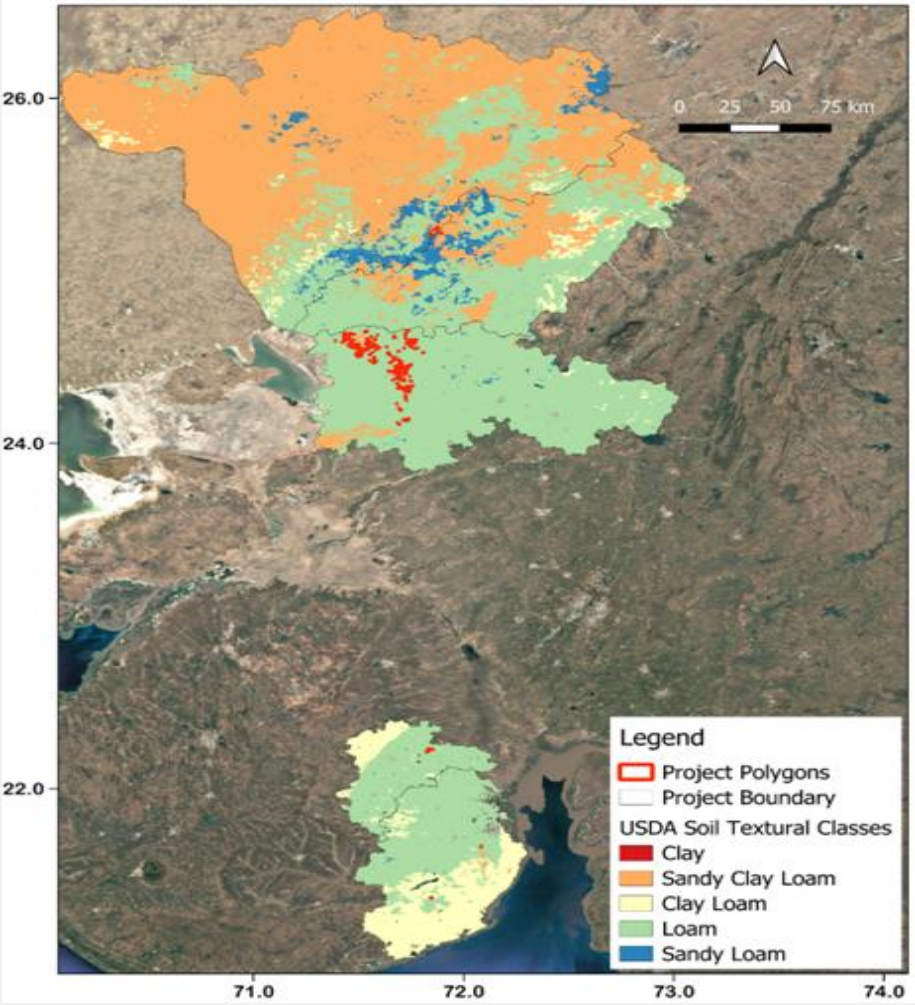


Source: FAO soil type data - https://www.fao.org/soils-portal/data-hub/soil-maps-and-databases/harmonized-world-soil-database-v20/en/

Figure 4: FAO soil type data.

Soil Texture

Soil texture is a soil property used to describe the relative proportion of different grain sizes of mineral particles in a soil. Particles are grouped according to their size into what are called soil separates (clay, silt, and sand). The soil texture class (e.g. sand, clay, loam, etc.) corresponds to a particular range of separate fractions, and is diagrammatically represented by the soil texture triangle. SoilGrids, a global soil information system, provides high-resolution soil property maps, including sand, silt, and clay percentages at different depths (e.g., 0–5 cm, 5–15 cm, etc.). The weighted average depth of up to 30 cm is taken as a standard depth for this project area.

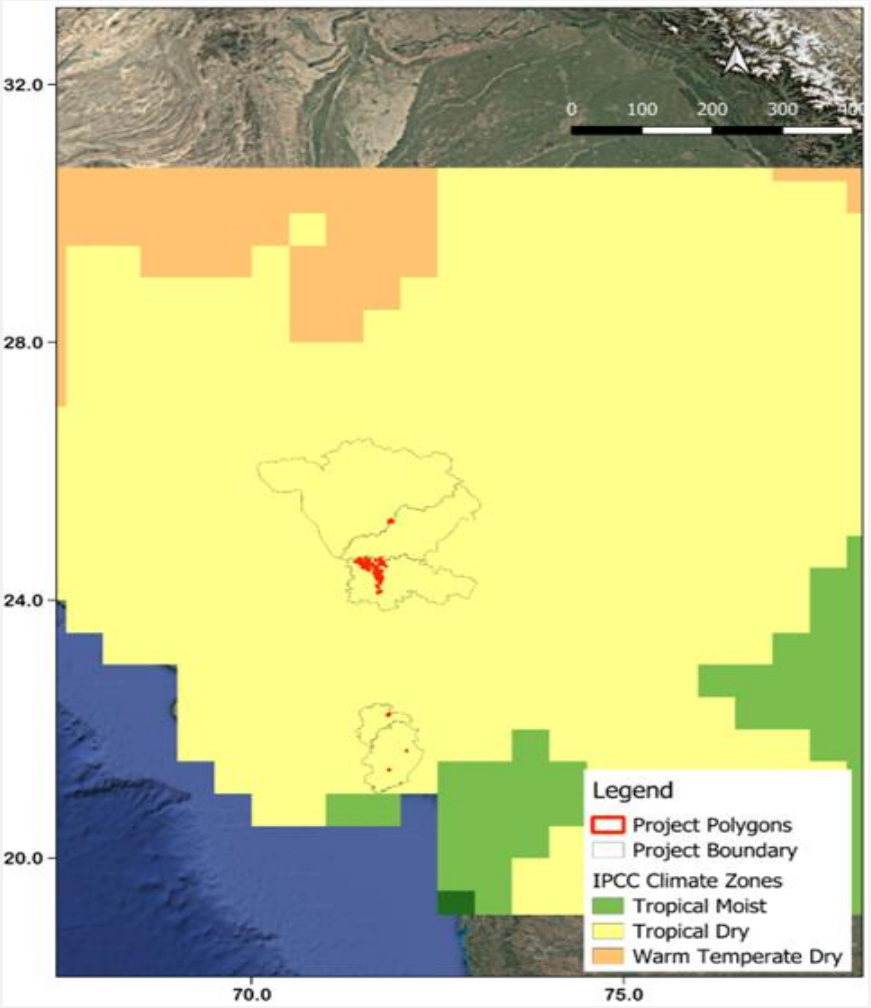


Source: soilgrids data from ISRIC FAO - https://soilgrids.org/

Figure 5: soilgrids data for sand, silt and clay for soil texture classification.

IPCC climate zone

The IPCC Climate Zones, defined by the Intergovernmental Panel on Climate Change (IPCC), classify the Earth's regions based on temperature, precipitation patterns, and climatic extremes. These zones help in assessing climate change impacts and adaptation strategies. Broadly categorized into Tropical, Dry (Arid and Semi-Arid), Temperate, Cold, and Polar, each zone exhibits distinct characteristics influencing biodiversity, agriculture, and water resources. The project polygons were all classified in Tropical Dry zone.

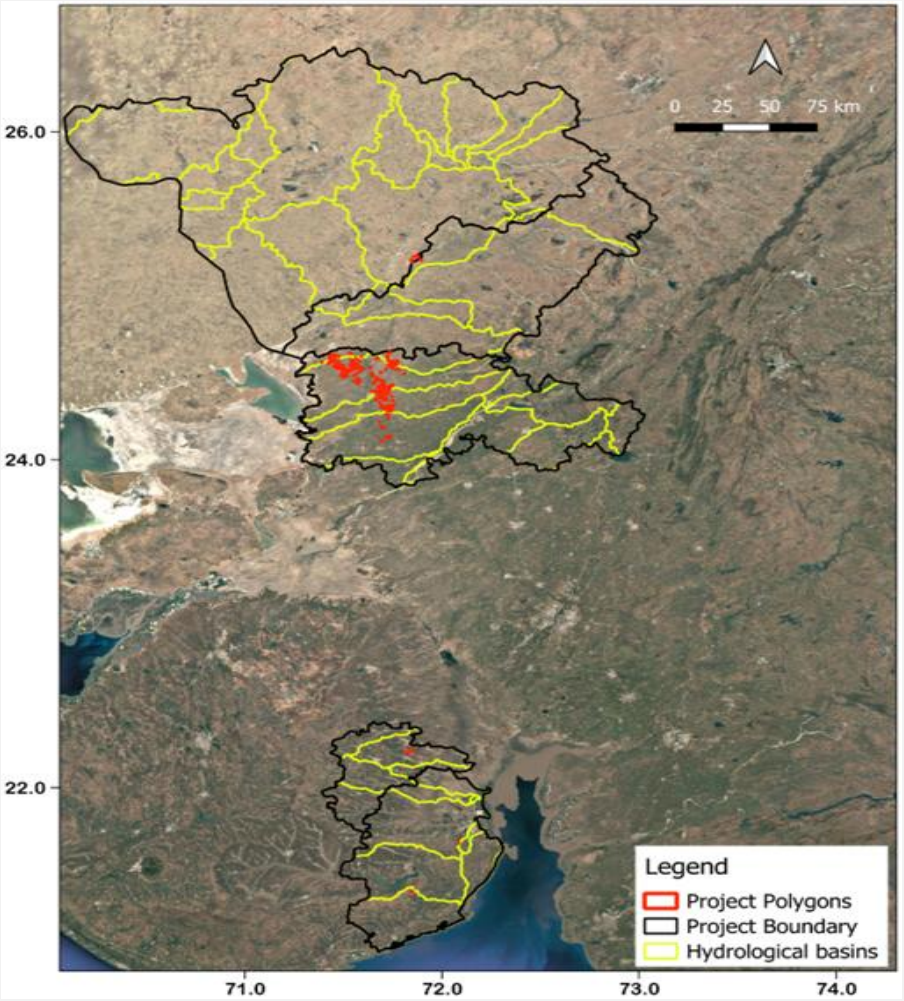


Source: IPCC climate data - https://www.ipcc.ch/report/ar6/wg1/resources/data-access/

Figure 6: IPCC climate data for project area.

Hydrological basins

Derived from NASA's Shuttle Radar Topography Mission (SRTM) data, HydroSHEDS enables precise delineation of hydrological basins worldwide. It supports various applications, such as water resource management, flood risk assessment, and ecosystem conservation.

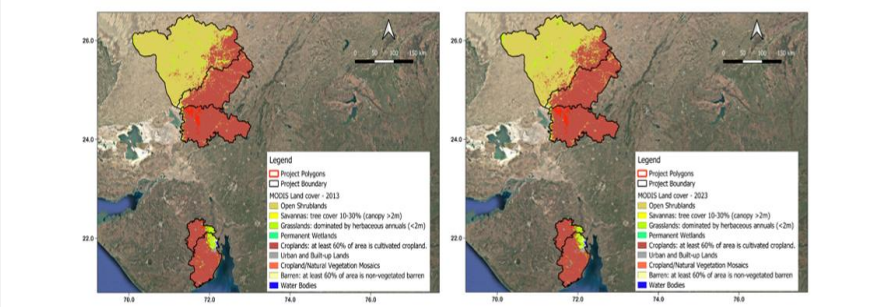


Source: Hydro basins data - https://www.hydrosheds.org/products/hydrobasins

Figure 7: Hydrological basins data from Hydroshed using SRTM data

Land cover

The VVB has assessed the LULC and mapped with the MODIS land cover data for 2013 and 2023 in term of all areas and land use strata wise area. It was found there is approximately PP has provided overall area accurate LULC information. Further the random point was checked to ensure the classification of LULC is accurate based on the high resolution google images as well. Nevertheless, VVB expressed concern (CAR 31), and the analysis concluded that the disparity in LULC results mainly from the variation in remote sensing software used by the PP and the VVB. Further, to validate the accuracy of LULC classification, random points were cross-checked using high-resolution Google images. The Project areas fall under Scrubland and Cropland use classes.

	 Source: MODIS land cover data - https://cmr.earthdata.nasa.gov/search/concepts/C2484079608-LPCLOUD.html 
Project compliance with applicable laws, statutes and other regulatory frameworks	The project activities described in section 1.12 of the PDMR comply with all applicable international, national and regional laws, statutes and regulations. This was confirmed through interviews of the project team and review of the laws and regulations /24/ that is listed in section 1.15 of the PDMR.
Double counting and participation under other GHG programs	The audit team concludes that the project is not currently registered under or seeking registration under another GHG program and has not been rejected by other GHG programs. PP has submitted an undertaking /46/ for the same.
No double claiming with emissions trading programs or binding emission limits	The audit team concludes that the project is not currently registered under or seeking registration under another GHG program and has not been rejected by other GHG programs. PP has submitted an undertaking /46/ for the same.
No double claiming with other forms of	The audit team concludes that the project is not currently registered under or seeking registration under another GHG program and has not been rejected by other GHG programs. PP has submitted an undertaking /46/ for the same.

environmental credit	
Supply chain (Scope 3) emissions double claiming	The audit team concludes that the project is not currently participating under any emission trading or other binding limit program or mechanism. This matter was discussed with PP, and they have subsequently provided an undertaking document /46/ to confirm their commitment. The PP or authorized representative is not a buyer or seller of a product whose emissions footprint is changed by the project activities. The ARR project does not generate or involve the production, processing, or distribution of goods or services that are part of a broader supply chain. The project activities described in Section 1.12 of the PDMR /7/ are limited to afforestation and reforestation interventions on degraded land and do not result in any commercial products whose carbon footprint could be affected. As such, there is no change in the emissions footprint of any upstream or downstream products or services attributable to the project. Therefore, no supply chain-related emission impacts need to be assessed under this section.
Sustainable development contributions	The PP anticipates the following SDG contributions due to the implementation of the project activity: **SDG1:** The project is expected to contribute to reducing the proportion of the population living below the international poverty line by generating employment for local communities, including women, youth, and marginalized groups. In addition to income generation, the project supports skill development and awareness on climate change, ultimately contributing to long-term poverty alleviation. **SDG2:** Through employment generation and skill-based livelihood training, the project supports the creation of diversified and resilient livelihoods. By integrating agroforestry models, the project enhances food and income security, particularly for smallholder farmers. **SDG8:** The project provides employment opportunities for men, women, and youth in rural areas, supporting inclusive and productive employment over the long term. **SDG13:** The project contributes to climate change mitigation through carbon sequestration, while also supporting adaptation through ecosystem-based approaches. It aligns with national climate policies and enhances climate resilience.

SDG15: The project supports the restoration of degraded lands into forested areas through afforestation activities, enhancing biodiversity and promoting sustainable land management practices.

however, during this MP (MP1), the following SDGs have demonstrable and quantifiable contributions:

Demonstrated and Quantifiable SDG Contributions in MP1:

In line with Section 3.17.1 of the VCS Standard v4.7, the project has demonstrated measurable contributions to the following three SDGs during the first MP:

SDG 8 (Average hourly earnings of female and male employees, by occupation, age and persons with disabilities1) (Target 8.5 – Indicator 8.5.1) - During MP1, the project created approximately 1,073 man-days of employment for both male and female workers engaged in plantation, maintenance, and monitoring activities.

Since direct wage data expressed in hours was not comprehensively available at the project level (given its small scale and reliance on man-day calculations, where one day equals 8 hours), the PP has applied a proxy approach. This method uses government guidelines and relevant scientific studies to establish prevailing working hours in the project region. Daily wages recorded under the project are then converted into average hourly earnings to ensure consistency with the SDG metric.
Rationale for the approach: Employment generated under the project is predominantly informal, seasonal, and task-based, with workers paid daily wages rather than hourly rates. Disaggregating by hours is not feasible, as such data is not systematically maintained and would impose an unnecessary administrative burden. Instead, the PP reports the following:

- Name
- Age
- Sex
- Daily Wage (INR)
- Total Days Worked (person physically worked)
- Number of Days (official days counted/approved for payment purposes)
- Total Amount (INR)
- Signature

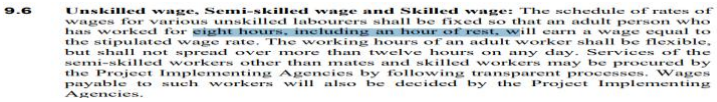
None of the people with disabilities has been included as of now. Average working hours are derived using government publications and peer-reviewed studies.

Project Impact Under current monitoring period

To estimate the project's impact for 8.5.1, the PP has now applied a proxy method, using average daily working hours reported in government publications and scientific studies relevant to the project region

- The Government of India prescribes a standard working day of 8 hours the most widely implemented rural employment scheme, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), which explicitly specifies an 8-hour workday[8]. Further, India, as a member of the International Labour Organization (ILO)[9], aligns its domestic framework with the internationally recognized norm of an 8-hour standard working day.
- Thomas B. and Bhatia R. (2012)[10], Gujarat: Laborers under the MGNREGA scheme work an average of 8 hours/day[11].
- Behara D.K. (2014)[12], Gujarat: Agricultural laborers typically work 8 hours/day.

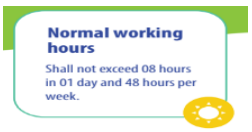
[8] https://nregaplus.nic.in/netnrega/writereaddata/Circulars/AMC_2024-25-English.pdf



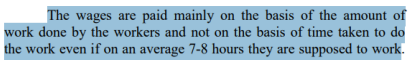
9.6 **Unskilled wage, Semi-skilled wage and Skilled wage:** The schedule of rates of wages for various unskilled labourers shall be fixed so that an adult person who has worked for eight hours, including an hour of rest, will earn a wage equal to the stipulated wage rate. The working hours of an adult worker shall be flexible, but shall not spread over more than twelve hours on any day. Services of the semi-skilled workers other than mates and skilled workers may be procured by the Project Implementing Agencies by following transparent processes. Wages payable to such workers will also be decided by the Project Implementing Agencies.

[9] https://labour.gov.in/lcandilasdivision/india-ilo

https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@asia/@ro-bangkok/@ilo-hanoi/documents/publication/wcms_814650.pdf

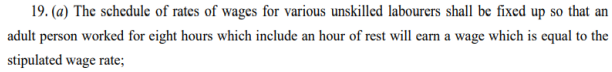


[10] https://www.researchgate.net/publication/330497483_Impact_of_NREGA_Scheme_A_Study_on_the_overall_Quality_of_Life_of_Its_Beneficiaries_A_Study_Undertaken_among_beneficiaries_of_3_districts_of_Gujarat_State



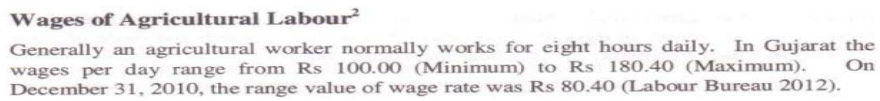
The wages are paid mainly on the basis of the amount of work done by the workers and not on the basis of time taken to do the work even if on an average 7-8 hours they are supposed to work.

[11] schedulefile



19. (*a*) The schedule of rates of wages for various unskilled labourers shall be fixed up so that an adult person worked for eight hours which include an hour of rest will earn a wage which is equal to the stipulated wage rate;

[12] Behera, D., 2014. Socio-Economic Condition of Agricultural Labour: A Case Study of Mahesana District in Gujarat. *Behera, DK (2014). Socio-Economic Condition of Agricultural Labour: A Case Study of Mahesana District in Gujarat. Man & Development*, *36*(3), pp.65-74.



Wages of Agricultural Labour[2]

Generally an agricultural worker normally works for eight hours daily. In Gujarat the wages per day range from Rs 100.00 (Minimum) to Rs 180.40 (Maximum). On December 31, 2010, the range value of wage rate was Rs 80.40 (Labour Bureau 2012).

- Rajasthan[13]: Agricultural laborers generally work 8 hours/day under normal conditions.

During the current monitoring period, the PAI-1 project directly benefited 110 farmers and community members, generating 1,073 person-days of employment through activities such as land preparation, planting, plantation maintenance, and project management. Applying the 8-hour proxy, this equals 8,584 work hours (1,073 × 8).

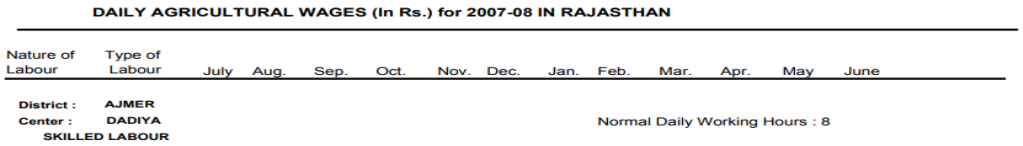
Workers were paid an average daily wage of INR 350, significantly above MGNREGA levels[14]. Converted to an hourly rate, this equals INR 43.75 (350 ÷ 8). This demonstrates that the project not only creates meaningful rural employment opportunities but also ensures fair remuneration above government benchmarks, thereby directly contributing to SDG 8.5.1.

As the project operates on a small scale at village level, no formal pay slips are issued. Instead, signatures or thumb impressions are recorded against the number of man-days worked. The PP submitted attendance sheets on official company letterhead, documenting 110 farmers, 1,073 man-days (8,584 work hours), and wage payments of INR 350/day (INR 43.75/hour).

Labour-hour assumptions were calculated with scientific studies, MGNREGA data, and state Rural Development circulars, ensuring that the calculations of employment hours and earnings are transparent, evidence-based, and conservative.

- The VVB has verified this contribution through cross-checking of wage/payment slips /53/ and field verification (interviews and consultations) during the audit site visit, covering the period between 2018 and 2024.

[13] https://eands.da.gov.in/AWIS/AWI%207-8/Rajasthan%207-8.pdf

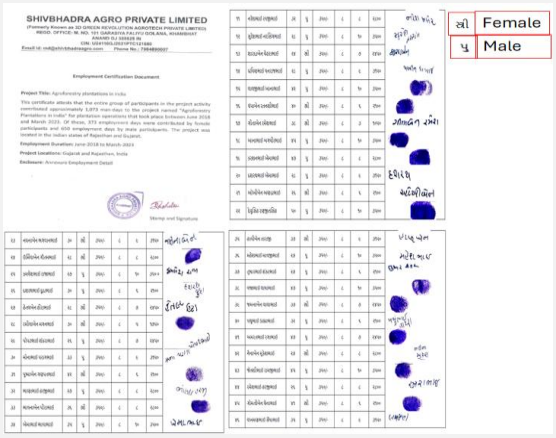


DAILY AGRICULTURAL WAGES (In Rs.) for 2007-08 IN RAJASTHAN

Nature of Labour	Type of Labour	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
District : AJMER													
Center : DADIYA													
SKILLED LABOUR													

Normal Daily Working Hours : 8

[14] https://agriculture.vikaspedia.in/viewcontent/agriculture/policies-and-schemes/rural-employment-related-1/mgnrega/state-wise-wage-rate-for-unskilled-manual-workers-under-mgnrega?lgn=en 266/day Rajasthan and 280/days Gujarat FY 2023-2024



- Over the 30-year crediting period, the PP estimates that the project will generate 20,000 man-days of seasonal employment, contributing significantly to regional livelihood enhancement. This equates to a total of 160,000 hours of employment (20,000 × 8). The daily wage paid under the project is INR 350/day (in future it may be increased). This translates to an average of INR 43.75/hour (350 ÷ 8).
- In addition, the project's agroforestry model supports income diversification for 468 smallholder farmers, who will benefit from both the sale of horticultural produce and carbon credits..

..

SDG 13 (Climate Action) (Target 13.2) –

- The project serves as a climate change mitigation initiative, contributing to the reduction of GHGs in alignment with national climate objectives. Additionally, it addresses environmental and biodiversity concerns by supporting efforts to mitigate climate-related hazards and natural disasters, thereby enhancing ecosystem resilience and sustainability.
- In this MP project has carried our Afforestation activities on area of 502.51 ha /10/ and /15/.
- For MP1 has successfully removed 46,669 tCO_{2e}. Over the crediting period, the project aims to afforest a total of 25,000 ha, aligning with national climate strategies and contributing to long-term GHG reduction and resilience-building..

SDG 15 (Life on Land) (Target 15.1 – Indicator 15.1.1) (Target 15.2 – Indicator 15.2.1) –

- During MP1, the project restored 502.51 ha of degraded land into forested land as verified by supporting evidence /10/ and /15/ and field observations..

	• The restored areas contribute to ecosystem regeneration, enhance biodiversity, and support long-term land productivity. .
Additional information relevant to the project	**Leakage management for AFOLU projects:** In accordance with Section 5.3 of the PDMR, it has been stated that leakage is zero. The audit team has verified that the PP has correctly applied this value, aligning with the applied methodology and tool. The leakage assessment process was thoroughly reviewed, and the audit team has confirmed the accuracy of the conclusions drawn from the leakage calculation. **Commercially sensitive information:** The PP has appropriately documented commercially sensitive information in Section 1.19 of the PDMR and has included the commercially sensitive documents in Annexure I. This approach is consistent with Section 3.5.2 of the VCS Standard v4.7.

CARs 2–14 were raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details.

3.2 Project Activity Instances in Grouped Projects

During this joint validation and verification, the project begins with the first PAI only. No further PAIs has been added during this monitoring period.

As discussed above in section 3.1, the proposed project follows a grouped approach, allowing for the future inclusion of additional project activity instances. It applies a single methodology, "AR-ACM0003, v2" to design and implement the project. The project's primary objective is to restore degraded and barren land owned by rural farmers. At the time of joint validation and verification, the project includes one active instance with provisions for future expansions. The PP has established eligibility criteria for new instances, ensuring alignment with the requirements specified in Sections 3.6.16 and 3.6.17 of the VCS Standard v4.7.

The PP has clearly demonstrated in Section 1.5 of the VCS PDMR that both the current project instance and future additions will comply with these eligibility criteria. The audit team reviewed Sections 1.4 and 1.5 of the PDMR and assessed the implemented project activities, which focus on restoration through plantations. The assessment confirmed that these activities fall within the ARR category, contributing to increased carbon sequestration by establishing, enhancing, or restoring vegetative cover in the project areas, as defined in Appendix 1.1 of the VCS Standard v4.7.

A baseline scenario assessment, conducted in consultation with participating farmers and landholders, revealed that prior land use consisted of subsistence-based, low-output agriculture or barren, degraded land. These conditions were exacerbating land degradation, increasing vulnerability to climate change, and contributing to food insecurity. The additionality of the project has been thoroughly evaluated (refer to Section 3.4.5 of this report) using the "Combined Tool to Identify the Baseline Scenario and Demonstrate Additionality in A/R CDM Project Activities," ensuring compliance with applicable VCS guidelines.

The audit team verified project area polygons and confirmed that no native ecosystems had been disturbed within the 10 years preceding the project start date. Additionally, the PP conducted a detailed LULC analysis for the enrolled lands. The VVB also verified project parcel boundaries, confirming that they do not overlap with any other AFOLU project boundaries.

The quality and completeness of evidence, data and documentation relating to the new project activity instances have been assessed in section 4 of this report.

The audit team confirms that the current project activity instance meets the eligibility criteria specified in Section 1.5 of the PDMR, in accordance with Section 2.2 of methodology A/R-ACM0003 v02/20/ and Sections 3.6.10–3.6.16 and 3.6.19–3.6.21 of the VCS Standard v4.7. Furthermore, it is confirmed that the project is structured as a grouped project, with future activity instances to be included in compliance with the eligibility requirements outlined in Sections 3.6.16 and 3.6.17 of the VCS Standard v4.7, as referenced in Section 1.5 of the PD.

3.3 Safeguards

3.3.1 Stakeholder Engagement and Consultation

3.3.1.1 Stakeholder Identification

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder identification	Section 2.1.1 of the PDMR clearly describes the stakeholder identification process. The PP leveraged over a decade of experience in Gujarat and Rajasthan to identify the optimal project area. - Conducted ground assessments with local experts and farmers. - Organized initial engagement sessions with local communities. - Sent invitation letters to stakeholders for consultation meetings. - Recorded stakeholder feedback and assessed understanding. - Maintained a register for interested farmers. Stakeholders Identified: Based on the information provided in the PDMR and verified by the audit team, the following categories of stakeholders were identified: • Local farmers and farming communities (direct project beneficiaries) • Daily wage laborers (involved in plantation and maintenance activities) • Indirect stakeholders: Representatives from o Communities outside the project area o Institutions including Sarpanch, Secretary, Ward Member o Agriculture department o Horticulture Department o Other NGOs The audit team checked the minutes of meetings, invitation letters, photographs, attendance lists, feedback from stakeholders and list of registered farmers /23//28/ and /58/ to confirm the process of stakeholder identification. The onsite interviews with the farmers and supporting evidence submitted confirmed that the identification process outlined in section 2.1.1 of the PDMR was followed by the PP.

Legal or customary tenure/access rights	The ownership and resource access/use rights held by the different entities. The rights to crops and trees and other intangible benefits arising from the plantation activities are with the landholders. The VERs from the trees are with PP. This is transferred through carbon agreements with the private landowners to the PP. The landownership documents /17/ were thoroughly reviewed and found that they have complete access over the legal and customary rights over the land areas. The agreement between the landowners and the PP was also reviewed, confirming that the agreement to implement and continue this project until its designated longevity (40 years renewable) is in place.
Stakeholder diversity and changes over time	The project has actively engaged a diverse range of stakeholder groups, ensuring representation across different social, economic, and cultural backgrounds. The verification process included a thorough review of stakeholder identification methodologies and supporting evidence to assess the details provided by the PP in section 2.1.1 of the PDMR. Social Diversity: The social diversity among stakeholders is influenced significantly by the prevailing farming practices in the project region. Practices such as subsistence farming, extensive cereal cultivation, and mixed farming are deeply connected to the regional social structure. Additionally, factors such as education levels, political development, governmental policies, and political influences play a key role in shaping the social landscape. The project has demonstrated inclusivity by engaging stakeholders from varied social strata, ensuring equitable representation. Economic Diversity: The project has acknowledged existing economic disparities among stakeholders and has implemented measures to address them through inclusive financial planning, equitable employment opportunities, and targeted interventions for economically vulnerable groups. The engagement of both small and medium-sized landholders and daily wage laborers indicates an effort to bridge economic gaps and enhance financial stability within the project community. Cultural Diversity: The assessment confirms that cultural diversity has been respected, with no evidence of bias observed in the stakeholder identification and engagement process.

	The audit team reviewed the minutes of stakeholder meetings to assess discussions and inclusivity, invitation letters and attendance lists to confirm participation from diverse stakeholder groups /23//28/ and /58/. And feedback from stakeholders regarding their involvement in the project. Lists of registered farmers to cross-check inclusion across different economic and social backgrounds. Additionally, onsite interviews with farmers confirmed that the stakeholder diversity, as outlined in Section 2.1.1 of the PDMR.
Expected changes in well-being	The ARR VCS project is anticipated to generate multiple positive impacts on community well-being, including economic empowerment, improved livelihoods, enhanced environmental resilience, strengthened social cohesion, and the conservation of biodiversity. Additionally, the project contributes to soil fertility, water security, and food security. These integrated benefits not only lead to immediate improvements in quality of life but also foster long-term sustainability, equipping communities to better navigate future environmental and socio-economic challenges. The project's structured implementation plan, combined with its on-ground activities and the strong commitment exhibited by both the PP and beneficiaries, serves as compelling evidence that the projected enhancements in community well-being will be realized through its strategic design and execution. Regular stakeholder engagement particularly with farmers, has fostered local ownership, strengthened adoption of best practices, and ensured continuity of benefits. By adopting a holistic approach to socio-economic resilience, environmental restoration, and women's empowerment, the project aligns effectively with sustainable development goals, reinforcing its long-term viability and positive community impact.
Location of stakeholders	The beneficiaries, including legal and customary rights holders, are located near the project area /12/ and /17/. The project stakeholders of PAI-1 belong to two Western Indian states – Gujarat and Rajasthan. Major Districts: Banas kantha, Bhavnagar and Botad Districts of Gujarat and Barmer and Jalor Districts of Rajasthan. During the entire project lifetime, all districts across Gujarat and Rajasthan will be considered for the plantation activities where farmer and communities are situated.

Location of resources	The lands included in this project consist of individually owned private lands by the local farmers of the States mentioned above /12/ and /17/. As outlined in the project ownership section, the PP hold the rights to carbon credits, while the other legal and customary rights remain with the landowners and the local community members.

CAR 15 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details.

3.3.1.2 Stakeholder Consultation and Ongoing Communication

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Stakeholder engagement process	The consultations were conducted between June 2018 and February 2020. Follow-up meetings with smaller farmer groups were also held to clarify technical details, gather feedback, and address concerns. All meetings were documented with attendance records, consultation forms, and minutes to ensure transparency and accountability /23/. The details of stakeholder consultations are documented in Section 2.1.2 of the PDMR. The audit team reviewed /23/ minutes of meetings, invitation letters, photographs, attendance lists, stakeholder feedback, and the list of registered farmers to verify the stakeholder identification process. Additionally, onsite interviews with farmers and supporting evidence confirmed that the identification process outlined in Section 2.1.2 of the PDMR was correctly implemented by the PP. Based on the evidence reviewed, the stakeholder consultation process for the ARR VCS project was conducted in a structured and inclusive manner, ensuring accessibility and participation of all relevant stakeholders. The invitations were disseminated through multiple channels, including public display at the Gram Sabha's office and direct communication in local, Hindi and English languages. The consultation process was designed to be gender-inclusive, culturally sensitive, and religion-neutral, ensuring broad and fair participation /23/ and /51/. A phase-by-phase approach was adopted, beginning with the engagement of community representatives and social leaders, followed by wider outreach to farming communities.

	Invitations were shared at least 8–10 days in advance, using culturally appropriate methods, such as community messengers, word-of-mouth, and public notices at Gram Sabha offices. Consultation venues were chosen in coordination with community leaders to ensure they were accessible, culturally appropriate, and religion neutral. The invitation letter were submitted for review and the dates as well as the overall process of consultations were also discussed during the audit visit and found to be in line with what PP has included in the joint PDMR. Special efforts were made to ensure gender and youth inclusion, such as: • Conducting small-group meetings with women in safe, familiar settings. • Involving female facilitators and respected women leaders to encourage participation. • Organizing youth consultations to capture perspectives and feedback. During onsite interviews, stakeholders clearly understood project objectives and potential benefits, engaging positively in the consultation process. Supporters of the project played a crucial role in directly engaging farmers through group meetings, reinforcing the project's outreach strategy. A review of stakeholder feedback forms confirmed active involvement and acknowledgment of the project's objectives. The evidence supports that the consultation process was transparent, participatory, and effectively implemented in alignment with the VCS Program requirements.
Consultation outcome	The consultation process involved active participation from all stakeholders listed in section 2.1.1 of the PDMR. As a result of the consultations, consent from 468 farmers /28/ was obtained, indicating inclusivity and cooperation. A review of the consultation reports and discussion with the stakeholders during the site visit confirmed that the process included discussions on risks, costs, benefits, legal compliance, FPIC, and benefit-sharing, aligning with the Section 3.18 requirements of VCS Standard v4.7. The FPIC process was incorporated, ensuring that stakeholders were briefed on potential impacts to property rights. The emphasis on equitable benefit distribution suggests a strong awareness of social equity concerns. Additionally, the PP has provided stakeholders with an overview of all relevant labour laws and regulations, demonstrating a commitment to legal compliance and social responsibility /24/.

	The validation and verification process were thoroughly explained to stakeholders, ensuring transparency. No grievances or objections were raised during the consultation process. As a result of these engagements, stakeholders developed a clear understanding of the project, and farmers freely consented to participate. During consultations, the SAPL team gathered stakeholder feedback both orally and through feedback evaluation forms /55/. The feedback collected was carefully considered during the project design and implementation phases, particularly in relation to training and skill development activities. Furthermore, any concerns regarding the project were discussed in detail during the meetings. Based on site visit interviews conducted by the audit team and a review of supporting evidence, the consultation process is deemed credible and compliant with VCS guidance.
Ongoing communication	Based on site visit observations and interviews conducted with the SAPL and Infinite's Management teams, it was found that the project has established a structured communication process to facilitate ongoing stakeholder engagement and address any concerns arising from project activities. To ensure effective and continuous communication, SAPL has implemented multiple stakeholder engagement channels, including: 1. Phone calls for direct contact. 2. In-person visits to the SAPL head office, which is conveniently located within the project area. 3. A mobile application[15] that provides a user-friendly platform for farmers to communicate, share feedback, ask questions, and receive updates. These mechanisms reflect an inclusive and proactive approach to stakeholder engagement. The system enables two-way communication, ensuring that stakeholders can express concerns, seek clarifications, and receive timely responses. Hence, the ongoing communication channel established by the PP is deemed credible and compliant with VCS requirements (Section 3.18.3 of the VCS Standard v4.7).

[15] https://play.google.com/store/apps/details?id=com.techomega.a3dgreenagro

Stakeholder input	As per the feedback input form /55/, stakeholders, particularly farmers, expressed strong optimism and full support for the project. Farmers proactively requested regular stakeholder meetings, demonstrating a keen interest in ongoing engagement. Farmers acknowledged multiple benefits of the project, including environmental advantages from sustainable land-use practices, additional monetary benefits likely linked to carbon credit revenue sharing, and productivity enhancements through improved land management and agricultural practices. A consensus among stakeholders indicated that the project did not pose any negative impacts but rather contributed positively to productivity and livelihoods. During the onsite visit, it was observed that farmers demonstrated a clear willingness to assist the Infinite team and DOE during field visits and to provide relevant project data, reflecting strong stakeholder cooperation and trust in the project.

3.3.1.3 Free, Prior, and Informed Consent

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Obtaining consent	FPIC was formally obtained from enrolled farmers through a Farmer's Agreement. The signed consent forms explicitly state that the PP holds the sole right to generate carbon credits from the project area, while legal and customary rights remain with the farmers. The transfer of legal rights under the applicable carbon standard is well-documented, and copies of the signed agreements /12/ were thoroughly reviewed by the audit team. The audit team conducted a comprehensive examination of the land ownership rights of the PP and carefully reviewed the project agreements between the PP and the landowners. Through interviews with local stakeholders and discussions with PP representatives, the audit team confirmed that all potential risks, commitments, costs, and benefits related to local stakeholder resources were transparently communicated before the project's implementation. Hence, it is concluded that the information provided in section 2.1.3 is satisfactory and in line with sections 3.18.7 and 3.18.8 of the VCS Standard v4.7.

Outcome of FPIC discussion	The outcome assessment has been detailed in Section 3.3.1.2 above. Following a thorough analysis of all documents, supporting evidence, and interviews conducted during the site visit, it has been confirmed that all stakeholders are in favor of the project's implementation. Their optimism and endorsement are in alignment with the requirements outlined in Section 3.18.3 of the VCS Standard v4.7.

CAR 16 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details

3.3.1.4 Grievance Redress Procedure

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Development process	During the desk review and site visit, it was observed that a grievance mechanism policy is in place. Stakeholders can file grievances through multiple channels, including in-person, phone, text message, social media platforms, mail, email, or the internet. The process was communicated to stakeholders, and all interviewed individuals demonstrated awareness of the mechanism. However, it was found that no formal record-keeping of grievances was maintained. This issue was discussed at length with the client, who clarified that grievances are recorded within the mobile application and resolved in accordance with the grievance redressal procedure and timeline. To address this gap, FAR 01 has been raised, requiring the client to implement proper and separate record-keeping of grievances filed by beneficiaries or any other stakeholders. This measure aims to enhance transparency and ensure accountability in grievance resolution.
Grievance redress procedure	It was found that the grievance redressal mechanism developed is in line with section 3.18.4 of the VCS Standard v4.7. The procedure includes processes for receiving, hearing, responding and attempting to resolve grievances within a reasonable time period, taking into account culturally appropriate conflict resolution methods. Stakeholders have various options for voicing grievances, ensuring flexibility and ease of access. Field staff actively acknowledge receipt of grievances, ensuring complainants receive an initial response within 3-5 days, with full resolution targeted within 15-30 days.

The PP educates stakeholders about the grievance process during engagement initiatives, increasing awareness and transparency.

The multi-tiered grievance resolution approach follows best practices, including amicable resolution, mediation by a neutral third party (may include respected community figures such as the Panchayat head, agricultural experts, or other locally recognized impartial individuals.) and escalation to arbitration or competent courts, if necessary. The process ensures grievances are handled transparently and fairly, complying with local legal frameworks.

No grievances were received during this monitoring period. And to verify this, the VVB undertook the following steps:

- Reviewed the grievance portal on the Shivbhadra Agro website[16], where stakeholders can lodge complaints digitally. No entries or submissions were found for the current monitoring period.
- Checked the Verra project landing page[17] for any public grievances or comments submitted during the reporting period. No concerns were recorded.
- Conducted interviews and consultations with randomly selected local stakeholders during the site visit to confirm that no grievances had been submitted or unresolved.

However, the procedure and documentation of disputes resolved through the procedure shall be made publicly available. To address this gap, FAR 01 has been raised, requiring the client to implement proper and separate record-keeping of grievances filed by beneficiaries or any other stakeholders. This measure aims to enhance transparency and ensure accountability in grievance resolution.

CAR 17 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details. FAR 01 has also been raised for this section.

3.3.1.5 Public Comments

This project was open for public comment from 08/11/2022 to 08/12/2022. No comments were received during this period, and to date, there has been no communication from VERRA regarding any comments received outside the public comment period.

[16] https://shivbhadraagro.com/lodge-your-grievance/

[17] https://registry.verra.org/app/projectDetail/VCS/3562

3.3.2 Risks to Local Stakeholders and the Environment

3.3.2.1 Management Experience

The project is managed by SAPL, while Infinite Environmental Solutions Limited provides technical and carbon-related guidance, combining their strengths to effectively align with the project's objectives. SAPL brings extensive experience in sustainable rural development and a deep understanding of community needs, reinforcing its role as the PP. Meanwhile, Infinite Environmental Solutions Limited contributes specialized expertise in carbon markets and project development, ensuring robust technical and operational support for the carbon offset initiative.

The audit team has evaluated the management team's qualifications by reviewing the professional backgrounds and credentials of key project leaders. This assessment covered SAPL's and Infinite's organizational history, mission, and track record in carbon markets, rural and socioeconomic development, and natural resource management. Their experience in India's carbon market and climate change mitigation initiatives was further validated through CV reviews, company websites[18], and on-site interviews, confirming their expertise.

CAR 18 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details

3.3.2.2 Risk Assessment

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Natural and human-induced risks to stakeholders' wellbeing	**Evidence Gathering and evidence checked:** Reviewed project documentation /7/, interview with the local staff and beneficiaries, NPRR report /14/, site visit observation and review of secondary climate data /44/ and /45/. **Conclusion:** The are no major natural risk in the project area. The project includes effective measures to address natural risks to stakeholders' wellbeing, such as soil and water conservation practices, irrigation facilities, climate-resilient agricultural and plantation practices, and adaptive training sessions for beneficiaries. These actions are consistent with requirements for risk mitigation and climate adaptation, helping to reduce the vulnerability of

[18] https://shivbhadraagro.com/

https://infisolutions.org/

	stakeholders. Hence, the project is in line with section 3.19.4 of the VCS Standard v4.7.
Risks to stakeholder participation	**Evidence Gathering Activities:** Conducted interviews with community representatives and project staff to assess the effectiveness of stakeholder mobilization, particularly for women and other marginalized communities. Reviewed records of stakeholder participation in community groups and capacity-building sessions conducted as part of the project. **Evidence Checked:** Attendance logs for meetings and training session records. Outreach documentation provided by the project (/23/ and /27/). Verified the involvement of women and other marginalized groups, including their feedback on participation during the site visit. **Conclusion:** The project's approach to organizing community groups and conducting capacity-building sessions is appropriate and accessible, effectively mitigating the potential risk of low participation among women and marginalized groups. This approach aligns with inclusive stakeholder engagement requirements and conforms to Section 3.19.5 of the VCS Standard v4.7. Additionally, during the site visit, it was observed that there were no negative impacts on local stakeholders due to project activities. Stakeholders can engage with the project confidently, knowing that their health and safety are safeguarded.
Working conditions	**Evidence Gathering:** Reviewed project documentation regarding employment terms, including payment structures and adherence to government norms. Conduct site visits and informal interviews with workers to verify working conditions. **Evidence Checked:** Employment payroll records /53/. Observations during site visits to assess the physical work environment. **Conclusion:** The project complies with government employment norms, ensuring equitable terms for both men and women. The lack of identified risks in working conditions is justified, and the project's procedures meet the requirements for safe and fair labor practices. Hence,

	the project is in line with section 3.19.7 of the VCS Standard v4.7.
Safety of women and girls	**Evidence gathering:** Reviewed the project's policies on sexual harassment (HR Policy) and code of conduct. Interviewed local people to assess awareness and implementation of these policies. During the site visit, it was observed that most beneficiaries are directly involved in the project design and implementation are men. The women with whom the audit team interacted conveyed they have not faced any issues related to harassment and feel very safe working within the project. **Evidence Checked:** Any grievance or incident records related to harassment or abuse in the mobile app and site visit observation. **Conclusion:** The project has implemented appropriate policies and sensitization programs to protect the safety of women and girls. This conforms to project requirements for safeguarding vulnerable groups and reflects a proactive approach to maintaining a safe environment. Hence, the project is in line with section 3.19.8 of the VCS Standard v4.7.
Safety of minority and marginalized groups, including children	**Evidence Gathering:** Reviewed the consultations report and meetings records. Conduct interviews with project coordinators and marginalized community members to verify inclusion. **Evidence Checked:** Records demonstrating participation of marginalized groups, project documentation on social inclusion initiatives (HR policy and Code of conduct /50/ and /51/, and any grievance or incident records related to harassment or abuse and site visit observation. **Conclusion:** The project's design does not discriminate on the basis of caste, creed or groups, promoting their socio-economic empowerment without involving child labor or harmful practices. The procedures align with the requirements for inclusivity and protection of vulnerable populations. Hence, the project is in line with section 3.19.9 of the VCS Standard v4.7.

Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials, and chemical pesticides and fertilizers)	**Evidence Reviewed:** PDMR /7/, Resource Management Plan /48/, and site visit interviews, which confirm that the project is designed to reduce greenhouse gas emissions without generating pollutants. **Conclusion:** The project's ARR approach essentially minimizes environmental pollutants, aligning with its primary objective of reducing GHG emissions. This is consistent with project requirements for environmentally sustainable practices. During the site visit, it was confirmed that the project does not generate waste, release hazardous materials, or involve the use of chemical pesticides or fertilizers. Therefore, the project complies with Section 3.19.10 of the VCS Standard v4.7.

CAR 19 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details

3.3.3 Respect for Human Rights and Equity

3.3.3.1 Labor and Work

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Discrimination	Reviewed grievance and incident records related to discrimination, along with site visit observations. The audit team interviewed management and staff to verify the implementation of policies on discrimination and sexual harassment/51/ and /52/. No cases of discrimination were reported. Monitoring mechanisms are in place, and staff have been sensitized on these issues. No significant risks related to discrimination or harassment were identified.
Sexual harassment	Reviewed grievance and incident records related to harassment or abuse, along with site visit observations. The audit team interviewed management staff to verify the implementation of policies on discrimination and sexual harassment, as outlined in HR /51/. No cases of sexual harassment were reported. Monitoring mechanisms are in place, and staff have been sensitized on these issues. No significant risks related to discrimination or harassment were identified.

Equal pay for equal work	The VVB assessed pay slips /53/ and HR policy /51/ provided by the PP and conducted interviews with local individuals. Based on the evidence gathered, it was concluded that there was no discrimination based on gender, caste, or creed, and all employees received equal pay.

Annexure

Detailed Employment List:

Sr no	Name of Employee	Age	Gender (F/M)	Wage/ Day (₹)	No. of days	Total amount (₹)	Signature
	નયનાબેન ભગવાનભાઈ	30	F	૩૫૦/-	૦૯	૩૧૫૦/-	× નયનાબેન
	ભીમાબેન ગોવાભાઈ	૨૮	F	૩૫૦/-	૦૮	૨૮૦૦/-	×
	કમલેશભાઈ રામભાઈ	૨૭	M	૩૫૦/-	૧૦	૩૫૦૦/-	કમલેશ રામ
	દશરથભાઈ ફુદાભાઈ	30	M	૩૫૦/-	૦૬	૨૧૦૦/-	દશરથ ફુદા
	હેતલબેન હિરાભાઈ	૨૮	F	૩૫૦/-	૦૭	૨૪૫૦/-	× હેતલ હિરા
	રમીલાબેન મગનભાઈ	30	F	૩૫૦/-	૦૪	૧૪૫૦/-	×
	પોપટભાઈ શંકરભાઈ	૨૫	M	૩૫૦/-	૦૭	૨૪૫૦/-	પોપટભાઈ
	મોનાભાઈ પરાગાભાઈ	33	M	૩૫૦/-	૦૯	૩૧૫૦/-	મોના પરાગા
	ફુલાબેન ગાલાપતભાઈ	૪૨	F	૩૫૦/-	૦૬	૨૧૦૦/-	×
	ભોગાભાઈ હરજીભાઈ	૨૭	M	૩૫૦/-	૦૮	૨૮૦૦/-	ભોગા હરજી
	ભાવનાબેન વીરાભાઈ	35	F	૩૫૦/-	૦૮	૨૮૦૦/-	×

અનુક્રમ નં.	નામ	ઉંમર	જાતિ	દિવસ દીઠ વેતન (₹)	દૈનિક કામના કલાકો	દિવસોની સંખ્યા	કુલ રકમ (₹)	સહી
૧	રમેશભાઈ રગનાથભાઈ	૨૬	પુ	૩૫૦/-	૮	૧૦	૩૫૦૦	આર. આર. ઠાકોર
૨	હીનાબેન રમેશભાઈ	૨૩	સ્ત્રી	૩૫૦/-	૮	૮	૨૮૦૦	હિનાબેન
૩	અમરતભાઈ જગાભાઈ	૪૩	પુ	૩૫૦/-	૮	૭	૨૪૫૦	અમરત જગા
૪	નરસિંહભાઈ વિહાભાઈ	૩૧	પુ	૩૫૦/-	૮	૭	૨૪૫૦	એન.વી.ઠાકોર
૫	રમેશભાઈ હરજીભાઈ	૩૫	પુ	૩૫૦/-	૮	૯	૩૧૫૦	રમેશભાઈ હરજી
૬	મુકેશભાઈ ચેનાભાઈ	૨૮	પુ	૩૫૦/-	૮	૧૦	૩૫૦૦	મુકેશ
૭	ભરતભાઈ નરસંગભાઈ	૨૧	પુ	૩૫૦/-	૮	૮	૨૮૦૦	બી.એન.ઠાકોર
૮	સમુબેન અમરતભાઈ	૪૦	સ્ત્રી	૩૫૦/-	૮	૬	૨૧૦૦	
૯	તારાબેન નરસિંહભાઈ	૩૪	સ્ત્રી	૩૫૦/-	૮	૪	૧૪૦૦	તારાબેન
૧૦	વિમળાબેન નરસિંહભાઈ	૨૮	સ્ત્રી	૩૫૦/-	૮	૯	૩૧૫૦	

Figure 3: sample payment slip

	The wage provided (₹350 per man-day) aligns with, and in fact exceeds, the notified wage rate under the Host Country's flagship MGNREGA norms.[19] The assessment confirms no identified risk of labor abuse within these community institutions.
Gender equity in labor and work	The audit team conducted a thorough assessment of wage equality and non-discriminatory employment practices by reviewing pay slips /53/, HR policy /51/, and interviewing local employees and management. The assessment aimed to verify whether any disparities in wages or job opportunities existed based on gender, caste, or creed. Upon assessing multiple pay slips, it was confirmed that male and female employees were compensated at the same daily wage rate of ₹350 per man-day, with no discrepancies based on gender. Additionally, the hiring process was reviewed through discussions with management and employees, revealing that both men and women were given equal employment opportunities without bias. During site interviews, employees consistently reported that wages were disbursed fairly and without favoritism. Furthermore, the absence of grievances or complaints related to wage discrimination in the reviewed records supported the conclusion that fair labor practices were in place.
Forced labor	During the on-site assessment, the audit team checked labor conditions, worker eligibility, and compliance with fair labor practices by reviewing documents, conducting interviews, and observing operations. Interviews with workers and review of SAPL's HR policies confirmed fair wages, clear job roles, and safe working conditions. The FPIC process showed that community participation was completely voluntary, with no signs of pressure or intimidation. Workers reported fair treatment, proper pay, and good working conditions, with no complaints or grievances

[19] https://mnregaweb4.nic.in/netnrega/avg_wage_paid.aspx?lflag=eng&page=s&state_name=RAJASTHAN&state_code=27&fin_year=2022-2023&source=national&Digest=Cj0Txr4CUVLDH4R/YFxIVw

https://mnregaweb4.nic.in/netnrega/avg_wage_paid.aspx?lflag=eng&page=s&state_name=GUJARAT&state_code=11&fin_year=2022-2023&source=national&Digest=OQV0qn+mx6Ct+Kh+ySiRZw

	recorded. The project also follows both national and international labor laws, as outlined in section 1.15 of the PDMR. No child labor was found. The assessment confirmed that the project ensures fair treatment, safe working conditions, and full compliance with labor laws, with no major risks identified.
Child labor	As assessed above there was no evidence of child labor. The assessment concluded that the project upholds fair labor practices, ensuring safe conditions, equitable treatment, and full compliance with labor laws. No major risks were identified.
Human trafficking,	The on-site assessment confirmed that the PP have strong experience in managing labor safely and fairly. No major risks related to labor conditions were found. Land ownership records show that beneficiaries are local residents, not migrants, confirming their eligibility for the project. The FPIC process verified that community participation was voluntary, with no signs of forced labor.

CAR 20 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details

3.3.3.2 Human Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
No risk identified	The legal and customary rights of the project area belong to local farmers who have voluntarily joined the project through the FPIC process. There is no evidence of intimidation or pressure on any farmer to participate. The audit team thoroughly reviewed the carbon agreement /12/ and conducted on-site interviews with beneficiaries and local residents. Based on the findings, it was concluded that the project respects cultural rights, promotes equality, and upholds FPIC, ensuring that local communities can participate freely and voluntarily. The project also values their traditional knowledge and best practices in its design and implementation.

	Furthermore, by involving local communities in decision-making bodies and providing training, the project strengthens their social rights and supports self-determination. No risks were identified regarding interference with their independence or development choices.

3.3.3.3 Indigenous Peoples and Cultural Heritage

Risk identified	Evidence gathering activities, evidence checked, and assessment conclusion
No risk identified	During the site visit, it was confirmed that no sacred sites are located within the project area. The land involved belongs exclusively to the beneficiaries, who have voluntarily participated in the project through the FPIC process. Therefore, no risks were identified regarding the rights of IPs or the protection of cultural heritage sites. Additionally, the PP has sensitized staff and local stakeholders on the importance of respecting local customs, beliefs, and traditions. The PP has ensured that project activities are conducted in a culturally respectful manner without disrupting traditional practices.

3.3.3.4 Property Rights

Risks identified	Evidence gathering activities, evidence checked, and assessment conclusion
No risk identified	During the site visit, it was confirmed that no sacred sites are included within the project area. The land involved is exclusively those of the beneficiaries, and their inclusion in the project is based on FPIC on a voluntary basis. Therefore, no risks have been identified concerning the rights of IPs or any cultural heritage sites.

CAR 21 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details

3.3.3.5 Benefit Sharing

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Process used to design the	The BSM was developed through a participatory approach involving the PP and the community. Interviews with beneficiaries, Infinite Environmental

benefit sharing plan	Solutions Limited, and SAPL representatives confirmed community involvement in line with VCS standards. The audit team reviewed meeting records, feedback drafts, and benefit-sharing plans (which is part of the carbon agreement – clause 19) provided to the community. Hence, it was concluded that the process was transparent, inclusive, and risk-free, ensuring clear communication and alignment with sections 3.19.22, 3.19.23 and 3.19.24 of the VCS standard v4.7.
Summary of the benefit sharing plan	The carbon agreement, which includes the BSM, is a binding and permanent contract between landowners (individual farmers) and SAPL. It confirms that carbon rights are transferred to SAPL and clearly explains how funds will be used and shared. The agreement ensures that revenue is allocated for plantation maintenance, necessary fees, and fair distribution among beneficiaries. The 40-year commitment guarantees long-term community benefits with no risk of funds being misused. With a legally enforceable agreement, beneficiaries fully understand their roles, commitments, and expected benefits.
Approval and dissemination of benefit sharing plan	Community consultation records and audit site visit interviews confirm that the agreement was discussed, mutually agreed upon, translated, and read in the local language to ensure clear understanding. The benefit-sharing plan was explained in detail during stakeholder consultations and one-on-one meetings before farmers gave their consent. This process upheld informed decision-making, ensuring that all participants fully understood the agreement and that approval was conducted based on FPIC with no identified risks.
Benefit sharing during the monitoring period	This is the first MP which is being conducted alongside the project validation. The BSM remains unchanged and is as described above.

CAR 22 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details

3.3.4 Ecosystem Health

Item	Evidence gathering activities, evidence checked, and assessment conclusion
Impacts on biodiversity and ecosystems	**No risk identified.** The project introduced a social forestry model, incorporating fruit and timber trees for planting previously low output agricultural and degraded areas. Agroforestry practices will enhance biodiversity and ecosystem health in the human dominated landscape over time.[20]
Soil degradation and soil erosion	**No risk identified.** The project uses agroforestry on barren and degraded cropland to stop soil erosion and damage from surface runoff. Organic compost and mulching will improve soil quality and keep the soil healthy in the long run. The project follows a sustainable land management plan that improves soil health, reduces erosion, and prevents land degradation. This ensures long-term farming productivity while also helping the environment.[21]
Water consumption and stress	**No risk identified.** Based on the site visit observations and review of supporting evidence, agroforestry species were selected through a participatory approach, integrating local farmers' traditional knowledge. The selected species are resilient to climate variations, including changes in rainfall and temperature. Organic mulch, leaf litter, and tree canopies help retain soil moisture and reduce water loss. Tree roots improve soil structure, prevent erosion, and enhance water infiltration. Farmers use drip irrigation, and the PP continues to provide training on agroforestry models and irrigation practices. These measures ensure agroforestry maintains water balance without causing water stress.

3.3.4.1 Rare, Threatened, and Endangered species

Risk identified	Evidence gathering activities, evidence checked, and assessment conclusion
Species and habitat	The VVB has conducted field surveys and reviewed regional biodiversity data to determine if the project area includes or is adjacent to habitats of rare, threatened, or endangered species. The assessment confirmed that the project area does not include or lie adjacent to habitats of rare, threatened, or endangered species. Therefore, no mitigation measures are required in this regard.

[20] https://link.springer.com/article/10.1007/s10457-012-9517-5

[21] https://pubmed.ncbi.nlm.nih.gov/35262801/

Areas needed for habitat connectivity	NA

3.3.4.2 Introduction of Species

Species introduced	Evidence gathering activities, evidence checked, and assessment conclusion
Pomegranate (Non-native)	Pomegranate, though not originally native to India, has been cultivated in the country for centuries without posing ecological risks.[22] There are no associated risks, and the justification and evidence provided by the PP are satisfactory and acceptable
Mahogany (Non-native)	Mahogany, native to the Americas, has been introduced and cultivated in India, due to its high economic value as a timber species.[23] There are no associated risks, and the justification and evidence provided by the PP are satisfactory and acceptable
Guava (Non-native)	Native to tropical America, guava is now predominantly grown in India, making it the world's largest producer.[24] Its cultivation is expanding across Asian countries due to favorable climatic conditions. Guava is a hardy tree that thrives with minimal inputs.[25] There are no associated risks,[26] and the justification and evidence provided by the PP are satisfactory and acceptable.
Custard apple (Non-native)	A native to Tropical America, Custard apple has been cultivated in India for centuries without posing ecological risks.[27] There are no associated

[22] https://nhb.gov.in/report_files/pomegranate/POMEGRANATE.htm

https://www.nativeplanet.com/news/origin-indian-pomegranates-their-story-008405.html

[23] https://www.mitconindia.com/mitcons-mahogani-marvel/

https://www.hindustantimes.com/mumbai-news/mahogany-trees-cut-effect-of-greenhouse-gases-study/story-MwtSWGDqCPzcYZYdxICHPJ.html

[24]https://nhb.gov.in/model-project-reports/Horticulture%20Crops/Guava/Guava1.htm

https://abcfruits.com/guava-the-tropical-apple/

[25] https://www.researchgate.net/publication/373103032_Guava_production_in_India-_Growth_and_challenges

[26] https://www.researchgate.net/publication/290241667_GUAVA_PRODUCTION_AND_IMPROVEMENT_IN_INDIA_AN_OVERVIEW

[27] https://pmc.ncbi.nlm.nih.gov/articles/PMC8143160/

https://greg.app/custard-apple-weed/

https://indianexpress.com/article/cities/pune/custard-tree-highly-tolerant-air-pollution-study-7252960/

	risks, and the justification and evidence provided by the PP are satisfactory and acceptable.

Existing invasive species	Evidence gathering activities, evidence checked, and assessment conclusion
NA	NA

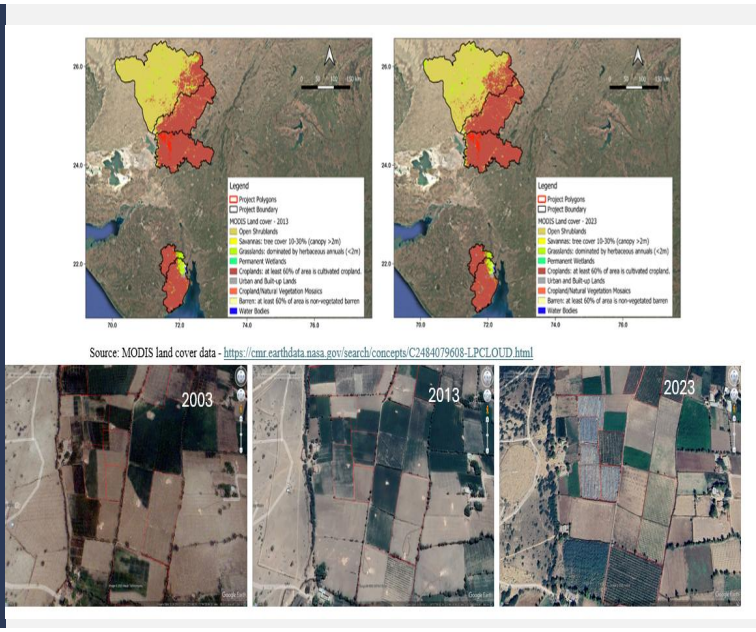
The project includes the plantation of only the above-specified species during this MP and the first PAI. No invasive species have been introduced as part of the project activities. This has been verified through the Management Manual and confirmed during site visit discussions and observations. Hence, the details provided in section 2.4.2 of the PDMR is acceptable.

	Evidence gathering activities, evidence checked, and assessment conclusion
Invasive species	NA

CAR 23 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details.

3.3.4.3 Ecosystem conversion

Risks Identified	Evidence gathering activities and evidence checked
No risk identified	The project has not cleared any native forest within the past 10 years prior to the project start date. Instead, it promotes reforestation on degraded cropland. By utilizing barren or low-usage land, the project avoids converting any natural ecosystems or high-value habitats. This has been validated based on the KML /10/ and LULC shapefiles /15/ review and discussions with the beneficiaries during the site visit. The Project areas fall under scrubland and cropland land use classes.



CAR 24 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details.

3.4 Application of Methodology

3.4.1 Title and Reference

The project has applied CDM Methodology A/R-ACM0003. Afforestation and reforestation of lands except wetlands. v02 /20/[28].

Tools applied:

- Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities, v1 /21/[29].
- Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities, v4.2 /29/[30].
- VCS AFOLU Non-Permanence Risk Tool, v4.2 /5/[31]

[28] https://cdm.unfccc.int/UserManagement/FileStorage/THNRJC15IW4K89UBE6DFZYX23OVP0Q

[29] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-02-v1.pdf

[30] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-14-v4.2.pdf

[31] https://verra.org/wp-content/uploads/2023/10/AFOLU-Non-Permanence-Risk-Tool-v4.2-last-updated-May-3-2024.pdf

- Estimation of non-CO2 greenhouse gas (GHG) emissions resulting from burning of biomass attributable to an A/R CDM project activity, v4.0 /22/[32]

- Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities[33] ,v1.1.0/60/

- Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities[34] , v3.1/61/

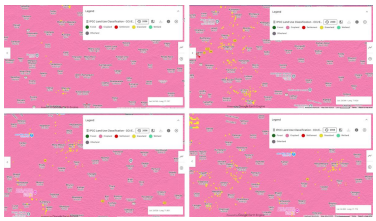
- Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity[35] ,v2.0/62/

- Demonstration of eligibility of lands for A/R CDM project activities[36] ,v2.0/63/

- Calculation of the number of sample plots for measurements within A/R CDM project activities[37],v1/64/

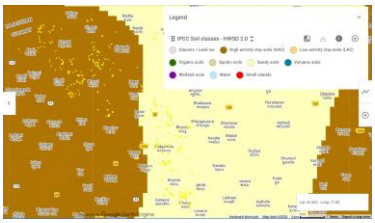
CAR 25 was identified and addressed successfully. Please refer to Appendix 4 for the same.

3.4.2 Applicability

Condition	Applicability	VVB Assessment and Conclusion
Methodology applicability		
The land subject to the project activity is not categorized as 'wetland'	Lands such as forests, lagoons, flood plains, wetlands and water bodies were excluded from project boundary given the analysis of land eligibility that was carried.	The project area does not fall into the wetland category. This was confirmed during the site visits and satellite images provided /10//15//25/ and /41/ by the PP.  Independent sources confirms that the project area does not fall into the wetland category.
b. Soil disturbance attributable to the project activity does not	(a) The project area is identified as fallow uplands and revenue wasteland. The soil in the area	With the available references and discussions & investigation

[32] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-08-v4.0.0.pdf

[33] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-16-v1.1.0.pdf
[34] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-12-v3.1.pdf
[35] cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-15-v2.0.pdf
[36] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-19-v1.pdf
[37] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-03-v2.1.0.pdf

cover more than 10% of area in each of the following types of land, when the land is included within the project boundary: ☐ Land containing organic soils; ☐ Land which, in the baseline, is subject to land-use and management practices and receive inputs listed in "appendices 1 and 2 of the AR-ACM003 methodology."	primarily consists of red soil, with some regions containing black soil and portions of alluvial soil. Thereafter, does not fall within the types of land referred in points.[38] (b) The land within the Project boundaries was a fallow upland and revenue waste land with low productivity, without receiving inputs such as listed in appendices 1 and 2 to the methodology. Such cropland under subtropical conditions has less carbon compared to plantations and forest cover. Consequently, it is anticipated that the presence of the project activity will result in a greater increase in SOC compared to the baseline. Furthermore, during the soil preparation phase at the onset of the pre-project phase, extensive surface treatments were avoided, except for addressing deep erosions, creating pits for plantlets, and ploughing a perimeter band to minimize fire risks. The soil disturbance directly related to the project activity does not exceed 10%.	during site visits the following was confirmed: • Soil disturbance attributable to the Project activity does not cover more than 10%. • Soils in the proposed project are mineral soils and do not contain organic soils.[39]  • Soil organic carbon will increase due to the project activities. • No extensive surface treatments have been carried out for the plantation activities. • The project degraded and fallow cropland, thus the land in the baseline is not subjected to land-use and management practices and receives inputs listed in appendices 1 and 2 to the applied methodology.
Tools applicability		
Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities.	(a) Forestation of the land will not lead to violation of any applicable law.	During the site visit and review of referenced documents /24/ it was confirmed that the project will not lead to any violation of any applicable law.

39 https://earthmap.org/?aoi=india&boundary=level0&feature&layers=%7B%22HWSD2_IPCC_Soils%22%3A%7B%22opacity%22%3A1%7D%7D&mainmenu=true&map=%7B%22center%22%3A%7B%22lat%22%3A21.75396022777076%2C%22lng%22%3A86.55845435889998%7D%2C%22zoom%22%3A13%2C%22mapType%22%3A%22roadmap%22%7D&statisticsOpen=true

https://bhoomigeoportal-nbsslup.in

(a) This tool is applicable for forestation of the land within the proposed project boundary performed with or without being registered as the A/R CDM project activity shall not lead to violation of any applicable law even if the law is not enforced. (b) This tool is not applicable to small-scale afforestation and reforestation project activities.	(b) The proposed Project is not a small-scale afforestation and reforestation project.	The project is not a small-scale reforestation project and was confirmed during site visit, review of PDMR /7/ and ER calculation spreadsheet /8/.
Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities. This tool has no internal applicability conditions.	This tool has no internal applicability conditions. Hence, no justification required.	No justification required for the applicability of the tools
Estimation of non-CO2 greenhouse gas (GHG) emissions resulting from burning of biomass attributable to an A/R CDM project activity The tool is applicable to all occurrence of fire within the project boundary. Non-CO2 GHG emissions resulting from any occurrence of fire within the project boundary shall be accounted for each incidence of fire	No burning of biomass is attributable to the Project activity; thus, project emissions are accounted as zero	The tool has no specific applicability conditions. Hence no justification required.

which affects an area greater than the minimum threshold area reported by the host Party for the purpose of defining forest, provided that the accumulated area affected by such fires in a given year is ≥5% of the project area.		
Calculation of the number of sample plots for measurements within A/R CDM project activities	This tool has no internal applicability conditions. Hence, no justification required.	No justification required for the applicability of the tools
Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities	This tool has no internal applicability conditions. Hence, no justification required.	No justification required for the applicability of the tools
Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities[40]	a. The areas of land to which this tool is applied: I. Do not fall into the wetland category II. Do not contain organic soil as defined in "Annexure A: glossary" of the IPCC GPG LULUCF 2003 II. Are not subject to any of the land management practices and application of inputs as listed in Tables 1 and 2 b. The A/R CDM project activity meets the following conditions: I. Litter remains on site and is not removed in the A/R CDM project activity II. Soil disturbance is attributable to the A/R CDM project activity, if any • In accordance with appropriate soil conservation practices, e.g., follows the land contours Limited to soil disturbance for site preparation before planting and such disturbance is not repeated in less than twenty years.	a • Justified above, the project does not fall into the wetland category. • As for the above, the project does not contain organic soil. • Justified above, the project does not subject to any of the land management practices and application of inputs as listed in Tables 1 and 2. b • As aside from the above, the project Soil disturbance attributable to the Project activity does not cover more than 10%. • Soil disturbances are limited to site preparation (digging of holes to plant seedlings). There is no soil disturbance after the project activity implementation.

[40] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-16-v1.1.0.pdf

Demonstration of eligibility of lands for A/R CDM project activities	This tool has no internal applicability conditions. Hence, no justification required.	No justification required for the applicability of the tools
VCS AFOLU Non-Permanence Risk Tool (Version 4.2)	This tool has no internal applicability conditions. Hence, no justification required.	No justification required for the applicability of the tools
Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity	This tool is not applicable if the displacement of agricultural activities is expected to cause, directly or indirectly, any drainage of wetlands or peat lands.	The Project Activity does not result in the displacement of any agricultural activity; therefore, this aspect is not applicable. The assessment is given in section 3.4.6 of this report.

Tool for "Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity" has not been applied since there is no displacement of pre-project agriculture activities.

CAR 26 was identified and addressed successfully. Please refer to Appendix 4 for detailed information on the resolution of these issues

3.4.3 Project Boundary

Carbon pools included/excluded (Refer to Table 1 of the applied methodology)

Carbon pools	Selected?	Justification / Explanation
Above-ground	Yes	Checked against Table 1 in methodology to confirm that inclusion of above ground tree biomass is mandatory. Major carbon pool subjected to the project activity
Below-ground	Yes	Verified against Table 1 in methodology to confirm that inclusion of below ground tree biomass is mandatory. Major carbon pool subjected to the project activity
Dead wood	Yes	Verified against Table 1 in the methodology that if the carbon stock in these pools is expected to increase due to the implementation of the project activity, then the pools can be included.
Litter		
SOC		

Carbon sources included/excluded (Refer to Table 2 of the applied methodology)

Sources	GHGs	Included?	Justification/Explanation
Burning of biomass	CO_2	Excluded	Verified against Table 2 in methodology to confirm that inclusion of the GHG source is not required. CO2 emissions

			due to burning of biomass are accounted as a change in carbon stock.
	CH_4	Included	Verified against Table 2 in methodology to confirm that inclusion of the GHG source is mandatory. Burning of woody biomass for the purpose of site preparation, or as part of forest management is not practiced. Hence emissions are zero.
	N_2O	Included	Verified against Table 2 in methodology to confirm that inclusion of the GHG source is mandatory. Burning of woody biomass for the purpose of site preparation, or as part of forest management is not practiced. Hence emissions are zero.

The project boundary was evaluated through physical site inspections, interviews, and analysis of secondary evidence, including documents such as /10//15//25//28//54/ and /41/. Based on these assessments, the VVB team determined that the project accurately accounted for the relevant carbon pools as described in the PDMR. The description provided in the PDMR was found to be precise, and comprehensive. Moreover, the chosen carbon pools for the proposed project activity were deemed justified.

The PP has provided a diagram or map of the project boundary, showing clearly the physical locations of the various installations or management activities taking place as part of the project activity based on the description provided in Section 1.12 of the PD.

CAR 27 was identified and addressed successfully. Please refer to Appendix 4 for detailed information on the resolution of these issues.

3.4.4 Baseline Scenario

The PDMR identifies the baseline scenario as "Continuation of current degraded land of the small landholders with low productivity activity facing issues of degradation and low productivity and soil erosion.

The baseline scenario was determined by using the *A/R Methodological tool "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities", v01 as required by the applied methodology.* ***The detailed assessment of baseline scenario is given below in section 3.3.5.***

Assessment of the Baseline Scenario Determination

The joint validation and verification process included an independent assessment of the baseline scenario to ensure its appropriateness and conformity with applicable methodological and regulatory requirements. The following aspects were reviewed:

1. Justification of Assumptions and Data:

- The assumptions and data used in identifying the baseline scenario were reviewed for appropriateness and reasonableness.
- Supporting evidence was assessed and cross-verified with the independent sources to confirm that the assumptions align with historical land-use trends and degradation rates.
- The justification provided by the PDMR for the selection of the baseline scenario was examined in light of existing literature, historical records, and stakeholder inputs. The validation team cross-checked references and citations included in the PD to verify their relevance and correctness.

2. Consideration of National and Sectoral Policies:

- National and/or sectoral policies, labour laws relevant to land-use, forestry, and environmental conservation were reviewed.
- The PD was examined for consistency with prevailing policies, including land-use regulations and afforestation/reforestation initiatives.
- The audit team assessed whether the PDMR appropriately considered regulatory circumstances that could influence land degradation trends.

3. Correct Application of Baseline Identification Procedures:

- The validation team assessed whether the steps outlined in the A/R Methodological tool were correctly followed. It was verified whether the identified baseline scenario reasonably represents what would have occurred in the absence of the project activity.

Based on the assessment, the identified baseline scenario is deemed appropriately justified and supported by relevant evidence. The scenario determination follows the requirements of the applied methodology, and the assumptions made by the PDMR are reasonable given the available data. The project complies with the necessary procedural steps to identify the baseline scenario accurately and in alignment with sectoral and national policies.

The validation team concludes that the baseline scenarios represent a credible estimation of what would have occurred in the absence of the proposed project activity.

CAR 28 was identified and addressed successfully. Please refer to Appendix 4 for detailed information on the resolution of these issues.

3.4.5 Additionality

For the assessment and demonstration of additionality and the identification and justification of the baseline scenario are described using the “Combined tool to identify baseline scenario and demonstrate additionality in A/R CDM project activities”, v01, issued by the CDM executive board at the United Nations, which shall be hereinafter referred to as “additionality tool”, is used.

The following steps were taken to conclude the baseline scenario and project additionality:

STEP 0. Preliminary screening based on the starting date of the A/R project activity

The starting date of the project activity is 18th June 2018, which is after December 31, 1999.

Demonstration	Justification by the PP	VVB Assessment
Provide evidence that the starting date of the A/R CDM project activity was after 31 December 1999.	As per the signed agreement between the PP and the farmers, the PP did not hold any ownership of the project area as of June 1, 2018. Therefore, the project could not have commenced before this date.	Farmers agreement /12/ have been thoroughly examined. Therefore, the evidence presented is adequate to demonstrate that the project activity commenced after 31 December 1999.
Provide evidence that the incentive from the planned sale of VCUs was seriously considered in the decision to proceed with the project activity. This evidence shall be based on (preferably official, legal and/or other corporate) documentation that was available to third parties at, or prior to, the start of the project activity.	During the local stakeholder consultation process, generating carbon credits through VCS was highlighted as a key agenda. Farmers were briefed about the concept of carbon credits and their economic benefits. The PP has communicated extensively with stakeholders through one-to-one consultations, demonstrative presentations, leaflet distribution, and social media, emphasizing the economic advantages of carbon credits for participating farmers in the Plantation Project. Given this, carbon credits play a vital role in farmers' decision-making process, influencing them to integrate plantation activities into their traditional cropping framework to secure an additional sustainable revenue stream. The agreement between the PP and farmers outlines the process of carbon credit generation and the resulting revenue. Consequently, the potential income from the planned sale of Verified Carbon Units (VCUs) was a significant factor in the farmers' decision to proceed with the Project Activity	The earliest Farmer's Agreement, signed on June 1st, 2018, includes a clear description of carbon credit requirements. Additionally, pre-project consultations confirm that landowners were fully aware of the planned sale of VCUs and seriously considered this factor in their decision to proceed with the project activity.

STEP 1. Identification of alternative scenarios to the project activity

Sub-step 1a. Identify credible alternative land use scenarios to the proposed CDM project activity.

As mentioned in Section 3.3.4 of this report and Section 3.5.2 of the PDMR, the project involves only private land owned by individual smallholder farmers. The PP has conducted a step wise baseline and additionality assessment in line with the applied tool. The VVB's assessment for STEP 1 is presented below in the table. This step includes identifying the credible land-use scenarios for the Project Area and assessing the consistency of each scenario based on local regulations. In line with the applied tool, following three scenarios were analysed:

Credible alternative land use scenarios	Description	VVB Assessment
SCENARIO A: Continuation of the pre-project land use	Pre-project land-use scenarios for this Project have been identified using primary and secondary sources of information. Primary sources include social assessment activities undertaken on the project boundaries from June 2018 to the end of 2022. Several local interviews, field surveys and land use records were checked for the land history in and around the project area. Subsistence agriculture is the main economic activity in the project area, primarily practiced by smallholder farmers. These farmers face significant challenges due to low agricultural output, land degradation, and declining productivity, making it increasingly difficult to sustain their livelihoods. The project area includes both small and medium-sized farmers, but the baseline activity across both groups is predominantly subsistence farming, as confirmed through field surveys, stakeholder consultations, and socioeconomic assessments. In Gujarat and Rajasthan, farming is largely low-input, rain-fed, and non-mechanized, constrained by: • Severe land degradation and topsoil erosion, • Water scarcity and erratic rainfall, • Poor soil fertility and high salinity, • Fragmented landholdings and limited access to credit or extension services. Due to these conditions, even medium-sized farmers grow mainly for household consumption,	After validation of all the supporting documents and land records /10//12//17//28/ /45/ and /44/ and site visits investigation (discussions with local stakeholders, landowners and Project management team) it was confirmed continuity of Scenario A in the absence of the proposed project activity. Based on the site visit observations, secondary and primary data reviewed the audit team also assessed the issues related to the baseline scenario if continued.

	with little or no surplus for market sales. Several reports suggest that most of the farmers (about 99 per cent of households have reported that income generated from farming is not adequate.[41] Livelihood diversification typically involves wage labor or seasonal migration rather than commercial agriculture. The above assessment is further supported by: • PP's baseline survey demonstrates that almost all the farmers included in the project depend on subsistence cropping. • Published reports and literature confirming subsistence-oriented farming in dryland Gujarat and Rajasthan and highlighting low agricultural returns in the region (NITI Aayog,[42] World Bank[43] and other published reports[44]The key crops grown include wheat, castor, bajra, jowar, pulses, and commercial crops like groundnut.[45] However, climate-induced weather fluctuations and limited fertilizer use have resulted in below-average crop yields.[46] Operating	

[41] https://desagri.gov.in/wp-content/uploads/2024/04/2020-21-Market-Imperfections-and-Farm-Profitability-in-Gujarat-1.pdf

[42] https://www.niti.gov.in/sites/default/files/2023-03/A-New-Paradigm-for-Indian-Agriculture-from-Agroindustry-to-Agroecology.pdf

[43] https://documents1.worldbank.org/curated/en/539731636402340823/pdf/India-Rajasthan-Agricultural-Competitiveness-Project.pdf

[44] https://prsindia.org/files/budget/budget_parliament/2025/DFG_Analysis_2025-26_Agriculture_%26_Farmers_Welfare.pdf

https://timesofindia.indiatimes.com/city/ahmedabad/crops-cities-creeks-struggle-to-adapt-to-changing-rainfall-pattern-in-gujarat/articleshow/122394170.cms

https://ijarsct.co.in/Paper15682.pdf

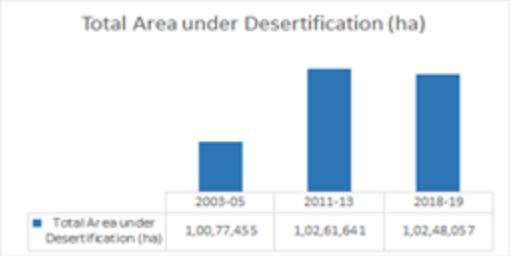
[45] Based on primary data which were confirmed during the onsite visit by the auditor.

[46] https://www.thehindubusinessline.com/economy/agri-business/higher-temperatures-delay-jeera-seeding-in-gujarat-rajasthan/article68918705.ece

https://www.researchgate.net/publication/284725930_Climate_change_and_its_impact_on_major_crops_in_Gujarat

https://www.researchgate.net/publication/370426057_Impact_of_Global_Warning_on_Agricultural_Pattern_A_Case_Study_of_Select_agricultural_spaces_in_Rajasthan

https://www.nabard.org/auth/writereaddata/tender/2304192712NABARD%20Rajasthan%20NRMC%20Final%20Report%20NOV2018-final.pdf

	small farms is often financially unviable, making farming a low-profit enterprise. The economic viability of small and marginal farms depends on input costs, institutional support, and government policies (such as minimum support prices [MSPs] and price regulations).[47] Addressing these issues requires comprehensive strategies that include policy reforms, support for sustainable farming practices, and initiatives to enhance the resilience of small-scale farmers to climate variability. This situation is exacerbated by the fact that agriculture is their sole source of income and is currently not economically viable. The major issues for the low agriculture output are 1) subsistence farming, 2) climate change impact 3) low fertilizer and pesticide use[48] 4) below-average crop yields 5) poverty. As per the Desertification and Land Degradation Atlas of India, 2021, 10,248,057 ha land representing *52.22% of Gujarat's total geographical area (TGA) is affected by various kinds of desertification and land degradation issues*. A slight decrease in the area undergoing DLD is observed from timeframe 2011-13 to 2018-19, still more than half of the TGA faces degradation and desertification issues. The DLD in the state is mainly due to Water Erosion (19.53%) followed by Salinity (13.24%), Vegetation Degradation (11.84%) and Wind Erosion (5.99%).  **Figure 4: Total area under desertification in Gujarat (2003-05 – 2018-19)**	

[47] https://desagri.gov.in/wp-content/uploads/2024/04/2020-21-Market-Imperfections-and-Farm-Profitability-in-Gujarat-1.pdf

[48] https://naas.org.in/documents/State_of_Indian_Agriculture.pdf

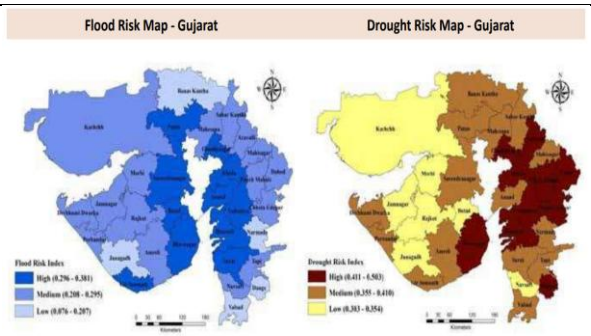


Figure 5: Gujarat flood and drought vulnerability - adapted from CSTEP Report[49]

As per Desertification and Land Degradation Atlas of India, 2021, 21,237,665 ha land representing 62.06% of Rajasthan's TGA is affected by various kinds of desertification and land degradation issues. A slight decrease in the areas undergoing DLD is observed from timeframe 2003-05 to 2011-13 to 2018-19, still more than half of the TGA faces degradation and desertification issues. The DLD in the state is mainly due to wind erosion (43.37%), followed by vegetation degradation 7.64%) and water erosion (6.21%).

Figure 6: Total area under desertification in Rajasthan (2003-05 – 2018-19)

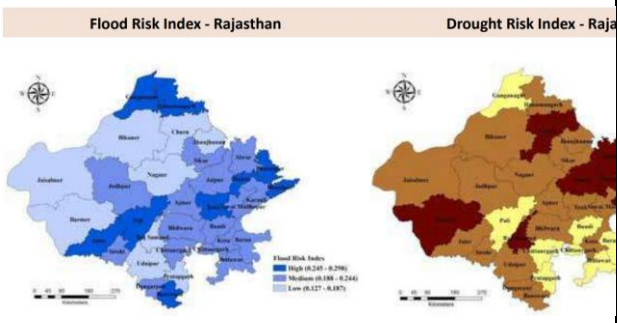
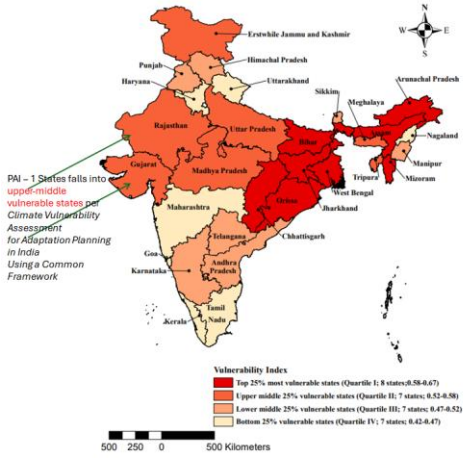


Figure 7: Rajasthan flood and drought vulnerability - adapted from CSTEP Report[50]

	VVB validated the claims by reviewing several secondary research and during the site visit and found the claims of the PP apt. both the States remains among upper middle vulnerable States in the order of their climate vulnerability ranking.[51]  	
SCENARIO B: Forestation of the land within the project boundary performed without being registered as the A/R VCS project activity	The Scenario B is represented by forestation of the land within the Project boundary performed without being registered as the A/R CDM project activity. Based on the primary and secondary sources which include social assessment activities undertaken on the project boundaries from 2018 to 2022 and local interviews: The project area consists of degraded and fallow cropland, primarily due to low agricultural output, desertification and ongoing soil erosion. While the project could technically be implemented without carbon credit revenue (as the proponent has landowner consent), registering it as a VCS project offers additional financial incentives through	After validation of all the supporting documents and land records /10//17//28//45/ and /44/ and site visits investigation (discussions with local stakeholders, landowners and Project management team) it was confirmed that Scenario B is feasible in the

[49] https://dst.gov.in/sites/default/files/Full%20Report_District-Level%20Climate%20Risk%20Assessment%20for%20India_Mapping%20Flood%20and%20Drought%20Risks%20Using%20IPCC%20Framework.pdf

[50] https://dst.gov.in/sites/default/files/Full%20Report_District-Level%20Climate%20Risk%20Assessment%20for%20India_Mapping%20Flood%20and%20Drought%20Risks%20Using%20IPCC%20Framework.pdf

[51] https://dst.gov.in/sites/default/files/Full%20Report%20%281%29.pdf#:~:text=The%20risk%20and%20insurance%20market%20to%20promote,is%20still%20not%20fully%20developed%20in%20South%2DAsian

https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1909206#:~:text=Climate%20change%20reduces%20crop%20yields,and%20its%20impact%20on%20farmers.

	carbon credits, which helps overcome certain barriers. The combination of financial, technological, and socio-economic barriers significantly restricts afforestation and agroforestry adoption in India. Limited access to capital, high upfront costs, lack of quality planting material, land fragmentation, and inadequate skilled labour all contribute to the stagnation of alternative land-use scenarios. Without external financial support, capacity-building initiatives, and policy interventions, large-scale implementation of afforestation projects remains unfeasible. As mentioned by the PP in the PD and as confirmed by the beneficiaries during the VVB's site visit, plantations are happening in the State under some nationally sponsored schemes like MGNREGA[52] and Compensatory Afforestation Fund Management and Planning Authority (CAMPA)[53], National Horticulture Mission (NHM)[54] and State Horticulture Missions,[55] Mangrove Initiative for Shoreline Habitats & Tangible Incomes (MISHTI).[56] While these schemes make substantial efforts toward conservation, several challenges remain: **Climate Change:** Changing weather patterns pose significant threats to the project areas, as assessed in scenario B.	absence of the proposed project activity

[52] https://forests.gujarat.gov.in/writereaddata/images/pdf/MGNREGA-Book-May-2018.pdf

https://forest.rajasthan.gov.in/content/dam/raj/forest/ForestDepartment/PDFs/Public%20Information/Orders%20&%20Circulars/Vision%20Document.pdf

https://forest.rajasthan.gov.in/content/raj/forest/en/aboutus/departmental-wings/forest-devlopment/model-for-developmental-activities.html

[53] https://forests.gujarat.gov.in/land-campa.htm

https://forest.rajasthan.gov.in/content/raj/forest/en/aboutus/departmental-wings/state-campa1/division-wise.html

[54] https://hortnet.gov.in/Hortnetsub/Login-guj.aspx

[55] https://doh.gujarat.gov.in/Home/SchemesDetailsPage/P%E2%9C%BFwk1phXMF7evIxDtQJ2YQ%E2%99%AC%E2%99%AC

https://agriculture.rajasthan.gov.in/horticulture/#/home/dptHome

[56] https://nams.nic.in/mishti.php

	Socioeconomic Pressures: The local population depends heavily on subsistence agriculture resources for their livelihoods leading to over-exploitation of land resources. **Coordination Gaps:** Although multiple programs are in place, better integration and coordination between local, state, national, and international efforts are needed. **Long-term Sustainability:** While short-term restoration and afforestation activities are helpful, more long-term, adaptive strategies are required to manage the impacts of environmental degradation and climate change. In conclusion, while the ongoing schemes are valuable, the long-term monitoring and management are missing. Most plantation drives in India, whether by industries or the government, face issues—they often neglect ecological considerations and local involvement. During the site visit, local residents reported that government agencies occasionally distribute saplings, but in small quantities and without aligning them with local preferences. Additionally, these efforts lack ongoing maintenance and do not offer incentives to motivate farmers to nurture and safeguard the plantations over time. Interviews with landholders further revealed that maintaining the project until its expected duration (40 years) would be difficult without the financial benefits of carbon credits. This direct feedback offered crucial insights into the viability of alternative scenarios, especially regarding the economic sustainability of the project. The VVB also concludes that the PP's analysis for Scenario B is substantiated by current plantation practices and trends, as required by Step 9 of the additionality tool. Furthermore, the identification of this land use scenario is based on comprehensive field surveys and feedback from stakeholders, along with information from other reliable secondary literature sources. Hence, the identified scenario is credible	

Scenario C: If applicable, activities similar to the proposed project activity on at least part of the land within the project boundary of the proposed VCS AFOLU project at a rate resulting from: 1. Legal requirements; or 2. Extrapolation of observed similar activities in the geographical area with similar socioeconomic and ecological conditions to the proposed VCS AFOLU project activity occurring in the period beginning ten years prior to the project start date.	For this scenario, the lands within the project boundary of the proposed VCS AFOLU project are all with the same legal requirements, there are no legal requirements to carry out similar project activities. According to the PRA Report, the project area existed as degraded land for more than ten years before the project start date. So (iii) is not applicable.	After validation of all the supporting documents and land records /10//17//28//45/ and /44/ and site visits investigation it was confirmed non-feasibility of Scenario C in the absence of the proposed project activity

Outcome of sub-step 1a: The analysis shows that Scenario A and B alternative land use scenarios are feasible.

Sub-step 1b: Consistency of credible alternative land use scenarios with enforced mandatory applicable laws and regulations.

Credible alternative land use scenarios	In compliance with national laws and regulations (Yes/No)
Scenario A: Continuation of the pre-project land use.	**Yes**
Scenario B: Afforestation of the land within Agroforestry system without being registered as the A/R CDM project activity	**Yes**

The audit confirmed that all alternative land use scenarios comply with national and international laws and regulations (listed in section 1.15 of the PDMR). Therefore, they meet the legal test requirements for privately managed lands in India and in the project area state of Gujarat and Rajasthan.

Outcome of sub-step 1b: The review confirms that Scenarios A and B are practical and achievable. The audit team conducted interviews with stakeholders, assessed the project design, reviewed supporting records, and carried out an on-site visit. Based on this, it was confirmed that all possible baseline scenarios identified in Step 1a follow national and regional laws, meaning they meet the legal requirements for privately managed forest lands in India.

The audit also found that historical land use, common practices, land purchases for real estate, and land acquisitions for conservation are all legally acceptable project alternatives. However, the current project goes beyond these typical scenarios. It provides additional carbon and other benefits such as improved livelihoods, increased awareness and training on climate change solutions, and promoting diverse land use.

STEP 2: Barriers Analysis

This step is to identify barriers and to assess which of the land use scenarios identified in the sub-step 1b are not prevented by the identified barriers

Sub-step 2a: Identification of barriers that would prevent the implementation of at least one alternative land use scenarios

The project identified four main barriers that would have prevented the project activity that was present when the project was initially considered as a carbon project (before the start date). The following are the three main barriers identified:

1. Investment barrier
2. Technological barrier

3. Social barrier

Interviews with project personnel, in country local experts, and the local stakeholders and landowners confirmed that the proposed barriers are appropriate.

Sub-step 2b: Elimination of land use scenarios that are prevented by the identified barriers

This step is to determine which land use scenarios identified in the Sub-step 1b are prevented by at least one of the barriers listed in sub-step 2a.

The analysis conducted by the PP has demonstrated that Scenario B is not viable due to several investment barriers, such as substantial upfront investment, delayed returns, long-term commitments, non-permanence risk, market fluctuations, liquidity issues, as well as social complexities. According to the 2019 NSSO survey report, 50% of agriculture households were indebted, meaning that nearly half of the total agriculture households in India have taken credit.[57]

6.7 Indebtedness of Agricultural Households

Information on the amount of outstanding loan as on date of survey (i.e., the day on which data was collected from the household) was collected from each of the surveyed agricultural households during the first visit.

Table 7: Percentage of indebted agricultural households and average amount (Rs.) of outstanding loans per agricultural household

indicator	value
percentage of indebted agricultural households	50.2%
average amount (Rs.) of outstanding loan per agricultural household	Rs. 74,121

Access to agricultural credit depends on several factors, including farm size and financial situation. Small and marginal farmers usually borrow money to cope with unexpected problems like crop failure, pest attacks, sudden price drops, floods, and plant or animal diseases. Small and marginal farmers struggle to get loans from banks and financial institutions, which often leads to high levels of debt in the farming sector.[58] Additionally, during the site visit farmers confirmed that government departments occasionally provide saplings in small quantities that do not align with their preferences. They also lack long-term maintenance and fail to offer incentives that encourage farmers to sustain and protect the plantations over time. Additionally, the unfertile nature of the land coupled with lack of technology make a major roadblock for the land use type. The plantations activities always suffer due to inadequate fund and delay in sanction and release of funds. Additionally, lack of awareness, technological challenges, and

[57] https://www.pib.gov.in/PressReleasePage.aspx?PRID=1753856

https://www.business-standard.com/article/economy-policy/over-50-agricultural-families-in-debt-with-average-loan-of-rs-74k-in-2019-121091001032_1.html

[58] https://www.nabard.org/auth/writereaddata/tender/1201243818assessing-the-state-of-affairs-in-indian-agriculture-with-a-focus-on-credit-insurance-and-storage-marketing.pdf

https://www.mdpi.com/2077-0472/10/12/586

ecological barriers further hinder the viability of Scenario B, making it non-feasible without the support of carbon finance benefits. On the other hand, the proposed project effectively addresses the identified barriers. High upfront costs associated with forestry and horticulture plantations are mitigated through the provision of subsidized, high-quality seedlings, reduced-cost drip irrigation systems, and continuous technical support (all these points were cross checked during the audit visit interviews as well as supporting evidence submitted by the PP). These interventions significantly lower entry barriers and enhance the long-term viability of plantations. In contrast, the baseline scenario lacks such support, rendering plantation activities financially unfeasible for farmers especially during periods of financial or environmental stress. The PP has cited Navdeep Singh et al. (2024),[59] which reinforces the argument that sustained external assistance, including carbon finance, is essential for the long-term maintenance of agroforestry systems. This view is further supported by several published studies highlighting that India requires strong financial and technological support to implement robust and durable AFOLU projects.[60]

Outcome of Sub-step 2b: Land use scenario A – Continuation of Pre-Project Land Use, the only alternative scenario is not prevented by any barrier.

Sub-Step 2c: Determination of baseline scenario (if allowed by the barrier analysis) The decision to determine the outcome of the step is as follows:

Is forestation without being registered as carbon project activity included in the list of land use scenarios that are not prevented by any barrier? → No. The alternative baseline scenario of Protected Forests (without the benefit of carbon financing) is included in list from Sub-step 2a, but it is prevented by the identified barriers. Subsequent to the analysis of Sub-step 2b, there is only one remaining land use scenario, is Scenario 01 i.e., Continuation of the pre-project land use.

If NO, then continue with Step 3: Investment analysis. -

If NO, then: Does the list contain only one land use scenario? → YES

if YES, then the remaining land use is the baseline scenario.

➞ Proceed to Step 4: Common Practice Test.

[59] https://www.arccjournals.com/journal/agricultural-science-digest/D-6066?

[60] https://www.researchgate.net/publication/393891662_Enhancing_Farmer%27s_Income_and_Achieving_Net_Neutrality_through_Agroforestry_A_Proposal_for_India

https://www.ceew.in/sustainable-forest-management

https://india.mongabay.com/2022/02/commentary-forest-restoration-challenges-and-opportunities-for-india/#:~:text=Adequate%20financing%20is%20another%20concern,be%20replicated%20in%20other%20states.

Now the tool says to continue with Step 4: Common practice test (Because a single credible land use scenario was identified through the analytical steps described above, a detailed investment analysis is not required by the A/R tool.)

The project is set on degraded cropland owned by small farmers. The baseline scenario and additionality as specified in section 1.5 AFOLU Eligibility Criteria of the grouped project shall be similar if not conservative than the selected baseline. Considering the geographical boundary of the grouped project which is the two Indian States of Gujarat and Rajasthan, PP has clearly demonstrated that plantation and agroforestry is not a common practice. The government data/report cited by the PP clearly says that currently only 8% or appx. 16.6 million ha[61] is under agroforestry of the host country.[62] The prevalence of limited land under agroforestry indicates the presence of significant constraints hindering its widespread implementation.[63] Considering the VVB's experience in the host country and site visit observation and discussion in the geographical boundary of the project it was concluded that the small holders/farmers have no support from the local government in carrying out the plantation/agroforestry. Whether considering the entire geographical boundary of the project or just the specific boundary of the PAI 1 the farmers lack financial incentives to plant trees on their land. It is clearly mentioned in the CEEW publication[64] that agroforestry, is popular among large and wealthy farmers with large enough landholdings to diversify income and experiment with crops, while smallholder farmers find it more challenging to adopt. Agroforestry is a traditional practice that enhances resilience and reduces climate risks, but its potential in India is constrained by several challenges. These include poor availability of quality planting material (only 10% high quality), limited research beyond short-term trials and a few species, weak market infrastructure favouring middlemen, and inadequate institutional finance and insurance. Farmers also face restrictive and costly regulations on transport, and marketing, alongside multiple taxes, making domestic produce less competitive than imports. Extension services are weak, with research rarely reaching farmers, and smallholders who form two-thirds of India's farmers often miss out on benefits. While the National Agroforestry Policy (2014) aimed to address these issues, significant gaps remain in implementation, extension systems, certification of nurseries, and promotion of diverse or high-tech agroforestry models.[65]

Per the site visit conducted in the PAI 1 region, although farming is common in the region and across the geographical boundary, many farmers still struggle financially and rely mostly on

[61] https://www.researchgate.net/publication/376782357_India's_approach_to_agroforestry_as_an_effective_strategy_in_the_context_of_climate_change_An_evaluation_of_28_state_climate_change_action_plans

[62] https://www.thehindu.com/opinion/op-ed/common-practice-standards-must-have-india-outlook/article68698577.ece

[63] https://www.sciencedirect.com/science/article/pii/S0308521X23002457

[64] https://www.ceew.in/publications/sustainable-agriculture-india/agroforestry

[65] https://www.phytojournal.com/archives/2017/vol6issue6S/PartV/SP-6-6-241.pdf

subsistence agriculture to meet their daily needs. While agroforestry offers some benefits, it is not a viable option without financial support from carbon investments. Without carbon incentives or funding, the project cannot be implemented during the proposed crediting period.

As explained in Step 2a (Scenario B Assessment), some government plantation programs exist in the project area. However, despite investments from both state and national governments, plantation efforts on smallholder and private farms remain limited. Many government schemes focus only on specific target areas, and large-scale plantation projects are rare. As outlined above and in section 3.5.2 of the PDMR, plantation activities in the project area are not easily feasible due to the land's infertility, water scarcity, technological and social limitations, and climate variability, which present major challenges to land use. Additionally, plantation projects often face funding shortages, delays in fund approvals, and a lack of reliable data.[66] Many afforestation programs fail to be sustainable because they do not create long-term assets or address the immediate needs of local communities.[67]

The audit team also confirms that the geographic scope used in the common practice analysis is appropriate. Interviews with project personnel, stakeholders, and site visits support the assumptions used to demonstrate additionality. The project analysis covers an area much smaller than the overall geographic extent (State of Gujarat and Rajasthan) of the project, , as per VCS Standard v4.7 (Section 3.6.15).

From the above analysis it is concluded that the project on Scenario B land is not viable in BAU scenario, and additional financial support is required to develop, implement, and sustain the project. The audit team has reviewed the assumptions used to demonstrate the additionality of the project activity. This review was conducted through a detailed examination of project documentation, stakeholder consultations, and an on-site visit. Additionally, based on the revisions made after the audit findings, the assumptions made in the demonstration of additionality are reasonable, well-supported, and in line with VCS standards and applied Tool. The PP has effectively demonstrated the barriers to implementation, confirming that the proposed activity would not occur under BAU conditions. In Section 3.5, the PP has clearly demonstrated that the proposed project activity is not a common practice. It has also provided sufficient explanation to demonstrate that the existing schemes listed in the PDMR have not been

[66] https://cag.gov.in/uploads/download_audit_report/2009/Gujarat_Civil_2009_chap_3.pdf

3.1.9.7 Low survival of plantations

Survival of plants in Social Forestry Division, Ahmedabad was low

Test check of records of DCF, SF, Ahmedabad (2004-06) revealed that the Division carried out plantations of 3.43 lakh saplings at an expenditure of Rs.78.20 lakh. Out of the above plantations, only 27,211 plantations survived (eight *per cent*). The DCF attributed (September 2008) low survival to unfavourable conditions like saline land and water logging. The reply of DCF is not acceptable for as per the prescribed procedure, feasibility was to be ensured before taking up the execution of work and the survival rate was below the norms fixed by PCCF.

https://timesofindia.indiatimes.com/blogs/voices/compensatory-afforestation-saving-trees-or-greenwashing/

[67] https://www.devalt.org/newsletter/mar92/of_2.htm

implemented in the project area. This claim has been independently assessed and confirmed by the VVB through review of supporting documentation, interviews conducted during the site visit, and secondary literature sources.

Additionally, sub-section 3.5.1 of the PD demonstrates the project's compliance with the VCS standard's regulatory surplus requirements. The assessment has been verified by the VVB, confirming that the project activities are not mandated by any legal or regulatory frameworks /24/, including systematically enforced laws, statutes, or regulations in non-Annex I countries under the UNFCCC which is applicable for the entire geographical area.

The audit team, therefore, considers the additionality assessment to be credible.

CAR 29 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details.

3.4.6 Quantification of GHG Emission Reductions and Carbon Dioxide Removals

Quantification of GHG emission reduction and removals is calculated as per the steps and equations mentioned in the CDM A/R-ACM0003: A/R Large-scale Consolidated Methodology, Afforestation and Reforestation of lands except wetlands v02 /20/.

3.4.6.1 Baseline Emissions

PP has applied Equation 1 of the applied methodology used to calculate the baseline emissions of the project.

A/R Methodological tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities” (Version 04.1) have been considered to calculate the carbon stock in trees and shrubs as follows -

According to the AR-TOOL 14, carbon stock in trees in the baseline can be accounted as zero since all of the following conditions were met:

1) The Baseline trees are neither harvested, nor cleared, nor removed throughout the crediting period of the Project activity.

2) The Baseline trees do not suffer mortality because of competition from trees planted in the project, or damage because of implementation of the Project activity, at any time during the crediting period of the project activity.

3) The Baseline trees are not inventoried along with the project trees in monitoring of carbon stocks but their continued existence, consistent with the baseline scenario, is monitored throughout the crediting period of the Project activity.

4) $C_{SHRUB\_BSL,t}$: The land parcels involved in the project undergo degrading cropland with a periodic cycle of trees in the cycle of clearing and regrowing traditional crops, resulting in biomass oscillation between minimum and maximum values every 90 to 180 days.

Consequently, as per AR-TOOL 14, clause 5.12(f), the change in carbon stock in shrubs ($\Delta C_{SHRUB\_BSL,t}$) in the baseline scenario is considered to be zero.

5) Also $\Delta C_{DW\_BSL,t}$ and $\Delta C_{LI\_BSL,t}$ are assumed to be zero due to the fact that the baseline scenario was degraded land, which did not allow accumulation of dead wood and litter in the absence of trees/shrubs.

That is why the estimated baseline emissions or removals are considered insignificant and hence accounted as zero

Hence, for PAI-1

$$C_{BSL,t} = 0$$

CARs 31 and 32 were raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details.

3.4.6.2 Project Emissions

The applied methodology considers non-CO2 emissions as a result of the implementation of the proposed project activity within the project boundary due to burning of biomass of existing vegetation. The methodology refer tool for "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" v4.0".

However, the Project Activity and First Project Activity Instance is not

I. Using fire for site preparation

II. Using fire to clear the land of harvest residue prior to replanting of the land

Also, at this stage of project, no harvesting has been done. Hence, not included in the PE part (per section 3.2.30 of the VCS Standard v4.7).

Hence, no emissions are expected in PAI 1

$$\boldsymbol{GHGE,t = 0}$$

This was confirmed during the site visit investigation and the supporting documents provided.

CAR 33 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details

3.4.6.3 Leakage Emissions

The Project activity does not expect any displacement of agricultural and grazing activities present in the Project Zone due to the implementation of the Project, thus leakage emissions are considered insignificant and hence accounted as zero.

Hence, for PAI-1

$$Lk,t = 0$$

The findings from the site visit reaffirmed and validated the assurance that the implementation of the project will not result in the displacement of agricultural and grazing activities beyond the project boundary. Several factors contribute to this conclusion:

No Displacement of Agricultural Activities: Farmers carry out agricultural practices solely on their own land, which they legally own. There is no shifting of agricultural activities beyond the project boundary due to the project activity. Additionally, many farmers also cultivate land they own outside the project area. This was confirmed during the site visit through stakeholder discussions and one-on-one meetings with some farmers. They further explained that this practice is consistently followed by other farmers as well. Photographs supporting these observations have been provided below. Similar scenarios were observed across all selected beneficiaries.

Figure 8: agriculture activities carried out in adjacent plots of the farmer in the project area

No Displacement of Grazing Activities: The project areas are degraded barren land; grazing is not a common practice in the area. These lands have no prior history of grazing. Stall feeding of livestock is the predominant practice across all land parcels, minimizing the need for extensive grazing areas. During the site visit, farmers informed that in the project areas, cows are the

predominant type of cattle observed. Most farmers have partnered with dairy companies operating in the region, supplying them with milk and related dairy products.

Figure 9: Stall feeding of livestock is the predominant practice across all land parcels

CAR 34 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details

3.4.6.4 Net GHG Emission Reductions and Removals

PP has applied equation 5 of the applied methodology for the estimation of net anthropogenic GHG removals by sinks (NERs).

The actual net GHG removals by sinks are estimated using the equation 2 of the methodology AR ACM0003 (Version 02.0).

$\Delta C_{ACTUAL,t} = \Delta C_{P,t} - GHG_E$,

Considering output of section 3.3.6.2 above: $\Delta C_{ACTUAL,t} = \Delta C_{P,t}$ (per equation 2 of the applied methodology).

ΔCP,t is estimated per the applied tool – TOOL 14: Estimation of carbon stocks carbon stocks in project, occurring in the selected carbon pools in year t shall be calculated as follows:

$\Delta C_{P,t} = \Delta C_{TREE\_PROJ,t} + \Delta C_{SHRUB\_PROJ,t} + \Delta C_{DW\_PROJ,t} + \Delta C_{LI\_PROJ,t} + \Delta C_{SOC\_AL,t}$

The ex-post measurements and calculation of biomass and carbon stocks is based on allometric or volume equations using monitored input data like diameter at breast height and height of trees.

Mean carbon stock in trees within the tree biomass estimation strata and the associated are estimated using equations 12, 13 and 14 of the TOOL-14.

Estimation of Changes in Carbon Stock in Shrub Biomass:

Shrubs are not included in the project's planting activities; therefore, their carbon stock change is assumed to be zero in both ex-ante and ex-post calculations. Additionally, the shrub cover in the project area is seasonal, occurring only during the rainy season. Given this temporary presence and its negligible contribution to long-term carbon sequestration, shrub biomass is excluded from the project's emission reduction calculations.

To estimate the carbon stock in tree biomass at a given point in time, the methodological tool "Estimation of Carbon Stocks and Change in Carbon Stocks of Trees and Shrubs in A/R CDM Project Activities" (Version 04.2) has been applied. According to Section 8.2 of this tool, this approach is used for ex-ante estimation (projection) of carbon stock in tree biomass. It combines existing data with tree growth models to predict tree growth and stand development over time.

For all the species planted, allometricequations and growth data has been used by the PP. The sources of data were checked and verified by the VVB. The selection of allometric equations for biomass estimation in this project follows the criteria outlined in Tool 17 of the A/R CDM methodological guidance. Per section 6 of the Tool These equations are considered valid for ex post carbon stock estimation if derived from trees growing in edapho-climatic conditions similar to those in the project area is considered appropriate, and hence can be used for ex post estimation of tree biomass, when they meet at least one of three conditions:

(a) they are used in the national forest or GHG inventory of the host country;

(b) they have been applied in the commercial forestry sector of the host country for at least ten years; or

(c) they are derived from peer-reviewed studies based on a minimum of 30 sample trees, with an R^2 value of 0.85 or higher.

Species Name	Equation	Applicable under AR-TOOL 17, v1, Paragraph 6	Similarity of edapho-climatic conditions
Pomegranate	Y = 10^(-0.535 + $\log_{10}$(BA)) [68]	Number of samples - 371 R^2: 0.94. This equation applicable under condition C	The allometric equation developed by Martínez-Yrizar *et al*. (1992)[69] is used for estimating the aboveground biomass of trees in tropical dry forest ecosystems. This equation was developed based on empirical data collected from the destructive harvesting of 191 various species (n=371) in dry forests. It is specifically designed for use in dry zones receiving less than 900 mm of annual rainfall. [a] Eq. 3.2.1 revised from Brown et al. (1989) for dry forest in India, and Eq. 3.2.2 from Martinez-Yrizar et al. 1992 for dry forest in Mexico (original equa dry zones with rainfall less than 900 mm/year use equation 3.2.2 and for dry zones with rainfall > 900 mm/year use equation 3.2.1. "exp" means "e to For *Punica granatum* (pomegranate), this equation is appropriate because the species is predominantly cultivated in arid and semi-arid regions. [70] Within the PAI-1 project boundary, the states of Gujarat (North Gujarat and Saurashtra regions) [71], and Rajasthan (Barmer and Jalore districts) [72,73] are included. These areas are characterized by semi-arid climates with annual rainfall consistently below 900 mm, directly corresponding to the edapho-climatic conditions under which the Martínez-Yrizar *et al.* equation was developed..
Guava	Y = 3.264 ×	Number of samples	For the calculation of guava (*Psidium guajava*) biomass, the PAI-1 project has utilized the allometric equation developed by Naik S.N.

[68] 3. METHODS FOR ESTIMATING BIOMASS DENSITY FROM EXISTING DATA

[69] 3. METHODS FOR ESTIMATING BIOMASS DENSITY FROM EXISTING DATA

Perez-Jimenez, E., Rincon, J.M., Maass, A., Magallanes, S. and Cervantes, L. (1992) Above-Ground Phytomass of a Tropical Deciduous Forest on the Coast of Jalisco, Mexico. Journal of Tropical Ecology, 8, 87-96

[70] https://www.researchgate.net/publication/376238182_POMEGRANATE_-_A_REMUNERATIVE_CROP_OF_ARID_AND_SEMI_ARID_REGIONS

[71] https://swhydrology.gujarat.gov.in/sites/default/files/AverageRainfall.pdf

[72]https://phedwater.rajasthan.gov.in/content/dam/doitassets/water/Ground%20Water/Pdf/PublicReports/Groundwater_Atlas/Districts/Districtwise%20Atlas%20-%20Barmer.pdf

[73]https://phedwater.rajasthan.gov.in/content/dam/doitassets/water/Ground%20Water/Pdf/PublicReports/Groundwater_Atlas/Districts/Districtwise%20Atlas%20-%20Jalor.pdf

<table>
<tr>
<td></td>
<td>X^1.012[74]</td>
<td>- 30

R^2:0.981.

This equation applicable under condition C</td>
<td>
et al. (2021)[75], which is specifically tailored for guava. This equation was derived from empirical data obtained through the destructive harvesting of guava trees at the ICAR-System Research Centre for Hill and Plateau Region, Ranchi, Jharkhand which is in the same host country of the project.

While Ranchi is located in the eastern region of India, the PAI-1 project is implemented in western India. Despite the geographic difference, both regions exhibit similar edapho-climatic conditions in terms of temperature ranges, humidity levels, and seasons are broadly comparable, making the application of this equation relevant.

There is difference in rainfall amount, and soil type. However, in both – i.e., the project area and the paper's study area, guava plantations are managed as plantations/orchards with controlled spacing, pruning, and irrigation practices.

This management minimizes differences that might otherwise arise from local rainfall, further supporting applicability of the equation. A detailed comparison of the site-specific conditions and their similarity is provided in the table below-

Climate Comparison[76]: India Eastern vs India Western
<table>
<tr><th>Parameter</th><th>India Eastern</th><th>India Western</th></tr>
<tr><td>Climate Zone</td><td>Subtropics to Tropics</td><td>Tropics</td></tr>
<tr><td>Latitudes</td><td>27°10′ N to 18°7′ N</td><td>24°31′ N to 15°2′ N</td></tr>
<tr><td>Distance to Equator</td><td>2,000 – 3,000 km</td><td>1,700 – 2,700 km</td></tr>
<tr><td>Daytime Maximum Temperature</td><td>32.6 °C</td><td>32.7 °C</td></tr>
<tr><td>Daily Low Temperature</td><td>21.9 °C</td><td>21.9 °C</td></tr>
<tr><td>Water Temperature</td><td>27.2 °C</td><td>27.3 °C</td></tr>
<tr><td>Humidity</td><td>68%</td><td>64%</td></tr>
<tr><td>Precipitation</td><td>1,511 mm</td><td>1,332 mm</td></tr>
<tr><td>Rain Days</td><td>92.4 days</td><td>68.4 days</td></tr>
</table>
</td>
</tr>
</table>

[74] Microsoft Word - May25O

[75] https://www.currentscience.ac.in/Volumes/120/10/1627.pdf

[76] Climate comparison: East-India / West-India

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Hours of Sunshine</td><td>1,825 hrs</td><td>2,519 hrs</td></tr>
</table>
</td></tr>
<tr><td>Mahoghany</td><td>Y= exp (-2.302+0.894 Ln(D2*H)
[77]</td><td>The destructive method involved harvesting 20 trees from each species, resulting in a total of 280 trees fell for study purposes.

R^2: 0.974.</td><td>
The allometric equation used in the PAI-1 project was originally developed in Bangladesh by Mahmood Hossain et al. (2020). This model was specifically calibrated for Swietenia macrophylla across a broad DBH–height range (9.9–90.5 cm; 6.5–32 m), demonstrating high predictive accuracy with an R^2 of 0.974. Bangladesh shares strong eco-geographic and biophysical similarities with parts of western India where the project is located[78], making this equation a relevant reference point. Both areas are part of South Asia[79]
To further validate applicability, the project reviewed additional scientific literature on Swietenia macrophylla growth and carbon sequestration across tropical Asia. For example:

Elenita et al. (2019)[80] conducted a 10-year analysis of Swietenia macrophylla plantations in the Philippines, showing comparable growth trajectories under humid tropical conditions.

Comparative Growth Performance of Swietenia macrophylla
<table>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>Parameter</td><td>Philippines (Elenita et al., 2019 – Mount</td><td>India (PAI-1 Project, 2018 – 2024</td><td>Observed Similarity</td></tr>
</table>
</td></tr>
</table>

[77] https://www.scirp.org/journal/paperinformation?paperid=97990

[78] explained below

[79]

No locally derived or nationally accepted *S. macrophylla* equations exist for western India; therefore, a regionally appropriate peer-reviewed model is applied in line with VCS/CDM tool requirements.

[80] Racelis, E., Racelis, D., & Luna, A. (2019). Carbon sequestration by large leaf mahogany (Swietenia macrophylla King.) plantation in Mount Makiling forest reserve, Philippines: a decade after. Journal of Environmental Science and Mana gement, 22(1)

Carbon sequestration by large leaf Mahogany (Swietenia macrophylla King.) plantation in Mount Makiling Forest Researve, Philippines: a decade after

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Issue Date
6-2019

Abstract
The study on monitoring carbon accumulation and sequestration potential of Large Leaf Mahogany (*Swietenia macrophylla* King.) plantation in Mount Makiling Forest Reserve was a continuation of the same study conducted in 2000. It aimed to look into the sequestration rate of the plantation after a 10-year period. The study measured the biomass, C, and CO2 stored in the aboveground, ground, and belowground biomass. It also quantified the rate of C captured with the 2000 study as baseline data. The latest study showed that the plantation has a total biomass production of 1,120 Mg ha-1 which is equivalent to 542 Mg ha-1 of C and 1,989 Mg ha-1 of CO2. Within a 10-year period, it registered a biomass buildup of 43 Mg ha-1 yr-1 and sequestered carbon at 22 Mg ha-1 yr-1 and 81 Mg ha-1 yr-1 of CO2. Its carbon-storing capacity surpasses that of an old-growth forest, natural stand and other types of vegetation. It can be concluded that the potential of forest plantation to sequester carbon can be maximized given a good-site condition, appropriate silvicultural practices applied, and less human disturbances thus allowing the stand to attain its optimum growth as manifested by the plantation studied.

This equation applicable under condition C

	Makiling, 10-year plantation)	monitoring, 7-year stand)	
Age of stand	10 years	7 years	Younger in India
Mean DBH	9–25 cm	7.1 cm (range: 4.8–10.4 cm)	Consistent with younger stand age
Mean Height	8–18 m	6.4 m (range: 5.4–9.1 m)	Lower but consistent with stand age
Cumulative biomass	~430 Mg ha^{-1} (10 years)	57.3 Mg ha^{-1} (7 years)	Lower, as expected for age
MAI (biomass)	43 Mg ha^{-1} yr^{-1}	~8.2 Mg ha^{-1} yr^{-1}	India shows moderate increments
Carbon sequestration	22 Mg C ha^{-1} yr^{-1} (≈ 81 Mg CO_2 ha^{-1} yr^{-1})	~4 Mg C ha^{-1} yr^{-1} (≈ 15 Mg CO_2 ha^{-1} yr^{-1})	Lower, age-related difference

- Toribin *et al*. (2021)[81] reported carbon sequestration rates of appx 86 MgC/ha in Indonesia, highlighting the species' strong sequestration potential in Southeast Asian tropical contexts.

Table 8. Tree species, density, mean diameter, mean tree height, estimated aboveground living biomass (AGB), and ab carbon (AGC) of *wono* in the Batur Agung, Ledok Wonosari, and Pegunungan Sewu zone of Gunungkidul District, Ind

Species	Density (stems ha^{-1})	Relative density (%)	Mean diameter (cm)	Mean tree height (m)	AGB (ton ha^{-1})
Batur Agung zone					
Swietenia macrophylla	613	71.94	23.22 ± 0.638	13.29 ± 0.160	182.38

While the comparative climate conditions show some differences what matters for allometric transferability is whether trees in both regions exhibit similar diameter–height relationships and wood density. Evidence from the monitoring report from the project area in India and other regions indicates that DBH growth trajectories are at par with those reported in Bangladesh studies, growth lies well within the species' global range.

These shared growth and structural characteristics are critical for biomass modeling. Below is the comparison between the project area and the study area of the equation applied:

[81] Tohirin, T., Suryanto, P., & Sadono, R. (2021). Vegetation structure, aboveground biomass, and carbon storage of wono a local forest management in Gunungkidul, Yogyakarta, Indonesia, across three geomorphological zones. Biodiversitas Journal of Biological Diversity, 22(8)

Parameter	India – PAI-1 Project (2018, 7-yr plantation)	Bangladesh – Hossain et al. (2020, calibration dataset)	Observed Similarity
Stand age	7 years	5–30+ years (destructive sampling across age classes)	India data lies within calibration range
Mean DBH	7.1 cm (range: 4.8–10.4 cm)	9.9–90.5 cm	Indian values fall at the lower end (younger stands)
Mean Height	6.4 m (range: 5.4–9.1 m)	6.5–32 m	Indian values at lower end, within calibration range
Cumulative biomass	57.3 Mg ha^{-1} (at age 7)	Wide range depending on DBH/height; calibration across destructive samples	Indian values consistent with expected trajectory
Model type	MR field monitoring using Bangladesh equation	Species-specific allometric equation derived from destructive sampling of *S. macrophylla*	Methodological consistency

Furthermore, the Bangladesh equation is based on direct destructive sampling of *S. macrophylla*, whereas pan-tropical models (e.g., Chave 2014) are generalized across species and ecosystems. Adopting a species-specific model reduces structural error risk, provided that DBH and height fall within the calibration range which they do for the project sites.

Given the species specificity, overlapping DBH and height ranges, and demonstrated growth comparability between Bangladesh and project plantations, the Mahmood Hossain et al. (2020) equation represents a scientifically robust and conservative choice for biomass and carbon estimation in the PAI-1 project. Regional differences in rainfall and humidity are acknowledged, but these are unlikely to significantly alter the fundamental allometry of *Swietenia*

macrophylla trees. Moreover, growth performance in the project area has been evaluated and confirmed to fall well within the calibration range of the Bangladesh dataset, thereby reinforcing the validity of applying this equation under local conditions

Scientific rationale and edapho-climatic comparability

Both Bangladesh (Hossain 2020 calibration sites) and the Gujarat–Rajasthan project area fall within comparable tropical latitudinal belt (20°–27° N) and environmental condition like - temperature regime, photoperiod, soil texture and pH, etc.

Parameter	Bangladesh (Hossain 2020)	Gujarat – Rajasthan (Project)	Justification
Latitude (°N)	20˚34' and 26˚38' north latitude and 88˚01' and 92˚41' east longitude	Gujarat - 22.6708° N, 71.5724° E[82] Rajasthan - 27.0238° N, 74.2179° E[83]	Both are in tropical belt and photoperiod regimes are very much comparable. Seasons are also comparable [84]
Temperature (°C)	Mean 24–37[85]	Mean 24–38[86]	Comparable temperature regimes regulate wood growth and density.[87]
Rainfall (mm yr^{-1})	1 500–5 000	600–900 (semi-arid / sub-humid)	Lower rainfall in India reduces growth rate but does not affect DBH–H geometry. Project management ensures soil moisture is maintained via irrigation and mulching.
Relative humidity (%)	63–83	55–70	Within species tolerance limit (average 45%).[88]

[82] https://www.mapsofworld.com/lat_long/gujarat.html

[83] https://rajasthan.gov.in/

[84] https://en.banglapedia.org/index.php/Season

https://testbook.com/gujarat-gk/climate-in-gujarat

https://www.welcomerajasthan.com/climate-of-rajasthan.htm

[85] https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/16813-WB_Bangladesh%20Country%20Profile-WEB.pdf

[86] https://www.rajasthandriver.com/travel-info/best-time-to-visit-rajasthan-climate-weather/

https://climatetracker.gujarat.gov.in/en/climate-variability

[87] https://www.sciencedirect.com/science/article/pii/S1125786523001121

[88] https://www.scielo.cl/pdf/bosque/v45n3/0717-9200-bosque-45-03-485.pdf

						3,000 mg L^{-1} of IBA, with averages of 73.89 %, 0.036 g, and 2.22 cm, respectively. The best acclimation was obtained under 80 % shade and 60 % relative humidity, with an average survival rate of 91.67 %. The general results were successful; therefore, they could be a valuable tool for the rescue, conservation, and restoration of ecosystems with cloned *S. macrophylla* trees that are resilient to climate change. The agroforestry database notes: "It grows best in areas where annual daytime temperatures are within the range 20-30 °C, but can tolerate 11-39 °C. [89]
			Soil texture / pH	Silty- to clay-loam; pH 5.5–8.3	Sandy- to loam; pH 6.5–8.0[90]	Both have neutral to slightly alkaline soils. Mahogany grows best in soils that drain water easily but still have good nutrient-holding capacity, typically medium to heavy textured soils like loam, clay-loam, or silty-loam.[91] Soil type: S. macrophylla grows best on well-drained sites with medium to heavy soils.
			Elevation (m amsl)	0–60	0 - 50–300[92]	Both lowland plains. negligible lapse-rate effect. Mahogany is only planted in Gujarat as of now. (total area planted in the MP = 13.25 ha which is 2.63% of the total project area)
			Mean DBH (cm)	9.9–90.5	7.1 (range 4.8–10.41)	Project plantations are in the early growth phase (DBH 4.8–10.4 cm, average = 7.1 cm) which is at the lower edge of the range used to develop the Hossain et al. (2020) equation (9.9–90.5 cm). Even though the project trees are smaller, the equation can still be applied because the equation includes both DBH and height terms (D^2H), which means it captures the real structure of the tree. This allows accurate prediction of small trees as long as DBH and H are measured directly in the field.
			Mean height (m)	6.5–32	6.4 (range 5.4–9.1)	The project includes young plantation, and the values are within calibration domain. so their diameters (H 5.85– 9.1 cm, average = 6.41 cm) which is at the lower edge of the range used to develop the Hossain et al. (2020) equation (6.6 – 32 m). Even though the project trees are smaller, the equation can still be applied because the equation includes both DBH and height terms (D^2H), which means it captures the real structure of the tree. This allows accurate prediction of small trees as long as DBH and H are measured directly in the field.
			These comparisons confirm that the edapho-climatic determinants of biomass allometry are comparable across both regions. Rainfall and humidity are different. Lower rainfall affects growth rate but not			

[89] https://pfaf.org/user/Plant.aspx?LatinName=Swietenia+macrophylla&utm

[90] https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/sandy-loam-soils

https://guj-nwrws.gujarat.gov.in/showpage.aspx?contentid=1455&lang=english

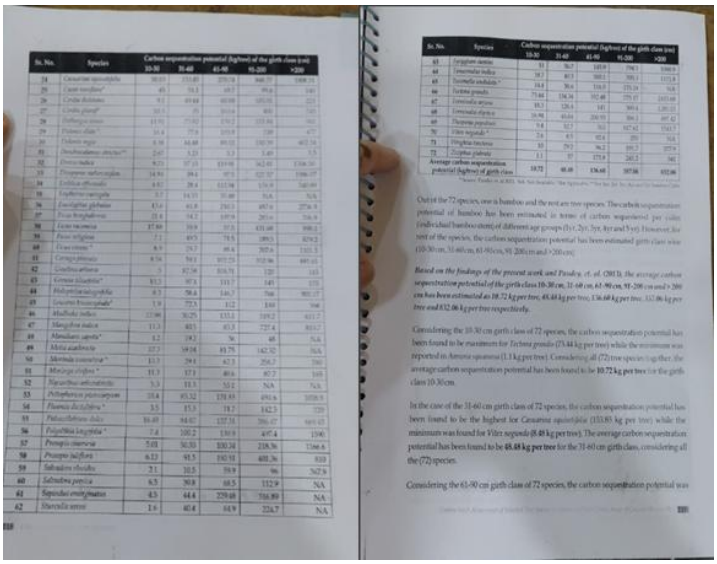
https://rajras.in/ras/pre/rajasthan/geography/soils/

[91] https://apps.worldagroforestry.org/treedb2/AFTPDFS/Swietenia_macrophylla.PDF

[92] https://seiaa.gujarat.gov.in/DSR%20Banaskantha%20District.pdf

			D^2H geometry. Also, project management ensures proper soil moisture supplemented through irrigation/mulching. However, VVB would also like to add a finding of a published paper – *One key finding is that while temperature and rainfall are essential drivers of tree growth in tropical regions, the specific effects of these factors can vary widely depending on local conditions. For example, in some areas, increased rainfall may lead to higher rates of wood formation, while in others, it may have little effect or even be detrimental to tree growth. Another key finding is that tree species can exhibit different cambium activity and wood formation patterns, even within the same region. These observations highlight the need for careful species-level studies to understand the factors influencing tree growth in tropical regions fully. Some studies have also found that extreme events, such as droughts and floods, can significantly impact tree growth and wood formation in tropical regions. Which means even the similar temperature and rainfall does not ensure similar growth of a tree, but it mostly depends on the local condition.* [93] **Abstract** A review of papers related to cambium activity and wood formation in tropical and subtropical trees and their response to climate in South America, tropical Africa, Southwest Asia, and Southeast Asia reveals a complex picture of the factors that influence tree growth and wood formation. One key finding is that while temperature and rainfall are essential drivers of tree growth in tropical regions, the specific effects of these factors can vary widely depending on local conditions. For example, in some areas, increased rainfall may lead to higher rates of wood formation, while in others, it may have little effect or even be detrimental to tree growth. Another key finding is that tree species can exhibit different cambium activity and wood formation patterns, even within the same region. These observations highlight the need for careful species-level studies to understand the factors influencing tree growth in tropical regions fully. Some studies have also found that extreme events, such as droughts and floods, can significantly impact tree growth and wood formation in tropical regions. These events can lead to cambium activity and wood density changes and may have long-term effects on forest structure and composition. Overall, this review suggests that much is still to be learned about the complex interactions between climate, soil, and other environmental factors that influence tree growth and wood formation in tropical and subtropical regions. Continued research and monitoring efforts will be essential for understanding these important ecosystems and developing effective conservation and management strategies. Since the equation depends solely on measured D and H, its predictions remain valid when those parameters are recorded in situ. **Supporting literature for conservativeness of the estimation** Pandey et al. (2013) compiled carbon data for 72 tree species in Gujarat, reporting a mean carbon stock of 10.72 kg C tree^{-1} for 10–30 cm girth (≈ 3–10 cm DBH). Although Mahogany was not included in the study, this dataset provides a strong regional reference for small-diameter tropical trees. The report is not publicly available online; however, snapshot of the xerox copy (personal communication with a peer) of the original publication has been retained and attached as supporting evidence.

[93] https://www.mdpi.com/1999-4907/14/5/1025



The mahogany equation, when applied to project plantations (DBH ≈ 5–10 cm), yields comparable or lower values confirming conservativeness relative to regional baselines.

Plot No.	Plant No.	DBH (cm)		Height (meter)	AGB (Kg/plant)	BGB (Kg/Plant)	TGB (Kg/Plant)
Plot 1	1	5.41	17.01	5.85	9.95	2.49	12.43
	2	10.41	32.72	9.1	47.55	11.89	59.44
	3	8.50	26.71	7.47	27.74	6.93	34.67
	4	6.08	19.11	5.9	12.34	3.09	15.43
	5	6.15	19.31	5.95	12.67	3.17	15.84
	6	6.43	20.21	5.95	13.74	3.44	17.18
	7	6.69	21.01	8.15	19.52	4.88	24.40
	8	5.73	18.01	5.85	11.02	2.75	13.77
	9	4.84	15.21	5.45	7.64	1.91	9.55
	10	7.01	22.01	6.15	16.49	4.12	20.61
	11	7.26	22.81	6.15	17.58	4.39	21.97
	12	6.69	21.01	6.15	15.17	3.79	18.97
	13	7.39	23.21	6.25	18.40	4.60	23.00
	14	6.69	21.01	6.15	15.17	3.79	18.97
	15	7.04	22.11	6.15	16.63	4.16	20.78
	16	5.99	18.81	5.85	11.91	2.98	14.88
	17	8.18	25.71	6.55	23.04	5.76	28.80
	18	5.45	17.11	5.85	10.05	2.51	12.56
	19	7.83	24.61	6.45	21.01	5.25	26.27
	20	6.21	19.51	5.75	12.52	3.13	15.65
	21	7.77	24.41	6.25	20.13	5.03	25.17
	22	6.21	19.51	5.75	12.52	3.13	15.65
	23	7.77	24.41	6.25	20.13	5.03	25.17
	24	9.52	29.92	7.25	33.07	8.27	41.33
	25	6.21	19.51	5.85	12.71	3.18	15.89
	26	7.52	23.61	5.85	17.88	4.47	22.35
	27	7.55	23.71	6.45	19.66	4.91	24.57
	28	7.26	22.81	6.25	17.83	4.46	22.29
	29	7.48	23.51	6.95	20.70	5.17	25.87
	30	7.87	24.71	7.15	23.21	5.80	29.01
	31	5.83	18.31	5.75	11.17	2.79	13.97
	32	5.80	18.21	5.75	11.06	2.77	13.83
	33	7.90	24.81	6.85	22.50	5.62	28.12
	34	7.80	24.51	6.85	22.01	5.50	27.52
	35	7.93	24.91	7.05	23.25	5.81	29.06
	36	9.17	28.81	7.55	32.06	8.02	40.08
		7.10		6.41		average	22.92

Assuming 50 % carbon fraction, mean carbon is 11.46 kg C tree^{-1}.

			Also, as explained in the above, Elenita et al. (2019) (Philippines) and Tohirin et al. (2021) (Indonesia) reported much higher sequestration rates for *S. macrophylla*. Selecting the Bangladesh equation therefore represents a lower-bound, conservative approach for Indian conditions. **Conclusion:** The Swietenia macrophylla allometric equation of Hossain et al. (2020) is a scientifically robust, species-specific equation satisfying AR-TOOL17 v1 requirements. Both Bangladesh and the Gujarat–Rajasthan project areas share comparable edapho-climatic conditions within the same tropical belt. Project management ensures that soil moisture and water availability are properly managed to support healthy tree growth. The project's DBH–H range lies within the calibration domain, and independent Indian/region specific references (Pandey 2013) confirm conservative carbon estimates.[94] Therefore, its application for ex-post carbon-stock estimation in the present project is methodologically sound, regionally appropriate, and conservative.
Custard Apple	Y = 10^(-0.535 + $\log_{10}$(BA)) [95]	Number of samples - 371 R^2: 0.94. This equation applicable under conditio	The allometric equation developed by Martínez-Yrizar *et al.* (1992)[96] is used for estimating the aboveground biomass of trees in tropical dry forest ecosystems. This equation was developed based on empirical data collected from the destructive harvesting of 191 various species (n=371) in dry forests. It is specifically designed for use in dry zones receiving less than 900 mm of annual rainfall. [a]Eq. 3.2.1 revised from Brown et al. (1989) for dry forest in India, and Eq. 3.2.2 from Martinez-Yrizar et al. 1992 for dry forest in Mexico (original equation based on BA). For dry zones with rainfall less than 900 mm/year use equation 3.2.2 and for dry zones with rainfall > 900 mm/year use equation 3.2.1. "exp" means "e to the power of". For *Annona squamosa* (Custard Apple), this equation is

[94] Use of same equation in the same geographical region of an existing registered VCS Project: Though a registered project cannot be formally cited as a precedent, it is presented here to support the justification. A grouped ARR project registered under Verra (ID 2479), covering Maharashtra, Karnataka, Telangana, Gujarat and Madhya Pradesh, uses the same Hossain (2020) equation (R^2 = 0.974) for both ex-ante and ex-post AGB estimation. VVB for that project confirmed that the equation satisfies the methodological requirements of AR-TOOL14 v4.2 and AR-TOOL17 v1.0, and that the project areas share similar edapho-climatic conditions with the Bangladesh calibration region. This approach was accepted by Verra during the joint validation and verification.

[95] 3. METHODS FOR ESTIMATING BIOMASS DENSITY FROM EXISTING DATA

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Perez-Jimenez, E., Rincon, J.M., Maass, A., Magallanes, S. and Cervantes, L. (1992) Above-Ground Phytomass of a Tropical Deciduous Forest on the Coast of Jalisco, Mexico. Journal of Tropical Ecology, 8, 87-96

		n C	appropriate because the species is predominantly cultivated in arid and semi-arid regions[97]. Within the PAI-1 project boundary, the states of Gujarat (North Gujarat and Saurashtra regions) [98], and Rajasthan (Barmer and Jalore districts) [99][100] are included. These areas are characterized by semi-arid climates with annual rainfall consistently below 900 mm, directly corresponding to the edapho-climatic conditions under which the Martínez-Yrizar *et al.* equation was developed. Just for the purpose of comparison, VVB has checked a study that has been conducted by Ramulu *et al.* (2015)[101] in the host country but in a different agroecological zone/South part of India has reported that the total AGB biomass of 5-year-old custard apple trees ranged from 51.37 (with intercropping) to 66.76 (custard apple alone) kg per tree. In the PAI-1 project, using the Martínez-Yrizar *et al*. (1992) allometric equation, the average total AGB of a 5.75-year-old custard apple tree was estimated to be 36.05 kg per tree. This indicates a conservative approach undertaken by the PP. The following table presents a comprehensive comparison

Age	Ramulu *et al.* Reported total AGB (Kg/Tree)	Age (Monitoring age)	total AGB (Kg/Tree) with using Martínez-Yrizar *et al equation*
5	51.37 (with intercropping) to 66.76 (custard apple alone) kg	5.75	36.05

In this project, the allometric equation applied have similar/comparable edapho-climatic conditions for all the equations applied for the species. Also, all the applied equations fulfil condition (c), with equations sourced from peer-reviewed literature supported by statistically robust datasets. This approach ensures that the biomass estimates (both ex-ante and ex-post) are scientifically credible, regionally appropriate, and methodologically compliant.

LTA estimation

[97] https://www.emergentresearch.org/uploads/38/15524_pdf.pdf

[98] https://swhydrology.gujarat.gov.in/sites/default/files/AverageRainfall.pdf

[99]https://phedwater.rajasthan.gov.in/content/dam/doitassets/water/Ground%20Water/Pdf/PublicReports/Groundwater_Atlas/Districts/Districtwise%20Atlas%20-%20Barmer.pdf

[100]https://phedwater.rajasthan.gov.in/content/dam/doitassets/water/Ground%20Water/Pdf/PublicReports/Groundwater_Atlas/Districts/Districtwise%20Atlas%20-%20Jalor.pdf

[101] ROC 16(3) Sept. 28-09-2015.p65

The project applies LTA approach to estimate net GHG removals over the crediting period, accounting for two 15-year rotations. Carbon sequestration is modeled based on real time species growth curves, with harvesting planned at the end of each rotation.

Harvesting is followed by immediate replantation, ensuring continuous tree cover and sustained carbon stocks. The average carbon stock is calculated by integrating the sequestration curve across both rotations and dividing by the total period. The project aligns with VERRA's LTA requirements[102] by accounting for staggered planting from 2018 to 2022 for the first PAI and modeling two full 15-year rotations, extending carbon estimates to 2052. It integrates species-specific real time growth curves across the entire period to capture growth, harvest, and regrowth dynamics while ensuring immediate replantation after each harvest to maintain continuous carbon stocks. For the grouped project, the plantation is staggered until 2030, and to cover 2 complete rotations, the estimates have been extended until 2060 to account for two 15-year rotations for all planted areas.

$$LA = \frac{\sum_{t=0}^{n} PE_t - BE_t}{n}$$

Where:

- LA = The long-term average GHG benefit
- PEt = The total to-date GHG emission reductions and removals generated in the
- project scenario (tCO_2e). Project scenario emission reductions and removals
- shall also consider project emissions of CO2, N2O, CH4 and leakage.
- BEt = The total to-date GHG emission reductions and removals projected for the
- baseline scenario (tCO_2e)
- t = Year
- n = Total number of years in the established time period

Per the estimation provided ex-ante, the maximum number of GHG credits available to projects has not exceeded the LTA GHG benefit. And during this MP, the project long-term average GHG benefit has not reached. Hence, the claims made by the PP are in line with the VCS Standard v4.7, sections 3.2.28 - 3.2.30. However, in the different verification periods of the grouped project the PP shall estimate the LTA based on the harvest limits and according to the estimates and duration of the project.

[102] https://verra.org/wp-content/uploads/2018/03/VCS-Guidance-Harvesting-Examples_0.pdf

Changes in carbon stocks in deadwood

Change in carbon stocks in dead wood in the project is estimated based on the A/R Methodological Tool 12 "Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities" (v3.1).

According to the tool, DF_{DW} is selected from table 5 of section 8 of the tool. Based on biome (Tropical), elevation (<2000 m) and precipitation data (<1000 mm yr-1), a value of 2% for DF_{DW} is chosen for the project area. The chosen value is in line with the ecosystem and topography of the project area and in line with the applied tool. During the site visit and desk review of the monitoring inventory, it was confirmed that deadwood remains in situ within the project boundary and is not removed through any anthropogenic activities. For tree biomass calculations, measurements are taken exclusively for live trees, with dead trees excluded from the calculations.

Changes in carbon stocks in Litter

Change in carbon stocks in litterin the project is estimated based on the A/R Methodological Tool 12 "Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities" (v3.1).

DF_{LI} of 4% is applied based on biome (Tropical), elevation (<2000 m) and precipitation data (<1000 mm yr-1) concerning project area. The chosen value is in line with the ecosystem and topography of the project area and in line with the applied tool. During the site visit and desk review of the monitoring inventory, it was confirmed that the litter remains in situ within the project boundary and will not be removed through any anthropogenic activities.

Changes in carbon stocks in SOC

Change in carbon stocks in SOCin the project is estimated based on the A/R Methodological Tool 16 "Tool for the Change in Soil Organic Carbon Stocks Due to the Implementation of A/R CDM Project Activity" (v1.1).

The values of $SOC_{REF,i}$,$f_{LU,i}$, $f_{MG,I}$ and $f_{In,I}$ are taken from table 3 to 6 of Tool. Per the Tool, considering uncertainties and inherent limitation of the precision of a factor-based estimation used in this tool, value of the rate of change of SOC stock is not accounted as more than 0.8 tC/ha/yr. The same has been applied by the PP and hence in line with the applied methodology and Tool. The agroforestry model will contribute to the SOC improvement and a conservative value of SOC/ha has been considered by the PP.[103]

As estimated based on above analysis:

Since,

$\mathbf{GHG_{E,t}} = \mathbf{0}$ (refer section 3.3.6.2 for the same)

[103] https://krishi.icar.gov.in/jspui/bitstream/123456789/25595/1/2016_6.22_Potential%20of%20AF_Indian%20Journal%20of%20Agricultural%20Sciences.pdf

$$\Delta C_{Actual,t} = C_{p,t}$$

The calculated actual emission reduction for the PAI-1= 139,953 tCO_2e (without buffer) and 113,362 tCO_2e (with buffer) for the whole project life i.e. 30 years. Yearly average emission reduction by the project is 3,779 (after buffer deduction) tCO_2e

Net Anthropogenic GHG removals by sinks

According to the equation 5 of the A/R-ACM0003 methodology, the net anthropogenic GHG removals by sinks shall be calculated as follows:

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

Since,

$\Delta C_{BSL,t}$ and LK_t are zero.

Hence,

$\Delta C_{AR-CDM,t} = \Delta C_{ACTUAL,t}$

The ER calculation excel sheet submitted by the PP was evaluated and found to be appropriate and in line with the applied methodology.

Project stage		Ex ante net anthropogenic GHG emission reductions tCO_2e
PAI-1	Total	139,953
	Annual Average	4,665
Complete grouped project	Total	4,824,945
	Annual Average	160,831

Uncertainty - The uncertainty associated with the data is maintained at less than 10%. The parameters utilized in the analysis are derived from secondary literature sources, and the estimation methodology employed is inherently conservative. Therefore, according to Appendix 2 of the applied TOOL-14, no discount factor was applied.

Pooled Buffer – The audit team checked and recalculated the buffer estimated for the project activities. The audit team confirms that the calculation is as per AFOLU Non-Permanence Risk Assessment Tool v4.2. The assessment determined that the non-permanence risk rating for the project is 19%. VCUs - The estimated GHG credits eligible for issuance as VCUs have been calculated in line with section 2.4 of the AFOLU NPRR Tool. The project used proper parameters and resulted in an accurate estimate of ex-ante total emissions reductions.

Net Tradeable VCUs = $\triangle C_{AR\text{-}CDM,t}$ – (Buffer%* $\triangle C_{AR\text{-}CDM,t}$)

The excel sheet submitted by the PP was evaluated and found to be appropriate and in line with the applied methodology and VCS Rules.

Project Stage		Ex ante net anthropogenic GHG emission reductions tCO_2e	Ex ante buffer credits tCO_2e	Ex ante VCUs tradable tCO_2e
PAI-1	Total	139,953	26,59 1	113,362
	Average	4,665	886	3,779
Complete grouped project	Total	4,824,945	916,739	3,908,205
	Average	160,831	30,558	130,274

Overall, the PP has followed the exact steps mentioned in the latest version of the applied methodology and modules. The steps have been applied correctly to calculate baseline emissions, project emissions, leakage and net GHG emission reductions and removals for the baseline period. The quantification of related emissions is described in detail in section 5 of the validated PDMR /7/.

Considering the annual average GHG emissions by PAI-1 and even at the full project scale of 25,000 ha, the project falls into the category of projects achieving <300,000 tCO_2e per year. Accordingly, a 5.0% materiality threshold has been applied.[104] The PP has adopted a conservative approach throughout the process to ensure robustness in emission reduction estimates.

In line with the materiality threshold guidelines for validation and verification, a reasonable level of assurance has been established for both validation and verification processes. The audit team conducted a thorough review of all monitoring records, including measurement records, and land

[104] https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20150225171039008/iss_guid08.pdf

https://verra.org/wp-content/uploads/2024/07/VCS_Validation_Verification_Manual_v3.2.pdf

records, etc.), and cross-checked them against the values reported in the ERR sheets (ex-ante and ex-post).

The carbon stock estimates are based on Tier 3 data, and during the reassessment of PSPs in the field visit, the audit team identified that all the data has been accurately measured. However, in the calculations process several mistakes were identified, leading to the issuance of findings. These findings are detailed in Annexure 3 of this report. However, the identified discrepancies have been determined to be immaterial, meaning they do not impact the overall accuracy or credibility of the reported GHG reductions. The PP has taken sufficient corrective actions to resolve all the findings raised during the joint validation and verification. The audit team confirms that no material errors, omissions, or misstatements were found, and a reasonable level of assurance has been established.

The audit team verified that the PP has taken all necessary steps to prevent overestimation when calculating carbon stock changes over the crediting period and the MP.

Furthermore, the audit team confirms that the PDMR /7/ and the ER Excel sheets /8/ provide a high level of detail regarding the calculation of GHG emission reductions ensuring the following:

- All relevant assumptions and data are listed in the project description, including their references and sources.
- All estimates of the baseline emissions, project emissions, leakage and NERs are clearly stated in the PDMR.

CAR 35 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details.

3.4.7 Methodology Deviations

NA

3.4.8 Monitoring Plan

The audit team checked all parameters presented in the monitoring plan against the requirements of the methodology and was found okay.

The monitoring plan in section 6.3 of the PDMR /7/ is confirmed as designed according to the methodology and applicable tool. SAPL and Infinite Environmental Solutions Limited has designed a set of procedures and systems in place that will regulate the management of documents, the procedures for verification and validation, etc. SAPL's and Infinite's staffs are responsible for the monitoring including the ex-post carbon estimation of project. The PP follows the field protocols were reviewed and confirmed to be based on sound scientific principles and best practices, capable of

capturing carbon stock changes in conformance with the methodology.[105] The quality assurance and quality control (QA/QC) systems are already in place and is designed in line with IPCC GPG 2003.

PP has provided detailed plan for monitoring leakage and non-permanence risks in section 6.3 of the PDMR. PP has mentioned that field surveys and stakeholder consultations will be conducted regularly to detect any displacement of farming or grazing activities. The PP will ensure project implementation remains within clearly demarcated land parcels, preventing encroachment into non-owned or uncultivated areas. Satellite imagery and field inspections will be used to detect disturbances such as fire, storms, illegal harvesting, and land disputes. In case of identified risks, the PP will implement corrective actions such as replanting or enhanced protection measures. A grievance mechanism is available via the PP's website as well as on ground grievance redressal mechanism to report any issues.

The monitoring responsibilities and competencies of each organizations involved is mentioned in section 6.3 of the PDMR /7/.

The Project therefore aims to achieve a target precision level for its monitoring at a 90% confidence interval, +/- 10%. In the case where monitoring does not achieve the target precision requirements, then PP will conduct additional monitoring until the targets are met.

An identification of the parameters available at validation and monitored during the first verification, and a description of the steps taken to validate the correctness of monitoring procedures, is provided below.

Sl. No.	Data/Parameter	Unit	Description	Determination method
1	A	Hectare (ha)	Total Project area	Boundaries delineated and fixed collecting multiple GPS location points and Geographical Information Systems (GIS)
2	Location of project area- Latitude and longitude	Degree decimal	GPS co-ordinates of the project boundary and sample plots	Direct measurement of latitude and longitude of a point within a project area using a GPS.
3	CAI (Current annual Increment in monitoring period)	ton/ha	Total Biomass (Above and Below ground biomass)	Based on actual Refer to the Ex-Post Emission Reduction sheet and data collected
4	Root-to-Shoot Ratio (R)	dimensionless	Ratio of the weight of the roots to the weight of the top of the tree. Used for belowground tree biomass estimation.	In line with the applied methodology a default value of 0.25 has been applied. The Value is taken from AR Tool 14- Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities.

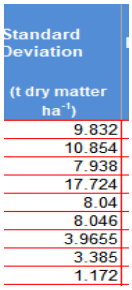
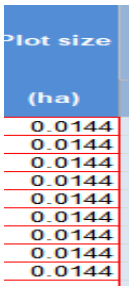
[105] Calculation of the number of sample plots for measurements within A/R CDM project activities", v2.1

Winrock International » Winrock Sample Plot Calculator Spreadsheet Tool

5	DF_{DW}	%	Conservative default factor expressing carbon stock in dead wood as a percentage of carbon stock in tree biomass	According to Tool 12, the value 2% is taken because the project is located in tropical region with <2000m elevation and 1000 mm/yr. In line with the applied methodology and AR TOOL 12
6	DF_{LI}	%	Conservative default factor expressing carbon stock in litter as a percentage of carbon stock in tree biomass	According to Tool 12, the value 4% is taken because the project is located in tropical region with <2000m elevation and 1000 mm yr^{-1}. In line with the applied methodology and AR TOOL 12
7	Carbon Fraction of dry matter (CF)	tC t d.m -1	Biomass proportion corresponding to carbon. CF is used to convert biomass to carbon.	In line with the applied methodology, TOOL 14 and IPCC GPG LULUCF guideline which is an acceptable standard and guideline. A default value of 0.47 has been applied
8	CO_2e	tC-1	Factor applied to convert the tree carbon sequestered to tree CO_2e sequestered.	In line with the applied methodology and default value considered as per the IPCC GPG LULUCF guideline which is an acceptable standard and guideline. Value of 44/12 or 3.67 has been applied.
9	SOC	tC/ha	Soil organic carbon (SOC) refers only to the carbon component of organic compounds	dSOC value applied as 0.8 t/ha/yr. This value is taken as per the AR-Tool 16. For calculating the value of the dSOC following factor are considered-
10	Project trees	Count of tree in numbers	The number of five tree species year wise for each project area provided by PP	526,854 (for PAI-1). Data records for number of saplings planted were procured at the time of plantation activity.
11	Wi	Dimensionless	Relative weight of the area of stratum i, the area of the stratum i divided by the total project area.	As per the Winrock's CDM A/R sample plot calculator spreadsheet tool. Calculation of sample plots and project GHGs removal after allocating sample plots to each stratum. In line with the applied methodology
12	Permanent Sample Plot (PSP)	Number	Sample plots are chosen randomly from each stratum representing the plantation of respective stratum.	PSPs has established on the basis of Wi and Std, dev. of each stratum in PAI-1. Established PSPs based on A/R Methodological Tool 'Calculation of the number of sample plots for measurements within A/R CDM project activities' (Version 02.1.0). PSPs are selected form project area

$SOC_{REF,i}$	$f_{LU,i}$	$f_{MG,i}$	$f_{IN,i}$	SOC_i
38	0.58	1.00	0.95	20.9

			Project Activity monitoring is based on the PSPs.	planted parcel by random point generated through Q GIS. 
13	Collar diameter Collar Girth/Diameter at breast height (DBH)	cm	To determine the Collar Diameter/Diameter at Breast Height (DBH) of trees and shrubs in relation to their age is essential. This information is crucial for estimating the overall biomass and serves as a fundamental parameter in volumetric equations.	DBH is measured at 1.37 m above ground and Collar Girth is measured near to the ground level (5-10cm form ground level) over the bark by the diameter Tape. Measurement of all the trees in the sample area of 12x12 meter grid in permanent sample plots. Measured and calculated according to requirements of the applied methodology and IPCC GPG 2003. Field measurements in PSPs were considered for estimating both ex-ante and ex-post estimations.
14	Height	m	To determine the Height of trees and shrubs in relation to their age is essential. This information is crucial for estimating the overall biomass and serves as a fundamental parameter in volumetric equations.	Measurement using Hega Altimeter/Clinometer. Measured and calculated according to requirements of the applied methodology and IPCC GPG 2003. Field measurements in PSPs were considered for estimating both ex-ante and ex-post estimations.
15	Ai	ha	Strata area is selected and mapped in the software as .kml file	Project Stratification for first Project Activity instance is based on the year of plantation. Strata wise total area for the first Project Activity instance using GIS. Values mentioned in section 6.2 of the PDMR.

16	Standard Deviation	t/ha	Assumed standard deviation of biomass stock in stratum i	During presurvey before the monitoring of the project, calculated for each stratum. Estimated per the Winrock's CDM A/R sample plot calculator spreadsheet tool. 
17	Size of Each PSPs in the Stratum i (APlot i)	ha	An area of 12-meter x 12-meter size (measuring 0.0144 ha) is measured and marked within each sample land parcel. The selection of 0.0144 ha PSP is based on the CDM manual for "Measurements for Estimation of Carbon Stocks".[106]	The area is measured with the help of using a measuring tape, measuring out 12 meters from each reference point in opposite directions to establish the four corners of the PSP. 
18	Land Title Records	NA	Land ownership document of each individual farmer involved in First Project Activity instance.	The land title records are certified by government. For verification of land title ownership of Farmers involved in the First Project Activity instance
19	Survival Rate	%	The number of trees survived	The number of trees counted in each sample parcel initially after 3-5 months of planting and replantation is carried out immediately
20	Above ground biomass	t dm ha-1yr- 1	AGB of tree species in sample plot of stratum at time t calculated using allometric equations.	In line with the applied methodology and Tool 14 and IPCC GPG LULUCF guideline which is an acceptable standard and guideline. This was done based on the sample plots field measurement. Field measurement included biophysical parameters like collar dia./DBH and height of each tree species shall be measured

[106] https://unfccc.int/resource/docs/publications/cdm_afforestation_field-manual_web.pdf

21	BGBtree	t dm ha-1yr- 1	The root-shoot ratio used to determine the proportion of belowground biomass in relation to the aboveground biomass.	The ratios of belowground to aboveground biomass (root-to-shoot ratio) is used to account for belowground biomass in living biomass estimations as it is not possible to estimate BGB through measurement for a living tree species. So, as per the Tool 14 default value 0.25 is taken.
22	$A_{DISP,t}$	ha	Area of land from which agricultural activity is being displaced in the current monitoring period	Standard operating procedures are made to ensure the correct and validating data collection for each of the monitoring parameters. 0 ha was reported during this MP.
23	$A_{BURN,I,t}$	ha	The land area on fire had occurred and carbon loss in such area.	The area shall be delineated either on the ground using GPS or from georeferenced remote sensing data. 0 ha was reported during this MP.
24	Buffer	%	Non-tradable AFOLU buffer credits for covering the risk of unforeseen losses in carbon stocks of the project. This will be estimated by the latest applicable version of the NPRR Tool.	In line with section 2.4 of the VCS Standard requirements v4.7. at the stage of ex-ante value estimated is 19%. This will be updated at each verification of the project.
25	Uncertain ty *(Δu)*	%	To assess uncertainties associated with the data estimation by applying uncertainty discount factor	In line with the applied methodology, and Tool-14. If uncertainty associated with the data analysis and procurement is more than 10%, then the uncertainty will be estimated according to the procedure provided in Appendix 2 of Tool 14.

CARs 36 and 37 were identified and addressed successfully. Please refer to Appendix 4 for detailed information on the resolution of these issues.

3.5 Non-Permanence Risk Analysis

The proponent used the "AFOLU Non-permanence risk tool v4.2" in line with VCS specifications to analyze the risk in terms of internal risk, external risk, natural risk, and risk mitigation strategies. The Non-permanence risk report and the Excel risk tool are provided by the PP.

The VCS recommendations were used to calculate each risk category. Through document analysis, actual visits to the project area, and interviews was verified and cross-checked. The evaluation's specifics are listed below.

Risk	Risk Rating	PP Justification	Audit Conclusion
Project Management	0	The audit team assessed the reasons for the risk rating and the steps taken to reduce the risk of the activities which has impact in the project area.	PP has provided sufficient information for this parameter. The mitigation plan and adaptive management plan detailed in Section 1.1 of the report are deemed satisfactory, and the audit team finds the risk rating appropriate. The PP has thoroughly assessed the competency of the project management team, including PP, and Other Entity, all of whom are deemed capable of designing, implementing, managing, and monitoring the project effectively. The management team includes individuals with significant (i.e., more than five years) experience in AFOLU project design and implementation, carbon accounting, and reporting projects. The VVB had detailed discussions with the management team during the site visit and interacted with them throughout the validation process, which spanned almost two years. Additionally, the VVB reviewed the CVs /26/ of the management team and found them to be appropriate for designing, managing, and implementing a technical project of this nature. Additionally, the audit team has reviewed the operational plan, monitoring plan, roll-out plan, and governance structure of the project, confirming the presence of an adaptive management plan.
Financial Viability	2	The audit team assessed the rationale for the risk rating on the project cash flow breakeven point.	The financial analysis for calculating the breakeven point was submitted and found to be satisfactory. The information and analysis provided in section 1.2 of the NPRR is found satisfactory and hence audit team finds risk rating is appropriate.
Opportunity cost	0	The audit team evaluated the justification for rating the risk and the mitigation plan detailed in the section.	Since the baseline activities are subsistence-driven, an NPV assessment is not required (NPRR Tool, section 2.2.3 (2). The agreement between the individual farmers and the PP was also reviewed, confirming that the agreement to implement and continue this project until its designated longevity (40 years) is in place. Therefore, the VVB has concluded that the risk rating is appropriate.
Project longevity	15	The project crediting period and longevity is 40 years. The audit team evaluated the justification for	Risk rate is appropriate. The agreement between the PP and the individual farmers was cross- checked and confirmed that the years considered for the project longevity is appropriate, which is 40 years /12/. For PAI-1, on-site interviews with stakeholders and the project team, along with a document review, confirmed the project's commitment to maintaining management practices—including harvesting and

Risk	Risk Rating	PP Justification	Audit Conclusion
		rating the risk and the mitigation on legal agreement or requirement to continue the management practice.	replanting—throughout the crediting period and for its full 40-year lifespan. This commitment, legally secured by a 40-year binding agreement, ensures the long-term sustainability of carbon stocks beyond the initial crediting period. The contractual obligations and operational procedures ensure the continuous restoration and long-term sustainability of carbon stocks throughout the project's duration. The VVB concludes that the risk rating score calculated is in line with the applied Tool, section 2.2.4.
Total Internal Risk			**17**
Land Tenure and Resource Access/Impacts	0	The audit team evaluated the justification for rating the risk and the mitigation.	The ownership and resource access/use rights over the land are held by the respective local farmers/beneficiaries. The rights to the trees and other non-timber benefits arising from the plantation activities also rest with the legal landowners. However, the VERs generated from the project are assigned to the PP, based on a carbon rights agreement signed between the farmers/beneficiaries and the PP. The VVB has reviewed land ownership documents and verified that landholders have full legal and customary rights over their respective land parcels. Based on this assessment, the VVB concludes that the risk rating related to ownership and resource rights is appropriate..
Stakeholder engagement	0	The audit team evaluated the justification for the risk rating on the stakeholder consulted for the project design development and implementation	Site visit interviews and observation and the stakeholder consultations documents (MoMs, photographs, attendance sheets, PRAs, analysis report) were validated and found that more than 50% of households living within the project area who are reliant on the project area, have been consulted. Furthermore, over 20% of households living within a 20 km radius outside the project boundary, but reliant on the project area, have also been consulted. Additionally, the project generates net positive impacts on the social and economic well- being of the local communities who derive livelihoods from the project area as detailed in section 3.1 of this report. Consequently, it is concluded that the risk rating is appropriate.
Political Risk	0	The audit team evaluated the justification for rating the governance risk and the mitigation on planned activities.	According to the historical record of governance indicators applied to India, the average score over the last five years (2018-2022) is -0.13. The VVB has cross-checked the scores given, confirming that the risk rate is appropriate. And as estimated by the World Bank Institute's Worldwide Governance Indicators (WGI)[107]. Also, the country has an established DNA under the CDM and has at least one registered CDM A/R project
Total Externa Risk			0

[107] https://databank.worldbank.org/source/worldwide-governance-indicators#advancedDownloadOptions

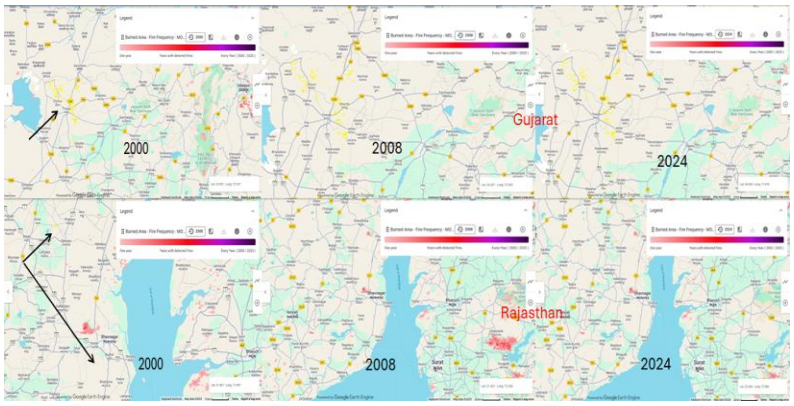
Risk	Risk Rating	PP Justification	Audit Conclusion
			The audit team for an independent analysis has used online resources /24//45/ and /66/ and found the risk assessment and score appropriate. This was also confirmed during the site visit interviews. .

Natural Risk		
Fire		
Significance	Fire- Historical Significance: Between 2001 and 2024, approximately 1,854 ha of tree cover were lost to wildfire.[108] Gujarat: The 2023 India State of Forest Report showcases impressive growth in both forest and tree cover, a significant decline in fire incidents, and the flourishing of agroforestry[109]. The data[110] further indicates that the fire events in the project regions are	**Fire:** The analysis indicated that no fire incidents have been reported in the project area during the last 25 years preceding the project start date. The reference cited by the PP was also reviewed and found sufficient to substantiate the PP's claims. The VVB has independently assessed the risk and found the claims made by PP satisfactory. The VVB has independently assessed the risk and found the PP's claims satisfactory. The KML /10/ was analyzed using freely available remote sensing tools, and the assessment confirmed that no fire incidents have occurred in the project area during the past 25 years.

[108] https://ourworldindata.org/grapher/tree-cover-loss-from-wildfires?mapSelect=~IND#all-charts

[109] doc20241227477401.pdf

[110] Gujarat - Disasters Dashboard - Data Commons

	minimal and have an insignificant affect. Rajasthan: The resource data[111] shows that very few of the fire events took place in project regions of Rajasthan with no affect on the project sites as well as the tree cover loss.	 Hence, the total risk score of 0.5 is satisfactory. The VVB confirmed that in the project area there is not significant risk of wildfires through the review of Global Forest Watch and other independent sources like Earthmap.org and direct observations during the on-site visit and stakeholder interviews. Also, PP has monitoring plan in place to ensure to minimize or prevent any future fire events in the project area. Regular weeding, and creating and maintaining clear strips with little or no vegetation along boundaries, roads, between blocks, and around assets/plots to prevent fires.
Likelihood	occur once every 25 years to less than 50 years.	
Score (LS)	2	
Mitigation	Project proponent of the project has experience in the prevention and combating of fires which includes: • Ensuring the implementation of prevention measures through groups that monitor the absence of objects that would generate fires, the presence of personnel from outside of the village, etc. • Regular weeding,	

[111] Rajasthan - Disasters Dashboard - Data Commons

	opening fire belts and having the necessary equipment for fire controlling	
Mitigation score (M)	0.25	
LS*M	0.5	
Pest and Disease Outbreaks		
Significance	Project locations in Gujarat and Rajasthan are in remote areas. The significance has been found to be non-applicable. PPs have conducted participatory rural appraisal (PRA), and as per the summary report, the natural calamities in the region, like pests and diseases, are minimal, and the likelihood of occurrence is very low. However, the PP has a project management manual outlining practices to prevent such occurrence as well as the planted species are native or well adopted the local environmental condition.	The landowners have established plantations with predominantly native species that are generally less susceptible to pest and disease attacks. [112] This was verified during the site visit through direct observation and discussions with landowners. The project also incorporates structured plantation management, with the PP providing training on sustainable management and pest control measures. As a result, the VVB notes that proactive mitigation systems are in place, supported both by landowners' indigenous practices and PP's technical guidance. While some planted species may occasionally be affected by pests or diseases, evidence indicates that once trees are established, the risk of significant carbon loss remains minimal (typically <5%) and transient. Young trees are comparatively more vulnerable, but their replacement is feasible within the project framework. In arid –semi-arid regions of western India, pest activity is known to reduce flowering and fruit yields rather than cause widespread tree mortality. [113] This aligns with landowner feedback, as none reported tree loss due to pests or diseases during the site visit. Furthermore, indigenous control methods are actively applied and are considered effective by the landowners. Combined with periodic training, continuous monitoring, and PP-supported protection measures, the project has demonstrated sufficient safeguards to minimize pest- or disease-related risks to tree survival and long-term carbon benefits. Hence, based on the overall assessment, the total risk score of 0.25 is satisfactory.
Likelihood	once every 50 years to less than 100 years.	
Score (LS)	1	

[112] https://arccjournals.com/journal/agricultural-reviews/R-2087

[113] https://www.entomoljournal.com/archives/2017/vol5issue4/PartE/5-4-97-754.pdf

Mitigation	Pest and disease outbreaks can be effectively prevented through proper measures. The PP has experience in implementing mitigation activities, which include: a. **Training** – Providing training on identifying key species that impact the health of planted trees. These sessions are conducted by personnel with expertise in recognizing pests and diseases affecting plantations. b. **Monitoring** – The Project Proponent is responsible for overseeing the health of planted trees, with annual monitoring activities in place to detect the presence of pests and diseases. c. **Evaluation** – During annual monitoring, the incidence and severity of pests and diseases observed in the field will be assessed. d. **Biological Control** – The feasibility of using natural organisms to regulate insect and pathogen populations affecting the trees will be evaluated by the PP if required.	
Mitigation score (M)	0.25	

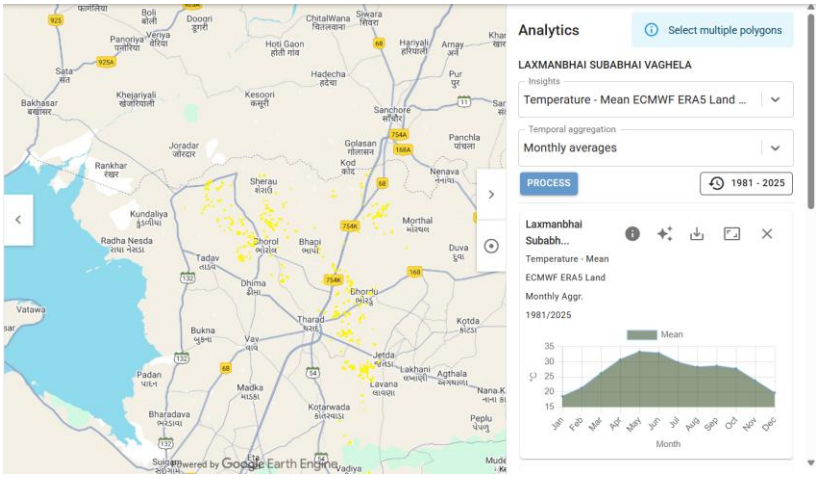
LS*M	0.25	
Geological Risk		
Significance	The geological risk such as earthquakes around the project area are mostly of moderate intensity but the damage will be insignificant.	**Seismic Activity:** The VVB independently reviewed the seismic zoning and historical data for both states: Gujarat: The project area falls within Seismic Zone III (moderate risk); no recent high-magnitude events have been recorded. [114] Rajasthan: Also, within Seismic Zone III, with no recent high-impact events noted. [115] The geographic spread of the project across two states provides further risk diversification. No damage from seismic events or landslides has been reported by farmers. Over the last few years, no major earthquakes (≥5.5 magnitude or causing significant damage) have been documented in Gujarat or Rajasthan. The quakes that have occurred have been of lower magnitude (≤ 4) and have not resulted in damage or carbon-loss-risk level concerns.[116] The potential loss of forest carbon due to such seismic events is estimated at less than 5%. Hence, based on the overall assessment, the total risk score of 0.25 is satisfactory.
Likelihood	once every 50 to less than 100 years. The potential loss of forest carbon due to such seismic events is estimated at less than 5%.	
Score (LS)	1	
Mitigation	PP has conducted the PRA survey based on high sample size of stakeholders which have given a clear idea that the project area doesn't get impacted by any such geological event.	
Mitigation score (M)	0.25	
LS*M	0.25	
Extreme weather		

[114] http://www.gsdma.org/Content/earthquake-4219

https://www.sciencedirect.com/science/article/abs/pii/S001282521830374X

[115] https://asc-india.org/seismi/seis-rajasthan.htm

[116] https://earthquaketrack.com/p/india/gujarat/recent

Significance	PP rates Rain & Flood: Minor. despite broad flood-prone zones, risk is higher in South Gujarat plains and lower in Saurashtra, with an estimated 5.18 lakh ha cumulatively inundated—hence localized, manageable exposure. In Rajasthan, SW monsoon drives rainfall, interannual variability can trigger droughts/local floods, but 2023 rainfall was appx 115% of average (statewide "Normal"), indicating episodic rather than chronic flood risk. Temperature/Heat: Gujarat spans 6–45 °C with long-term warming (appx. +1 °C; higher rise in night-time minima), while Rajasthan shows warming in maxima but mixed trends in minima—conditions considered in species choice and	The project area spans semi-arid to arid climatic zones of Gujarat and Rajasthan, where extreme weather events—such as heatwaves, droughts, and localized flooding—occur with an estimated frequency of once every 25 to <50 years. While extreme temperatures and erratic rainfall are recognized as climate risks in Gujarat and Rajasthan,[117] the current trends are not uncontrolled. The risks are quantifiable, historically observed, and can be effectively mitigated through adaptive project design and climate-resilient land-use planning. The temperature conditions in the project area are not extreme enough to cause large-scale mortality or negatively impact the plantations. Furthermore, species selection has been undertaken with consideration of the arid, semi-arid, and hot climatic conditions characteristic of the region.  **Figure 10: annual avg. temp of a project parcel located in Gujarat**

[117] https://climatetracker.gujarat.gov.in/en/climate-variability

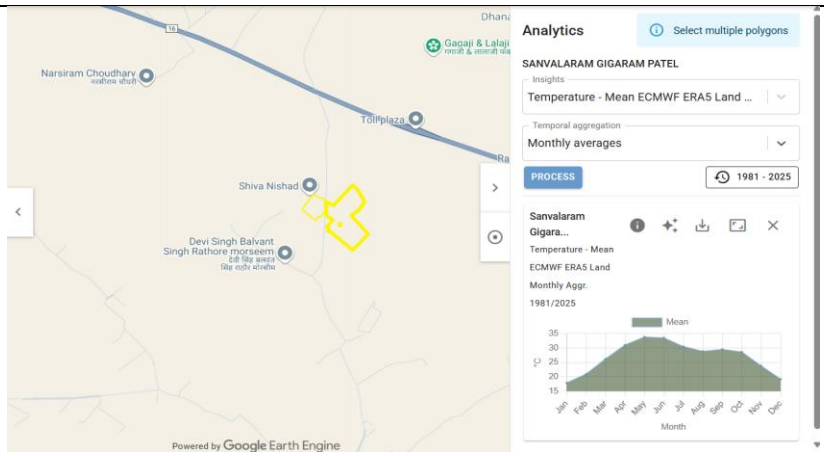
https://environment.rajasthan.gov.in/content/dam/environment/Env/Pdf_Files/Draft%20of%20State%20Action%20Plan%20on%20Climate%20Change%202022.pdf

https://gidm.gujarat.gov.in/sites/default/files/Rainfall-variability-over-Gujarat-in-2022.pdf

https://www.researchgate.net/publication/278348238_Climate_Variability_over_Gujarat_India

https://ijarbs.com/pdfcopy/2023/june2023/ijarbs11.pdf

https://timesofindia.indiatimes.com/city/ahmedabad/guj-rainfall-pattern-shifts-12-dists-get-50-more-rains/articleshow/122394231.cms

	management, keeping overall natural-risk significance minor.	 **Figure 11: annual avg. temp of a project parcel located in Rajasthan** In Gujarat rainfall is concentrated between July and September, with low inter-annual variability.[118] Flood risk is localized and lower in the Saurashtra and North Gujarat regions. While average annual temperature has increased by appx. 1°C over the past 50 years, variability is moderate, and widespread crop failures have not been reported.[119][120] In Rajasthan, seasonal rainfall patterns are more variable. While occasional flooding and drought occur, these are not classified as extreme in frequency or scale. Regional temperature data shows both warming and cooling trends.[121] Additionally, the project species (e.g., pomegranate which is more than 92% of the total plantation done in the PAI1) are drought-resilient and suited to semi-arid environments,[122][123] as confirmed in the plantation design (ref: Section 2.3.5, Joint PDMR). Even species selected like
Likelihood	Once every 25 to less than 50 years	
Score (LS)	2	
Mitigation	Although it is difficult to mitigate the impacts of floods and droughts but several adaptation measures have been taken to avoid the damage on the plantations. a) Tree replacement: The tree plantation program contemplates planting additional trees to compensate for expected mortality b) Additionally, PP provide the training on soil and water conservation by proving the practical aspect for preparing of trenches, checks dams etc.	

[118] https://www.academia.edu/104256316/Rainfall_Variability_Analysis_of_Saurashtra_Region_of_Gujarat

[119] https://www.data.gov.in/resource/district-wise-details-annual-average-rainfall-gujarat-2014-2023

https://ijarbs.com/pdfcopy/2023/june2023/ijarbs11.pdf

[120] https://swhydrology.gujarat.gov.in/sites/default/files/AnnualRainfall2007-2010.pdf

[121] https://dmrelief.rajasthan.gov.in/documents/ACTION_PLAN_2024_30052024.pdf

http://www.rainwaterharvesting.org/Urban/Rainfall.htm

[122] https://pmc.ncbi.nlm.nih.gov/articles/PMC12095518/

[123] https://www.sciencedirect.com/science/article/abs/pii/S037837742100634X

Mitigation score (M)	0.25	Guava,[124] (Guava is more resistant to drought than most tropical fruits and can withstand long periods of dry weather by ceasing vegetative growth until conditions improve), and Mahogany[125] are drought resistant. The potential loss of forest carbon due to such seismic events is estimated at less than 5%. The PP also has incorporated climate-adaptive strategies such as: • Tree replacement planning to compensate for mortality, • Soil and water conservation practices (e.g., trenches, check dams), • Stakeholder training on land management practices. Hence, based on the overall assessment the total risk score of 0.5 is satisfactory.
LS*M	0.5	
Future climatic impact:		Associated with climate change: Based on the review of KML files/10/ of the project areas and on-site observations and interviews, the VVB confirms that the entire project area is situated within the Asia region (100%). Following a review of NPRT/14/, the VVB verified that for the Projected Future Climate Impact Drivers, negative impacts were selected for - mean air temperature, extreme heat, soil moisture, agricultural and ecological drought and fire weather[126]. Only one category i.e., mean precipitation has positive impact as considering the fact that moisture improves the growth in the plantation.[127] However, other impacts are not applicable to the proposed project since the project areas are not coastal or hilly regions.

[124] www.worldagroforestry.org

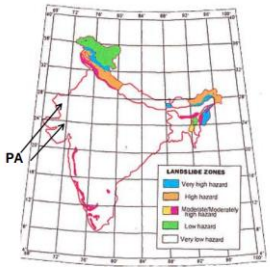
https://www.feedipedia.org/node/111

[125] https://getfarms.in/how-to-plant-mahogany-trees-and-make-sustainable-income

[126] The future impact of fire weather is assessed as low for the project area in Gujarat (Banaskantha, Bhavnagar, and Botad) and Rajasthan (Barmer and Jalore). Plantations are distributed across small, dispersed, and non-contiguous land parcels, which naturally limit the potential spread of fire between sites. Historical data (2000–2024), as reviewed in the fire risk analysis, show that no fire incidences have been recorded within the project area in recent decades. Accordingly, these regions are classified as low risk for fire weather impacts. However, as per the tool methodology, fire weather is measured as the mean of extreme heat, mean wind speed, and agricultural and ecological drought, and based on this calculation, the PP has conservatively considered the impact as negative.

[127] https://www.sciencedirect.com/science/article/abs/pii/S016788092300172X

https://besjournals.onlinelibrary.wiley.com/doi/10.1111/j.1365-2745.2010.01741.x

	The factor which has not been included and mentioned "does not apply" by the PP has also been assessed for its credibility. River Flood: The project areas do not fall in high flood risk zone.[128] Landslide: The project area is a flat semi-arid and arid zone; there is no risk of landslide in the area.  Figure 12: Landslide hazard map of India[129] Cold spells: Agroforestry plantations in Gujarat and Rajasthan face no significant threat from cold spells, as both states project parcels lie in arid and semi-arid climatic zones where winters are mild and extreme cold events are rare and not extreme[130][131] Mean wind speed: Approximately 97% of the project area lies outside high-risk zones, with the only exception being Bhavnagar district, which is located near the coastal region. However, plantations in Bhavnagar have been established in inland areas, well away from the coastal zone. Moreover, the area of PAI 1 within Bhavnagar represents only about 3% of the total project area, and therefore the overall risk exposure of the project is minimal.

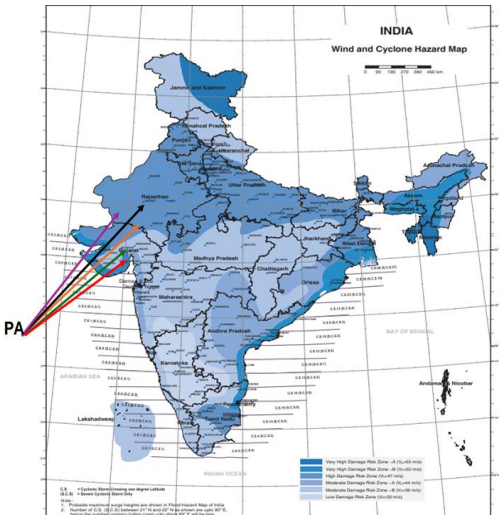
[128] https://dst.gov.in/sites/default/files/Full%20Report_District-Level%20Climate%20Risk%20Assessment%20for%20India_Mapping%20Flood%20and%20Drought%20Risks%20Using%20IPCC%20Framework.pdf

[129] https://ndma.gov.in/Natural-Hazards/Landslide

[130] https://moef.gov.in/uploads/2017/08/Gujarat-SAPCC.pdf

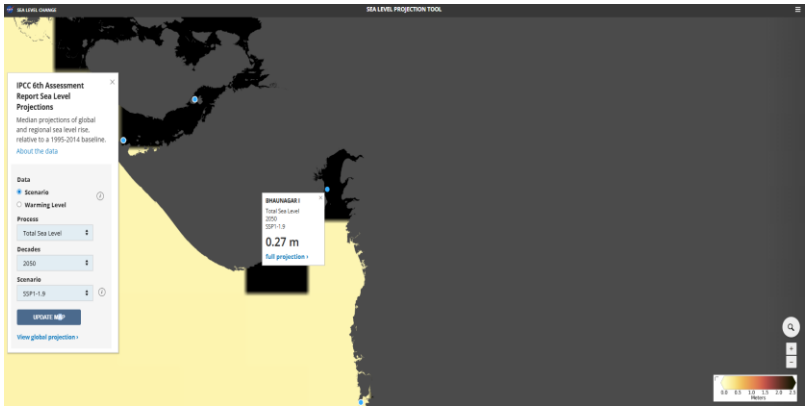
[131] https://www.accuweather.com/en/in/barmer/190286/winter-weather-forecast/190286

https://www.aqi.in/climate-change/india/rajasthan/jalor

	 Tropical Cyclone/coastal flood/coastal erosion: The potential impact of tropical cyclones on the project has been carefully evaluated. PAI-1 project parcels are located in Banaskantha, and Botad (Gujarat) and Barmer and Jalore (Rajasthan), which are inland regions not historically exposed to strong or sustained cyclonic activity. Although Bhavnagar district is situated in a coastal zone, the project plantations within Bhavnagar are established on small, inland parcels that are geographically distant from the coast. Also, Bhavnagar represents only about 3% of the total project area, According to the National Disaster Management Authority (NDMA)[132], thirteen coastal states and Union Territories (UTs) in India are affected by tropical cyclones and flood. On the west coast, Gujarat is the only state considered vulnerable to cyclone hazards. The NDMA report provides a district-wise list of cyclone-prone areas in Gujarat, among which only Bhavnagar falls within the PAI-1 boundary, and even then, it is classified as having moderate vulnerability.

[132] https://ndma.gov.in/sites/default/files/PDF/cyclone/cyclonepronedistrict.pdf

	<table><tr><th colspan="4">Gujarat</th></tr><tr><td>12</td><td>Ahmadabad</td><td>M</td><td>FLZ</td></tr><tr><td>13</td><td>Bharuch</td><td>M</td><td>FLZ</td></tr><tr><td>14</td><td>Kachchh</td><td>VH</td><td>FLZ</td></tr><tr><td>15</td><td>Kheda</td><td>M</td><td>FLZ</td></tr><tr><td>16</td><td>Surat</td><td>M</td><td>FLZ</td></tr><tr><td>17</td><td>Vadodara</td><td>M</td><td>FLZ</td></tr><tr><td>18</td><td>Valsad</td><td>M</td><td>FLZ</td></tr><tr><td>19</td><td>Bhavanagar</td><td>M</td><td>-</td></tr><tr><td>20</td><td>Junagad</td><td>VH</td><td>FLZ</td></tr><tr><td>21</td><td>Jamnagar</td><td>M</td><td>FLZ</td></tr><tr><td>22</td><td>Narmada</td><td>H</td><td>FLZ</td></tr><tr><td>23</td><td>Navsari</td><td>M</td><td>FLZ</td></tr><tr><td>24</td><td>Anand</td><td>M</td><td>FLZ</td></tr><tr><td>25</td><td>Amreli</td><td>M</td><td>FLZ</td></tr><tr><td>26</td><td>Rajkot</td><td>M</td><td>FLZ</td></tr><tr><td>27</td><td>Porbandar</td><td>H</td><td>FLZ</td></tr></table> Historical cyclone track data from the India Meteorological Department (IMD) confirms that these districts fall outside the high-risk cyclone corridor that typically affects the eastern coast of India and, to a lesser extent, Gujarat's immediate coastal belt. The PAI-1 project parcels are not near the coastal belt and hence there is no threat of coatal erosion. <table><tr><th>FUTURE CLIMATE IMPACT ON NATURAL RISK</th><th>AGGREGATED SUB-TOTAL RISK</th><th>FUTURE IMPACT FACTOR</th><th>TOTAL</th></tr><tr><td>Natural risk associated with climate change impact (NR-c)</td><td>1.25</td><td>1.20</td><td>1.50</td></tr><tr><td>Natural risk NOT associated with climate change impact (NR-nc)</td><td>0.25</td><td>1</td><td>0.25</td></tr><tr><td>Sea Level Rise(SLR)</td><td>N/A</td><td>N/A</td><td>0</td></tr><tr><td>Total Natural Risk</td><td></td><td></td><td>1.75</td></tr></table> Thus, the overall CID Impact Score is 1 (as per the Verra Project Hub tool – Total Natural Risk Summary). Applying the amplifying factor of 1.2 to the four risks identified as being affected by climate change results in a total adjusted score of 1.5. Natural Risk NOT associated with climate change: the NPRT tool based on the geographical location of the project i.e., Asia (100%) has given 0.25 as an aggregated sub-total risk with the amplifying factor of 1, which gives the total score of 0.25.
Sea Level Rise	97% of the plantation sites are located near the coastline or in low-elevation zones. 3% of the plantation is near coastal zone but mostly in the inland areas of the Bhavnagar district. Thus, the project area vulnerability to the SLR is negligible.

	According to the IPCC AR6, Asia remains one of the most climate-vulnerable regions. [133] However, this project applies to a climate-resilient design combining: • Use of native, adaptive species, • Ecosystem-based adaptation strategies, • Local stakeholder engagement and traditional knowledge. The VVB assessed site vulnerability using open-source datasets, including the NASA SLR Tool.[134] Three tidal gauges are available for the region, however, for projections only one gauge closest to the project area (Bhavnagar district) was cross-checked, with classifications ranging from "Least Vulnerable" to "Most Vulnerable." Under the SSP5-8.5 high-emission scenario, sea level rise is projected at approximately 0.33 m (extreme but plausible), while the SSP1-1.9 low-emission scenario indicates about 0.27 m. This comparison provides a full risk spectrum, from low to high, ensuring a balanced evaluation. 

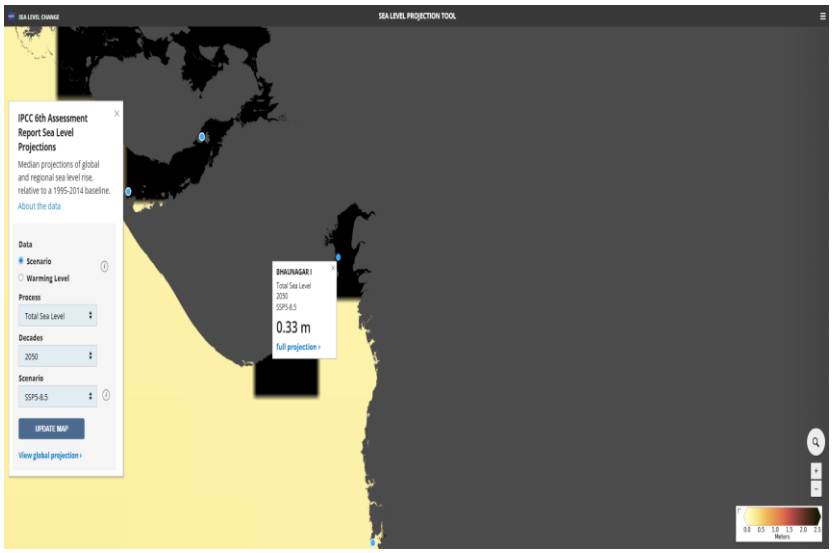
[133] https://pib.gov.in/PressReleasePage.aspx?PRID=1807725

https://www.ceew.in/publications/mapping-climate-change-vulnerability-index-of-india-a-district-level-assessment

https://environmentality.cprindia.org/blog/hot-and-flooded-what-the-ipcc-report-forecasts-for-indias-development-future

[134] https://sealevel.nasa.gov/ipcc-ar6-sea-level-projection-tool

The NASA Sea Level Projection Tool and the IPCC AR6 assess future SLR under different SSP (Shared Socioeconomic Pathway) scenarios by combining multiple contributing processes.

	 Based on IPCC AR6/NASA projections, Bhavnagar may experience approximately 0.27m–0.33m sea level rise by 2050 (within the project crediting period) even under high-emission scenarios, which does not place the area in a vulnerable category. Looking ahead to 2100, the maximum projected rise is around 1m under the SSP5-8.5 scenario. However, since the project plantations are located inland and away from the coastal zone, the project area is not considered vulnerable to sea level rise impacts. The risk related to SLR is not applicable for the project and hence the risk score is 0.
While climate change may affect tree plantations, the mitigation measures implemented by the PP significantly reduce both the likelihood and severity of natural risks. Any projected GHG losses are expected to be minor, localized, and recoverable. The estimated future climate impact on natural risk is 1.75, as calculated using NPRT v4.2. This value is considered reasonable, based on the PP's analysis, the VVB's independent assessment, and the automated calculations generated by the tool using the input data.	

Adaptative capacity: The project does not demonstrate at least five required criteria of adaptive capacity, resulting in an adaptive capacity factor of 1.

FUTURE CLIMATE IMPACT ON NATURAL RISK	AGGREGATED SUBTOTAL RISK	FUTURE IMPACT FACTOR	TOTAL
Natural risk associated with climate change impact (NR-c)	1.25	1.2	1.5

Natural risk NOT associated with climate change impact (NR-nc)	0.25	1	0.25
Sea Level Rise(SLR)	NA	NA	0
Total			1.75

Thus, in 4KES's opinion, total natural risk (1.75) is properly justified and in accordance with AFOLU Non-Permanence Risk Tool, v4.2.

Internal Risk	17
External Ris	0
Total Risk	1.75
Overall Risk Rating	19

The calculation has been validated as per the VCS tool applied for the non-permanence risk calculation and it was concluded to be appropriate. The overall rating calculated was 19%, Hence, the value considered is as per the applicable tool. The calculation of total tradable VCUs is done by multiplying the risk factor with the calculated net emission reductions as per the Excel calculation sheets. The risk rating should not be used for any other purpose than reserving buffer credits and calculation of VCUs according to the VCS permanence rules. The risk will be reassessed at the time of the next verification (section 3.2.14 of VCS Standard v4.7 /2/) as the risk rating may change.

CAR 42 has been raised and resolved successfully. Please refer to Appendix 3 for further details

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

Implementation Status	Assessment steps, evidence checked, & conclusion:
Project implementation	Risks that could lead to material omissions and misstatements:

	Raw data segregation: raw data segregation including sampling approach, implementation and monitoring procedures, qualification of persons involved, change in monitoring procedures, accuracy of values taken as default and the equations considered **Risk level** – high **Mitigation**: The risk has been mitigated by reviewing the raw data, reassessing some of the sample plots data during the site visit, reviewing and replicating the overall estimations, checking the default values and confirming them with the applied methodology, tools and standards. **Conclusion**: Findings were raised during the process and were successfully resolved.
	Data collection, transposition and aggregation of data and information flow: wrong data transfer from data aggregated, manual data transmissions, data included in the PDMR, unintended use of outdated versions of the reports **Risk level** – high **Mitigation:** The risk has been mitigated by reviewing the raw data sheets, reassessing some of the sample plots data during the site visit, reviewing and replicating the overall estimations, checking the default values and confirming them with the applied methodology, tools and standards. **Conclusion:** Findings were raised during the process and were successfully resolved.
	Calculation method: applied formula in the spreadsheet **Risk level –** medium **Mitigation:** The risk has been mitigated by reviewing the raw data sheets, reviewing and replicating the overall estimations, checking the default values and confirming them with the applied methodology, tools and standards. **Conclusion:** Findings were raised during the process and were successfully resolved.

	Project design and implementation: data from logbooks, including total area, geocoordinates taken, land titles in the name of the beneficiaries, cross-check of the carbon calculation sheets, people responsible, data monitoring and record keeping, QA/QC. **Risk level** – high **Mitigation:** The risk has been mitigated by reviewing the raw data sheets, land records, on site interviews, checking the original land deeds of the beneficiaries, checking the farmers signed agreement, reassessing some of the sample plots data during the site visit, reviewing and replicating the overall estimations, checking the default values and confirming it with the applied methodology, tools and standards, checking the CVs of personnel involved and interviewing the management and technical team, checking the inventory SOPs and QA/QC. **Conclusion:** Findings were raised during the process and were successfully resolved. Based on the above assessment, a risk analysis is carried out, and it was concluded that the risks can be mitigated through cross-checks of all the documents and interviews with the project management team, beneficiaries and other stakeholders. Based on the assessment carried out, 4KES concludes with a reasonable level of assurance that the claimed ERR are free of material errors, omissions and misrepresentations.
Monitoring plan	As assessed above, the project has been implemented in full compliance with the monitoring plan as outlined in the PDMR section 6.3 and the applied methodology. The monitoring system is well-structured and effectively executed, ensuring the completeness of data collection and reporting. The processes and schedules for obtaining, recording, compiling, and analyzing monitored data and parameters have been followed as per the established guidelines. The audit team concludes that the monitoring system is suitable and operates as intended, with no identified gaps or deficiencies in data management.

	The review of the actual monitoring system against the monitoring plan set out in the PDMR and methodology did not reveal any material misstatements. All monitored parameters have been recorded accurately, and the reported data is consistent with the monitoring requirements. For the identified issues, findings were raised during the process and were successfully resolved. No discrepancies or deviations were observed that would impact the integrity or reliability of the emission reduction calculations.
AFOLU-specific project implementation	The project is a joint validation and verification and includes only the first PAI in the first monitoring. The audit team concludes that the project is implemented and monitored per the information provided in respective sections of the PDMR. Assessment of the report of any loss of carbon stock that occurred during the current monitoring period. No leakage or carbon stock loss occurred during this monitoring period. This conclusion is supported by evidence provided by the PP /10/, audit site visit observations (see Section 3.4.6.3 of this report), and verification of 100% of project parcels through remote sensing. The project activities were implemented on clearly demarcated, privately owned lands, historically under cultivation, with no history of grazing or displacement of agricultural activities. Farmers were found to be managing plantations within their landholdings. There were also no natural disturbances (e.g., fire, storms, or landslides), and no harvesting has taken place. The plantations are in good condition and are being managed as per the approved management plan. The PP has been conducting regular monitoring using field inspections and remote sensing to ensure early detection of any potential risks..

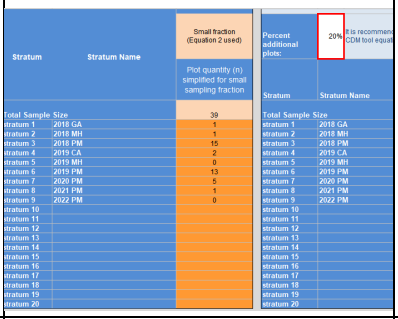
4.2 Accuracy of Reduction and Removal Calculations

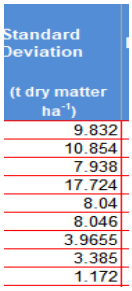
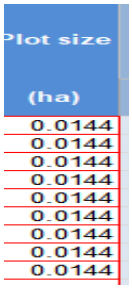
The data and parameters used to calculate the GHG emission reductions and carbon dioxide removals for this verification period, and steps taken to assess the following for each of them is given below in the table:

Sl. No	Data/Parameter	Unit	Description	Determination method	Assessment method

.					
1	A	Hectare (ha)	Total Project area	Boundaries delineated and fixed collecting multiple GPS location points and Geographical Information Systems (GIS)	Using the KML and reassessing the total area using QGIS and Google Earth
2	Location of project area-Latitude and longitude	Degree decimal	GPS co-ordinates of the project boundary and sample plots	Direct measurement of latitude and longitude of a point within a project area using a GPS.	Using the KML and reassessing the total area using QGIS and Google Earth
3	CAI (Current annual Increment in monitoring period)	ton/ha	Total Biomass (Above and Below ground biomass)	Based on actual Refer to the Ex-Post Emission Reduction sheet and data collected	Checking the raw data and reassessing some of the PSPs and non-PSPs
4	Root-to-Shoot Ratio (R)	dimensionless	Ratio of the weight of the roots to the weight of the top of the tree. Used for belowground tree biomass estimation.	In line with the applied methodology a default value of 0.25 has been applied. The Value is taken from AR Tool 14-Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities.	Checking the applied TOOL-14
5	DF_{DW}	%	Conservative default factor expressing carbon stock in dead wood as a percentage of carbon stock in tree biomass	According to Tool 12, the value 2% is taken because the project is located in tropical region with <2000m elevation and 1000 mm/yr. In line with the applied methodology and AR TOOL 12	Checking the applied TOOL-12
6	DF_{LI}	%	Conservative default factor expressing carbon stock in litter as a percentage of carbon stock in tree biomass	According to Tool 12, the value 4% is taken because the project is located in tropical region with <2000m elevation and 1000 mm yr^{-1}. In line with the applied methodology and AR TOOL 12	Checking the applied TOOL-12
7	Carbon Fraction of dry matter (CF)	tC t d.m -1	Biomass proportion corresponding to carbon.	In line with the applied methodology, TOOL 14 and IPCC GPG LULUCF guideline which is an acceptable standard and guideline. A default value of 0.47 has been applied	Checking the applied TOOL-14

			CF is used to convert biomass to carbon.		
8	CO_2e	tC-1	Factor applied to convert the tree carbon sequestered to tree CO_2e sequestered.	In line with the applied methodology and default value considered as per the IPCC GPG LULUCF guideline which is an acceptable standard and guideline. Value of 44/12 or 3.67 has been applied.	Checking the applied IPCC GPG LULUCF 2003 – Chapter 3 https://www.ipcc.ch/site/assets/uploads/2018/03/GPG_LULUCF_FULLEN.pdf
9	SOC	tC/ha	Soil organic carbon (SOC) refers only to the carbon component of organic compounds	dSOC value applied as 0.8 t/ha/yr. This value is taken as per the AR-Tool 16. For calculating the value of the dSOC following factor are considered- $SOC_{REF,i}$: 38; $f_{LU,i}$: 0.58; $f_{MG,i}$: 1.00	Checking the applied TOOL-16
10	Project trees	Count of tree in numbers	The number of five tree species year wise for each project area provided by PP	526,854 (for PAI-1). Data records for number of saplings planted were procured at the time of plantation activity.	Checking raw data provided by the PP and observations during the site visit.
11	Wi	Dimensionless	Relative weight of the area of stratum i, the area of the stratum i divided by the total project area.	As per the Winrock's CDM A/R sample plot calculator spreadsheet tool. Calculation of sample plots and project GHGs removal after allocating sample plots to each stratum. In line with the applied methodology	Checking the calculations sheet per the Winrock's CDM A/R sample plot calculator spreadsheet tool.
12	Permanent Sample Plot (PSP)	Number	Sample plots are chosen randomly from each stratum representing the plantation of respective stratum. Project Activity	PSPs has established on the basis of Wi and Std, dev. of each stratum in PAI-1. Established PSPs based on A/R Methodological Tool 'Calculation of the number of sample plots for measurements within A/R CDM project activities' (Version 02.1.0). PSPs are selected form project area planted parcel by	Checking the calculations sheet per the Winrock's CDM A/R sample plot calculator spreadsheet tool.

			monitoring is based on the PSPs.	random point generated through Q GIS.  	
13	Collar diameter Collar Girth/Diameter at breast height (DBH)	cm	To determine the Collar Diameter/Diameter at Breast Height (DBH) of trees and shrubs in relation to their age is essential. This information is crucial for estimating the overall biomass and serves as a fundamental parameter in volumetric equations.	DBH is measured at 1.37 m above ground and Collar Girth is measured near to the ground level (5-10cm form ground level) over the bark by the diameter Tape. Measurement of all the trees in the sample area of 12x12 meter grid in permanent sample plots. Measured and calculated according to requirements of the applied methodology and IPCC GPG 2003. Field measurements in PSPs were considered for estimating both ex-ante and ex-post estimations.	Checking the raw data and reassessing some of the PSPs and non-PSPs
14	Height	m	To determine the Height of trees and shrubs in relation to their age is essential. This information is crucial for estimating the overall	Measurement using Hega Altimeter/Clinometer. Measured and calculated according to requirements of the applied methodology and IPCC GPG 2003. Field measurements in PSPs were considered for estimating both ex-ante and ex-post estimations.	Checking the raw data and reassessing some of the PSPs and non-PSPs

			biomass and serves as a fundamental parameter in volumetric equations.		
15	Ai	ha	Strata area is selected and mapped in the software as .kml file	Project Stratification for first Project Activity instance is based on the year of plantation. Strata wise total area for the first Project Activity instance using GIS. Values mentioned in section 6.2 of the PDMR.	Checking the raw data and site visit observations and discussions and RS analysis
16	Standard Deviation	t/ha	Assumed standard deviation of biomass stock in stratum i	During presurvey before the monitoring of the project, calculated for each stratum. Estimated per the Winrock's CDM A/R sample plot calculator spreadsheet tool. 	**Checking the calculations sheet** per the Winrock's CDM A/R sample plot calculator spreadsheet tool.
17	Size of Each PSPs in the Stratum i (APlot i)	ha	An area of 12-meter x 12-meter size (measuring 0.0144 ha) is measured and marked within each sample land parcel. The selection of 0.0144 ha PSP is based on the CDM manual for "Measurements for Estimation of Carbon	The area is measured with the help of using a measuring tape, measuring out 12 meters from each reference point in opposite directions to establish the four corners of the PSP. 	**Checking the calculations sheet** per the Winrock's CDM A/R sample plot calculator spreadsheet tool.

			Stocks".[135]		
18	Land Title Records	NA	Land ownership document of each individual farmers involved in First Project Activity instance.	The land title records are certified by government. For verification of land title ownership of Farmers involved in the First Project Activity instance	Checking the soft copies of land record submitted and cross-checking some samples (original deeds) during the site visit. Additionally, checking the farmers' agreements to confirm the inclusion of the named beneficiaries.
19	Survival Rate	%	The number of trees survived	The number of trees counted in each sample parcel initially after 3-5 months of planting and replantation is carried out immediately	Checking the raw data and site visit observations and discussions
20	Above ground biomass	t dm ha-1yr-1	AGB of tree species in sample plot of stratum at time t calculated using allometric equations..	In line with the applied methodology and Tool 14 and IPCC GPG LULUCF guideline which is an acceptable standard and guideline. This was done based on the sample plots field measurement. Field measurement included biophysical parameters like collar dia./DBH and height of each tree species shall be measured	Checking the raw data and reassessing some of the PSPs and non-PSPs
21	BGBtree	t dm ha-1yr-1	The root-shoot ratio used to determine the proportion of belowground biomass in relation to the abovegroun d biomass.	The ratios of belowground to aboveground biomass (root-to-shoot ratio) is used to account for belowground biomass in living biomass estimations as it is not possible to estimate BGB through measurement for a living tree species. So, as per the Tool 14 default value 0.25 is taken.	Checking the Tool 14 and assessing the AGB calculation methods followed

[135] https://unfccc.int/resource/docs/publications/cdm_afforestation_field-manual_web.pdf

22	ADISP,t	ha	Area of land from which agricultural activity is being displaced in the current monitoring period	Standard operating procedures are made to ensure the correct and validating data collection for each of the monitoring parameters. 0 ha was reported during this MP.	Upon reviewing the soft copy of the Standard Operating Procedures (SOPs) submitted and cross-checking their implementation on the ground
23	ABURN,l,t	ha	The land area on fire had occurred and carbon loss in such area.	The area shall be delineated either on the ground using GPS or from georeferenced remote sensing data. 0 ha was reported during this MP.	Checking the raw data and site visit observations and discussions
24	Buffer	%	Non-tradable AFOLU buffer credits for covering the risk of unforeseen losses in carbon stocks of the project. This will be estimated per the latest applicable version of the NPRR Tool.	In line with section 2.4 of the VCS Standard requirements v4.7. at the stage of ex-ante value estimated is 19%. This will be updated at each verification of the project.	Checking the NPRR v4.2 analysis and justifications, checking the overall application of buffer on the NER estimated both ex-ante and ex-post
25	Uncertainty *(Δu)*	%	To assess uncertainties associated with the data estimation by applying uncertainty discount factor	In line with the applied methodology, and Tool-14. If uncertainty associated with the data analysis and procurement is more than 10%, then the uncertainty will be estimated according to the procedure provided in Appendix 2 of Tool 14.	Checking the Tool 14, raw data submitted and reassessing some of the PSPs and non-PSPs

Overall, the PP has followed the exact steps mentioned in the latest version of the applied methodology and modules. The steps have been applied correctly to calculate baseline emissions, project emissions, leakage and net GHG emission reductions and removals for the baseline period. The quantification of related emissions is described in detail in section 5 of the validated PDMR /7/.

Considering the annual average GHG emissions by PAI-1 and even at the full project scale of 25,000 ha, the project falls into the category of projects achieving <300,000 tCO_2e per year. Accordingly, a 5.0% materiality threshold has been applied.[136] The PP has adopted a conservative approach throughout the process to ensure robustness in emission reduction estimates.

In line with the materiality threshold guidelines for validation and verification, a reasonable level of assurance has been established for both validation and verification processes. The audit team conducted a thorough review of all monitoring records, including measurement records, and land records, etc., and cross-checked them against the values reported in the ERR sheets (ex-ante and ex-post).

The carbon stock estimates are based on Tier 3 data, and during the reassessment of PSPs in the field visit, the audit team identified that all the data had been accurately measured. However, in the calculations process, several mistakes were identified, leading to the issuance of findings. These findings are detailed in Annexure 3 of this report. However, the identified discrepancies have been determined to be immaterial, meaning they do not impact the overall accuracy or credibility of the reported GHG reductions. The PP has taken sufficient corrective actions to resolve all the findings raised during the joint validation and verification. The audit team confirms that no material errors, omissions, or misstatements were found, and a reasonable level of assurance has been established.

The audit team verified that the PP has taken all necessary steps to prevent overestimation when calculating carbon stock changes over the crediting period and the MP.

Furthermore, the audit team confirms that the PDMR /7/ and the ER Excel sheets /8/ provide a high level of detail regarding the calculation of GHG emission reductions ensuring the following:

- All relevant assumptions and data are listed in the project description, including their references and sources.
- All estimates of the baseline emissions, project emissions, leakage and NERs are clearly stated in the PDMR.
- The reductions provided in the project's GHG statement have been quantified correctly in accordance with the monitoring plan and applied methodology.

CAR 38 to 41 was raised and resolved during the validation/verification process. Please refer to Appendix 4 for further details.

[136] https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20150225171039008/iss_guid08.pdf

https://verra.org/wp-content/uploads/2024/07/VCS_Validation_Verification_Manual_v3.2.pdf

4.3 Quality of Evidence to Determine Reductions and Removals

Based on the review of the PDMR, standard operating procedures, calculation excel sheet, supporting documentation, on-site visits, and interviews with project personnel and local stakeholders, the audit team concludes that the evidence used to determine GHG reductions for the verification period is of sufficient quantity and appropriate quality.

Categories of Evidence and Assessment

- Reliability
    a. The evidence is primarily documented and verified by the PP or default IPCC values.
    b. Management and monitoring records are maintained under standardized QA/QC procedures.
    c. Field protocols were reviewed and confirmed to be based on sound scientific principles and best practices, capable of capturing carbon stock changes in conformance with the methodology.[137][138]
    d. Stratification data in spreadsheets and spatial data were reviewed and verified to contain all necessary information.
- Information flow
    a. The flow of data from field measurements to emission reduction and removal calculations was reviewed and found to be consistent, with clear monitoring and reporting guidelines. Survey sheets and final analysis sheets were cross-checked, confirming no discrepancies.
    b. Field protocols, QA/QC procedures,[139] and monitoring plan mentioned in the PDMR section 6.3 were reviewed and observed to be implemented effectively by field teams during site visits.
    c. The audit team recalculated and confirmed project and parcel-level area data using provided KML and LULC files, ensuring alignment with reported excel sheet.
- Calibration and calibration frequency
    a. Monitoring plans specify calibration frequency and QA/QC procedures for equipment such as GPS units, Collar diameter/DBH and height measurement, default values considered.

[137] Calculation of the number of sample plots for measurements within A/R CDM project activities", v2.1

[138] Winrock International » Winrock Sample Plot Calculator Spreadsheet Tool

[139] IPCC GPG for LULUCF, section 4.3.4 (page 4.111)
https://www.ipcc.ch/site/assets/uploads/2018/03/GPG_LULUCF_FULLEN.pdf

b. Calibration activities, documented in PDMR and SOP, were validated through discussions with field teams and laboratory personnel, and review of calibration logs.

c. Equipment calibration:

i. GPS units: Calibrated by optimizing settings, verifying accuracy against known points, and testing under various conditions.

ii. The measurement tape for measuring diameter does not require any calibration. However, the method of standard practice to measure diameter (at collar or breast height) was followed as mentioned in section 6.2 of the PDMR

iii. Haga altimeter used for tree height measurement which do not require frequent calibration. Compared readings with a known height or a precisely levelled surface and followed the standard practice. Measuring tape used to measure distance.

Conclusion

The PP provided comprehensive documentation for emission reduction calculations, information control systems, and data management processes. The VVB:

- Reviewed the PDMR, measured data, and emission reduction calculations, finding the data transparently documented and reproducible.
- Recalculated emission reductions from raw data and validated spreadsheet functionality, confirming alignment with the PDMR and methodology requirements.
- Conducted interviews with project staff, land owners, and field teams, and verified data collection processes and operational systems.

Quality assurance mechanisms and data review techniques were found to be satisfactory. Project staff demonstrated high levels of competence, ensuring reliable data collection and reporting. The audit team concludes that the evidence supporting GHG reductions and removals is of sufficient quantity and appropriate quality. All calculations were verified with no material errors, and the methodologies applied are consistent with the validated project scope and methodology requirements.

The GHG management system is adequate to generate accurate and reliable data, and the evidence used to determine the reductions is sufficient and appropriate for the verification period.

5 VALIDATION AND VERIFICATION OPINION

5.1 Validation and Verification Summary

The project "Agroforestry Plantations in India" satisfies the VCS project validation and verification standards. The project was designed in line with the project description that had been validated and verified, and any discrepancies were explained.

The audit team concludes that the estimated quantification of the net GHG removals during the validation and verification period is free of major misrepresentation and conforms with the validation and verification requirements. The VVB concludes that the GHG statement is the responsibility of the PP. This is done with a fair degree of assurance. The validation process has been conducted by 4KES in accordance with ISO 14064-3:2019, based on all issues and criteria of VCS standards v4.7. The conclusions of this report show that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation.

4KES concluded that the PDMR and its calculations for expected and achieved emissions reduction met all requirements for validation and verification against the VCS standard. The Project activity is found to be eligible under Sectoral Scope 14. As a result, 4KES can conclude that the project satisfies all pertinent requirements of the criteria and recommend that the project activity be registered and recommends that the project activity be accepted for credit issuance for this monitoring period.

5.2 Validation Conclusion

4KES has been contracted by Infinite Environmental Solutions Limited to perform a validation of the VCS grouped project 'Agroforestry Plantations in India', (VCS ID 3562).

The project satisfies the VCS Rules for project validation. The project was designed in line with the joint PDMR /7/ v5.3, non-permanence risk assessment v1 /14/ and the ERR estimation spreadsheet v6.1 that had been validated, and any discrepancies were explained.

The audit team concludes that the estimated and achieved quantification of the net GHG removals during the validation period is free of major misrepresentation and conforms with the validation requirements. The level of assurance for this assignment is reasonable with respect to material errors, omissions, and misrepresentations.

The data and information supporting the GHG statement were based on actual results used to forecast future emission reductions/removals. At this stage, the audit team concludes that the extrapolated values for the crediting period are achievable. However, the validation conclusion is based on estimates derived from extrapolating actual values from a 5.7-year period to the full 30-year crediting period. As a result, these values may change over time, and actual emission reductions/removals may differ from the projections. In the opinion of 4KES, at this stage the project's baseline, monitoring plan, and other documents like ERR estimation sheets, NPRR are in compliance with relevant VCS requirements and host Country criteria and the project design is sound and reasonable and meets the identified criteria and guidelines. The joint validation and verification process has been conducted by 4KES in accordance with ISO 14064-3:2019, based on all issues and criteria of VCS standards and guidelines.

A risk-based approach has been followed to perform this assignment. During the validation, 43 CARs were raised and successfully closed. The review of the revised PD versions, ex-ante and ex-post ERR estimations and the supporting documents and subsequent follow-up discussions provided adequate evidence to conclude the closure of specified CARs. 01 Forward Action Request has been raised in the process.

No limitations or doubts were identified related to the validation of the project. The conservative approach and methodological choices used in the project design make it very likely that the proposed project will meet the projected emissions reduction target.

The project activity has correctly applied the baseline and monitoring methodology "A/R-ACM0003, v02 which is an approved methodology under the VCS programme and is acceptable under VCS Version 4.7. The baseline has been determined in accordance with the stated approved baseline methodology and Tool.

As summary the validation team able to conclude that:

1) The project is in line with all relevant host country criteria (India) and all relevant VCS version 4 program guidelines requirements.
2) The project additionality is sufficiently justified in the VCS PDMR.
3) The monitoring plan is transparent and adequate and in line with the applied baseline and monitoring methodology of A/R-ACM0003, v02, and all the related tools.
4) The calculation formulas and the parameters used for estimating project emission reductions are clear and comply with the requirements of the applied methodology. The ex-ante emission reductions given is found to be appropriate, conservative and in line with the guidelines of the applied methodology and tools. The estimated emission reductions during the crediting period by the project is expected to be 139,953 tCO2e for the PAI-1 and 4,824,945 tCO2e for the complete grouped project over the 30-year project lifetime.
5) The conclusions drawn in this report indicate that the project, as described in the project documentation, aligns with all the criteria specified for validation as outlined in VCS Standard, v4.7.

4KES has determined that the Project "Agroforestry Plantations in India", as outlined in the PDMR and its estimated and achieved emissions reduction calculations, adheres to all criteria required for validation according to the VCS Standard, v4.7. The Project activity has been deemed eligible under Sectoral Scope 14. Consequently, it is 4KES's opinion that the GHG reductions stated in the PDMR are fairly stated. Hence, 4KES and recommends the registration of the project.

Crediting period: 18/06/2018 – 17/06/2048

Validated estimated GHG emission reductions (PAI-1) and carbon dioxide removals for the project crediting period:

Vintage period	Estimated baseline emissions (tCO_2e)	Estimated project emissions (tCO_2e)	Estimated leakage emissions (tCO_2e)	Estimated buffer pool allocation (tCO_2e)	Estimated reductions VCUs (tCO_2e)	Estimated removals VCUs (tCO_2e)	Estimated total VCU issuance (tCO_2e)

18-Jun-2018 to 31-Dec-2018	0	0	0	58	0	308	249
01-Jan-2019 to 31-Dec-2019	0	0	0	198	0	1,044	846
01-Jan-2020 to 31-Dec-2020	0	0	0	1,107	0	5,829	4,721
01-Jan-2021 to 31-Dec-2021	0	0	0	2,384	0	1,2549	10,165
01-Jan-2022 to 31-Dec-2022	0	0	0	1,750	0	9,213	7,462
01-Jan-2023 to 31-Dec-2023	0	0	0	2,520	0	13,261	10,741
01-Jan-2024 to 17-March-2024	0	0	0	5,399	0	28,414	23,015
18-March-2024 to 31-Dec-2024	0	0	0	3,518	0	18,513	14,996
01-Jan-2025 to 31-Dec-2025	0	0	0	4,760	0	25,055	20,295
01-Jan-2026 to 31-Dec-2026	0	0	0	4,453	0	23,436	1,8983
01-Jan-2027 to	0	0	0	443	0	2,331	1,888

31-Dec-2027							
01-Jan-2028 to 31-Dec-2028	0	0	0		0		249
01-Jan-2029 to 31-Dec-2029	0	0	0	0	0	0	0
01-Jan-2030 to 31-Dec-2030	0	0	0	0	0	0	0
01-Jan-2031 to 31-Dec-2031	0	0	0	0	0	0	0
01-Jan-2032 to 31-Dec-2032	0	0	0	0	0	0	0
01-Jan-2033 to 31-Dec-2033	0	0	0	0	0	0	0
01-Jan-2034 to 31-Dec-2034	0	0	0	0	0	0	0
01-Jan-2035 to 31-Dec-2035	0	0	0	0	0	0	0
01-Jan-2036 to 31-Dec-2036	0	0	0	0	0	0	0
01-Jan-2037 to 31-Dec-2037	0	0	0	0	0	0	0

01-Jan-2038 to 31-Dec-2038	0	0	0	0	0	0	0
01-Jan-2039 to 31-Dec-2039	0	0	0	0	0	0	0
01-Jan-2040 to 31-Dec-2040	0	0	0	0	0	0	0
01-Jan-2041 to 31-Dec-2041	0	0	0	0	0	0	0
01-Jan-2042 to 31-Dec-2042	0	0	0	0	0	0	0
01-Jan-2043 to 31-Dec-2043	0	0	0	0	0	0	0
01-Jan-2044 to 31-Dec-2044	0	0	0	0	0	0	0
01-Jan-2045 to 31-Dec-2045	0	0	0	0	0	0	0
01-Jan-2046 to 31-Dec-2046	0	0	0	0	0	0	0
01-Jan-2047 to 31-Dec-2047	0	0	0	0	0	0	0
01-Jan-2048 to	0	0	0	0	0	0	0

17-Jun-2048							
Total	0	0	0	26,591	0	139,953	113,362
Annual average	0	0	0	886	0	4,665	3,779

The non-permanence risk rating (%)	19%
If applicable, the Long-term Average (LTA), whether it has been properly updated, and if it has been reached.	Yes, the LTA has been properly estimated in line with sections 3.2.28 – 3.2.30 of the VCS Standard v4.7. The LTA has not been reached.

5.3 Verification conclusion

4K Earth Science Private Limited is able to issue a positive verification opinion for the 46,669 tCO2e as reported in the monitoring report for the reporting period below. The overall non-permanence risk buffer value is 19%. Therefore, the total number of credits to be deposited in the buffer account is 8,867 tCO2e and the total VCUs to be issued are 37,798 VCUs. The level of assurance for this verification is reasonable with respect to material errors, omissions, and misrepresentations.

Verification Period: From 18/06/2018 to 17/03/2024 (5.75 years – 1st MP)

Verified GHG emission reductions (PAI-1) in the above verification period:

Vintage period	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage emissions (tCO_2e)	Buffer pool allocation (tCO_2e)	Reductions VCUs (tCO_2e)	Removals VCUs (tCO_2e)	Total VCU issuance (tCO_2e)
18-Jun-2018 to 31-Dec-2018	0	0	0	833	0	4,382	3,549
01-Jan-2019 to 31-Dec-2019	0	0	0	1,543	0	8,119	6,576
01-Jan-2020 to 31-Dec-2020s	0	0	0	1,543	0	8,119	6,576
01-Jan-2021 to	0	0	0	1,543	0	8,119	6,576

31-Dec-2021							
01-Jan-2022 to 31-Dec-2022	0	0	0	1,543	0	8,119	6,576
01-Jan-2023 to 31-Dec-2023	0	0	0	1,543	0	8,119	6,576
01-Jan-2024 to 17-Mar-2024	0	0	0	321	0	1,691	1,369
Total	**0**	**0**	**0**	8,867	0	46,669	37,798
Annual average	**0**	**0**	**0**	1,543	0	8,119	6,576

The non-permanence risk rating (%)	19%
If applicable, the Long-term Average (LTA), whether it has been properly updated, and if it has been reached.	The LTA has been applied. Yes, the LTA has been properly estimated in line with sections 3.2.28 – 3.2.30 of the VCS Standard v4.7. In this MP the LTA has not reached
Whether a loss has been appropriately accounted for, in accordance with the VCS Program rules, if applicable.	Not applicable as there is no loss event or reversal for this monitoring period

5.4 Ex-ante vs Ex-post ERR Comparison

Vintage period	Ex-ante estimated reductions/ removals	Achieved reductions/ removals	Percent difference	Explanation for the difference
18-Jun-2018 to 31-Dec-2018	308	4,382	-3.11%	The project uses a joint validation and verification approach, where the

01-Jan-2019 to 31-Dec-2019	1,044	8,119		expected carbon removals (ex-ante) for early 2024 were calculated using data from actual monitoring (ex-post). To estimate future tree growth, a growth curve was created based on past trends. This curve shows that tree growth speeds up after the third year. By 2024, most areas had reached this faster growth stage, which led to higher projected carbon removals. For the period from 18-06-2018 to 17-03- 2024, the ex-ante estimate was 5,916 tCO_2e which is higher than the actual monitored value. This difference is mainly because the model assumes rapid growth during this phase, which may not exactly match the actual growth seen in such a short monitoring period. Therefore, the difference is considered acceptable, as it results from conservative and trend-based assumptions.
01-Jan-2020 to 31-Dec-2020	5,829	8,119		
01-Jan-2021 to 31-Dec-2021	12,549	8,119		
01-Jan-2022 to 31-Dec-2022	9,213	8,119		
01-Jan-2023 to 31-Dec-2023	13,261	8,119		
01-Jan-2024 to 17-Mar-2024	5,916	1,691		
Total	**48,120**	**46,669**		

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

Section	Information	Justification	Assessment method conclusion
1.8	Land ownership documents	As this is the private information of the stakeholder which may violate the privacy right of the stakeholder there fore it is excluded from public version of the documents.	VVB found this is appropriate as it meet the definition of "Commercially Sensitive Information" in the VCS Program Definitions v4.4.
1.8	Agreements between the PP and farmer community		VVB found this is appropriate as it meet the definition of "Commercially Sensitive Information" in the VCS Program Definitions v4.4.
1.12	Agreements between the Project developer and PP		VVB found this is appropriate as it meet the definition of "Commercially Sensitive Information" in the VCS Program Definitions v4.4.
2.3.5	Benefit sharing mechanism		VVB found this is appropriate as it meet the definition of "Commercially Sensitive Information" in the VCS Program Definitions v4.4.

APPENDIX 2: LIST OF DOCUMENTS REFERRED

Ref. No	Title of Document	Version	Date
1	VCS Program Guide	4.3	**Updated:** 17 January 2023
2	VCS Standard	4.7	**Updated:** 16th April 2024
3	VCS Validation and Verification Manual	3.2	19th October 2016
4	VCS joint Validation and verification report template	4.3	**Issued:** 19 September 2019 **Updated:** 16th April 2024
5	AFOLU Non-Permanence Risk Tool	4.2	**Issued:** 19 September 2019 **Updated:** 16th April 2024
6	VCS Joint Project Description and Monitoring Report Template	4.4	**Issued:** 19 September 2019 **Updated:** 16th April 2024
7	Final Project Description and Monitoring Report (PDMR)	5.3	24/11/2025
8	Emission Reductions Calculation Spreadsheet Ex ante (PAI 1) Ex ante 25,000 ha Ex post (PAI 1)	6.1	02/08/2025
9	VERRA webpage with global consultation (https://registry.verra.org/app/projectDetail/VCS/3562)	NA	NA
10	Project Polygon KMLs	NA	Finalized on 30/01/2025
11	Shapefiles of the project area	NA	Finalized on 30/01/2025
12	Farmers Carbon Agreement		
13	Website - UN Sustainable Development Goals	NA	NA
14	Final Non-Permanence Risk Analysis Report.doc	1	22/09/2025
15	LULC data of the project area of 2008 and 2017	NA	NA
17	Land ownership legal documents	NA	NA
18	Agreement between the PP and Infinite Environmental Solutions Limited	NA	13th July 2022
19	Infinite's Website https://infisolutions.org/	NA	NA
20	CDM methodology A/R-ACM0003 https://cdm.unfccc.int/UserManagement/FileStorage/THNRJC15IW4K89UBE6DFZYX23OVP0Q	02	
21	"Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project Activities" https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-02-v1.pdf	01	
22	Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-08-v4.0.0.pdf	04	

Ref. No	Title of Document	Version	Date
23	Stakeholder Consultations invitation letters, minutes of meetings, attendance sheets and photographs		
24	Indian Government Law https://moef.gov.in/wp-content/uploads/wssd/doc2/ch2.html https://www.indiacode.nic.in/bitstream/123456789/1760/1/forestAA1980.pdf https://ncib.in/pdf/ncib_pdf/Labour%20Act.pdf https://unfccc.int/resource/docs/convkp/conveng.pdf https://labour.gov.in/labour-law-reforms https://www.ilo.org/international-labour-standards https://forestlegality.org/risk-tool/country/india http://awsassets.wwfindia.org/downloads/lecture_notes_session_9_1.pdf http://cgwb.gov.in/gw_profiles/st_gujarat.htm Forest Conservation Act 1980 (nbaindia.org) https://training.itcilo.org/actrav_cdrom1/english/global/law/lablaw.htm https://www.cbd.int/doc/legal/cbd-en.pdf https://forestrights.nic.in/doc/Act.pdf https://www.toppr.com/ask/content/concept/climate-soil-natural-vegetation-and-animals-of-rajasthan-205960/ https://www.researchgate.net/publication/287372431_Rainfall_and_surface_water_resources_of_Rajasthan_State_India Rahate and Banait, "The Indian Forest Act, 1927." https://pib.gov.in/newsite/erelcontent.aspx?relid=57051 National Agroforestry Policy 2014.pdf (agricoop.nic.in)	NA	NA
25	Google earth - https://www.google.com/earth	NA	NA
26	CVs of management team and technical experts and local experts	NA	NA
27	Training records and photographs	NA	NA

Ref. No	Title of Document	Version	Date
28	Master Sheets – beneficiaries' details and baseline SE survey data	NA	NA
29	Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-14-v4.2.pdf	4.2	
30	MODIS land cover data https://cmr.earthdata.nasa.gov/search/concepts/C2484079608-LPCLOUD.html		
31	Start date evidence - Plantation purchase from nursery bills		Starting from 1st June 2018 onwards
32	ISO 14064-3:2019	NA	NA
33	Shivbhadra Agro Pvt Ltd website https://shivbhadraagro.com/	NA	NA
34	Breakeven analysis	NA	NA
35	IPCC GPG 2003 https://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/GPG_LULUCF_FULL.pdf Annex 3A.1 Biomass Default Tables for Section 3.2 Forest Land https://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/Chp3/Anx_3A_1_Data_Tables.pdf	NA	NA
36	Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities Version https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20210531160756223/Meth_Stan05.pdf	NA	NA
37	SOP monitoring Plan of the project	NA	NA
38	USGS www.usgs.gov Active Fire Data https://www.earthdata.nasa.gov/learn/find-data/near-real-time/firms/active-fire-data https://www.usgs.gov/centers/eros/science/usgs-eros-archive-digital-elevation-shuttle-radar-topography-mission-srtm-1	NA	NA
39	NRSC https://www.nrsc.gov.in/ IPCC climate data https://www.ipcc.ch/report/ar6/wg1/resources/data-access/ Hydro basins data https://www.hydrosheds.org/products/hydrobasins		
40	*FAO soil type data* https://www.fao.org/soils-portal/data-hub/soil-maps-and-databases/harmonized-world-soil-database-v20/en/ soilgrids data from ISRIC FAO *https://soilgrids.org/*		

Ref. No	Title of Document	Version	Date
	National Bureau of Soil Survey and Land Use Planning (NBSS&LUP) http://www.bhoomigeoportal-nbsslup.in/		
41	Global Forest Watch https://www.globalforestwatch.org/map/		
42	UN HDI India 2021/22 https://www.undp.org/india/press-releases/india-ranks-132-human-development-index-global-development-stalls		
43	FSI 2023 https://fsi.nic.in/uploads/isfr2023/isfr_book_eng-vol-1_2023.pdf		
44	Baseline assessment secondary research reports: https://www.thehindubusinessline.com/economy/agri-business/higher-temperatures-delay-jeera-seeding-in-gujarat-rajasthan/article68918705.ece https://www.researchgate.net/publication/284725930_Climate_change_and_its_impact_on_major_crops_in_Gujarat https://www.researchgate.net/publication/370426057_Impact_of_Global_Warning_on_Agricultural_Pattern_A_Case_Study_of_Select_agricultural_spaces_in_Rajasthan https://www.nabard.org/auth/writereaddata/tender/2304192712NABARD%20Rajasthan%20NRMC%20Final%20Report%20NOV2018-final.pdf https://desagri.gov.in/wp-content/uploads/2024/04/2020-21-Market-Imperfections-and-Farm-Profitability-in-Gujarat-1.pdf https://naas.org.in/documents/State_of_Indian_Agriculture.pdf https://dst.gov.in/sites/default/files/Full%20Report%20%281%29.pdf#:~:text=The%20risk%20and%20insurance%20market%20to%20promote,is%20still%20not%20fully%20developed%20in%20South%2DAsian https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1909206#:~:text=Climate%20change%20reduces%20crop%20yields,and%20its%20impact%20on%20farmers	NA	NA

Ref. No	Title of Document	Version	Date
	https://forests.gujarat.gov.in/writereaddata/images/pdf/MGNREGA-Book-May-2018.pdf https://forest.rajasthan.gov.in/content/dam/raj/forest/ForestDepartment/PDFs/Public%20Information/Orders%20&%20Circulars/Vision%20Document.pdf https://forest.rajasthan.gov.in/content/raj/forest/en/aboutus/departmental-wings/forest-devlopment/model-for-developmental-activities.html https://forests.gujarat.gov.in/land-campa.htm https://forest.rajasthan.gov.in/content/raj/forest/en/aboutus/departmental-wings/state-campa1/division-wise.html https://hortnet.gov.in/Hortnetsub/Login-guj.aspx https://doh.gujarat.gov.in/Home/SchemesDetailsPage/P%E2%9C%BFwk1phXMF7evIxDtQJ2YQ%E2%99%AC%E2%99%AC https://agriculture.rajasthan.gov.in/horticulture/#/home/dptHome https://nams.nic.in/mishti.php https://www.pib.gov.in/PressReleasePage.aspx?PRID=1753856 https://www.business-standard.com/article/economy-policy/over-50-agricultural-families-in-debt-with-average-loan-of-rs-74k-in-2019-121091001032_1.html https://www.nabard.org/auth/writereaddata/tender/1201243818assessing-the-state-of-affairs-in-indian-agriculture-with-a-focus-on-credit-insurance-and-storage-marketing.pdf https://www.mdpi.com/2077-0472/10/12/586 https://cag.gov.in/uploads/download_audit_report/2009/Gujarat_Civil_2009_chap_3.pdf *3.1.9.7 Low survival of plantations* **Survival of plants in Social Forestry Division, Ahmedabad was low** Test check of records of DCF, SF, Ahmedabad (2004-06) revealed that Division carried out plantations of 3.43 lakh saplings at an expenditur Rs.78.20 lakh. Out of the above plantations, only 27,211 plantations survi (eight *per cent*). The DCF attributed (September 2008) low survival unfavourable conditions like saline land and water logging. The reply DCF is not acceptable for as per the prescribed procedure, feasibility wa be ensured before taking up the execution of work and the survival rate below the norms fixed by PCCF.		

Ref. No	Title of Document	Version	Date
	https://timesofindia.indiatimes.com/blogs/voices/compensatory-afforestation-saving-trees-or-greenwashing/ https://www.devalt.org/newsletter/mar92/of_2.htm		
45	Secondary literature review for the climate change vulnerability of the project region: **Gujarat** State Action Plan on Climate Change and Human Health, 2022 https://npcchh.inroad.in/WriteReadData/RTF1984/1681445514.pdf https://www.ceew.in/press-releases/29-districts-gujarat-vulnerable-extreme-climate-events-ceew Climate Change Policy (impact and adaptation) by 20230 for Gujarat, Gujarat Institute of Disaster Management, 2023 https://www.iima.ac.in/sites/default/files/2024-07/CC%20policy%20by%202030%20for%20Gujarat_Final%20%2820062024%29.pdf Report on Extreme Heat Exposure and Actions for Gujarat https://gidm.gujarat.gov.in/sites/default/files/Report-on-Extreme-Heat-Exposure-and-Actions-for-Gujarat-jun-2023.pdf **Rajasthan** State Action Plan ON Climate Change and Human Health Common reference for both the project areas, 2022 – 2027, Rajasthan https://ncdc.mohfw.gov.in/wp-content/uploads/2025/01/25_SAPCCHH_Rajasthan_21-10-24.pdf Climate Resilient Rajasthan, Forest Department, Govt. of Rajasthan https://forest.rajasthan.gov.in/content/dam/raj/forest/ForestDepartment/PDFs/MJSA%20CTB%20Final%20RES.pdf VULNERABILITY AND ADAPTATION TO CLIMATE CHANGE IN RAJASTHAN, 2022 https://doiserbia.nb.rs/img/doi/0013-3264/2022/0013-32642234109M.pdf		

Ref. No	Title of Document	Version	Date
	Rajasthan climate change policy 2023 http://www.indiaenvironmentportal.org.in/content/475204/rajasthan-climate-change-policy-2023/ Climate Risk and Vulnerability Assessment, 2019, ADB https://www.adb.org/sites/default/files/linked-documents/49228-003-sd-01.pdf **Common for both the States/ India as geographical boundary** District-Level Climate Risk Assessment for India: Mapping Flood and Drought Risks Using IPCC Framework https://dst.gov.in/sites/default/files/Full%20Report_District-Level%20Climate%20Risk%20Assessment%20for%20India_Mapping%20Flood%20and%20Drought%20Risks%20Using%20IPCC%20Framework.pdf Climate Risk and Vulnerability Assessment, ADB, 2024 Report https://www.adb.org/sites/default/files/linked-documents/56039-001-crva.pdf Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework https://dst.gov.in/sites/default/files/Full%20Report%20%281%29.pdf ATLAS on Vulnerability of Indian Agriculture to Climate Change https://www.icar-crida.res.in/assets_c/img/Books/2013-14/Vulerability_Atlas_web.pdf		
46	SAPL - Undertaking not been rejected by other GHG programs and not participating in any other GHG credits programs and claiming carbon credits		12/07/2024
47	SAPL's project Mobile App https://play.google.com/store/apps/details?id=com.techomega.a3dgreenagro		
48	Resource/ Projects Plantation Management Manual/Working Plan		
49	Implementation Plan/ working Plan of Agroforestry Plantations in India		
50	SAPL's Code of Conduct Policy		
51	SAPL's HR Policy		
52	SAPL's Impact Assessment Report		
53	Employment records for all the 1073 man day wages for the MP		
54	LULC and baseline analysis – independent RS online portal earthmap.org		
55	PSP Calculator sheet (Winrock Tool)	3	31/07/2024

Ref. No	Title of Document	Version	Date
56	VCS Registration and Issuance Process, v4.6	4.6	**Issued:** 19 September 2019 **Updated:** 16th October 2024
57	VCS Program Definition	4.5	**Issued:** 19 September 2019 **Updated:** 16th April 2024
58	Feedback forms stakeholder consultations		
60	Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities	1.1	
61	Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities	3.1	
62	Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity	2.0	
62	Demonstration of eligibility of lands for A/R CDM project activities	1	
64	Calculation of the number of sample plots for measurements within A/R CDM project activities	2.1	

APPENDIX 3: ABBREVIATIONS

4KES	4K Earth Science Private Limited
AFOLU	Agriculture, Forestry and Other Land Use
A/R-ACM0003	A/R Large-scale Consolidated Methodology: Afforestation and reforestation of lands except wetlands
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
Dw	Dead Wood
EB	Executive Board
ERE	Emission Reductions and Removals
FAO	Food and Agricultural Organization of United States
FAR	Forward Action Request
FCF	Fair Climate Fund
GHG	Greenhouse Gases
IPCC	Intergovernmental Panel for Climate Change
ISO	International Organization for Standardization
KML	Keyhole Markup Language
MoU	Memorandum of Understanding
MP	Monitoring Period
MRV	Monitoring, Reporting and Verification
Li	Litter
PDMR	Project Description and Monitoring Report
PP	Project proponent
QA/QC	Quality Assurance/Quality Control
SAPL	Shivbhadra Agro Private Limited
SDG	Sustainable Developmental Goals
SOC	Soil Organic Carbon
tCO2	Tonnes of Carbon Dioxide
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard

APPENDIX 4: LIST OF FINDINGS

FAR from Validation

FAR ID	01	Section no.	2.1.4	Date: 25/01/2025
Description of FAR				
During the validation and verification process, it was found that the PP does not maintain a proper grievance redressal register (grievance record keeping in hard copy) at the project sites. However, it has been confirmed during site visits and interviews with the project management team that the register will be developed and maintained at the PP's office. Consequently, a Findings and Action Request (FAR) has been raised to ensure compliance, which will be reviewed during the second verification.				
Project participant response				**Date:**
Documentation provided by project participant				
DOE assessment				**Date:**

CARs from Validation

CAR ID	01	Section no.		Date: 28/04/2023
Description of CAR				
Why PP has used joint PD and MR report v4.1 template? Clarify. PP must use the latest version of the VCS Standard. Please check the latest Standard version and update the PD accordingly.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
PP is using outdated versions of the VCS Standard and PDMR template. The PP must check the latest applicable version and apply the same for project and monitoring period design and reporting.				
Project participant response				**Date: 04/07/2024**
PP has updated the PDMR and VCS Standard to the latest version. PDMR – v4.4, and VCS Std. v4.7				
Documentation provided by project participant				
Revised PDMR				
DOE assessment				**Date: 01/08/2024**
The PP has updated the PDMR template and VCS Standard to the latest available versions. Accordingly, the CAR is now closed.				

CAR ID	02	Section no.	1.1	Date: 28/04/2023
Description of CAR				
With the rising population at a decadal rate of almost 27%, provide a reference for the same				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				

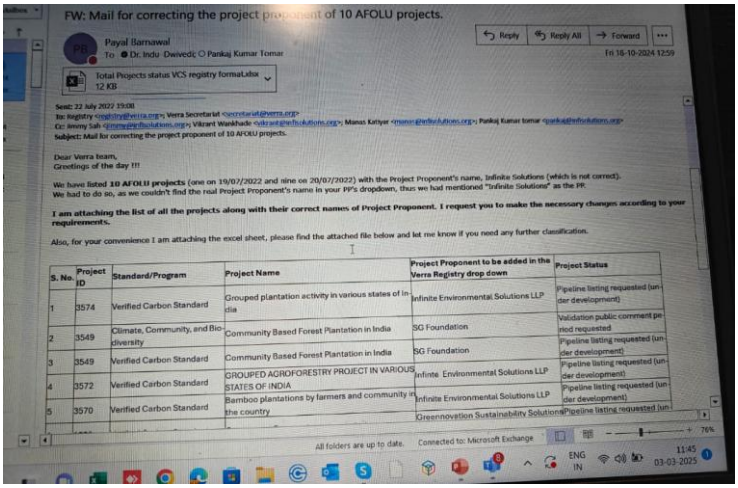
PDMR and all the other supporting documents	
DOE assessment	**Date: 09/08/2024**
1. PP must clarify and specify in the PD whether the trees planted are of normal or grafted varieties. 2. Please clarify whether this growth rate (averaging 17.64%) pertains to the entire country or specifically to the selected project states. 3. Per section 3.5.1 of the VCS Standard v4.7, the PP shall adhere to all instructional text within the template. As per the applied template, PP must also include the total GHG emission reductions or removals generated in the monitoring period. This information has not been included. PP must review the applied template and ensure that all necessary information has been duly added.	
Project participant response	**Date: 04/07/2024**
1. Farmers exclusively acquire their planting materials from private nurseries, where all the materials are meticulously prepared through grafting. 2. This is entire country population growth rate, sentences are revised. 3. As per 3.5.1 of the VCS Standard v4.7, the PP shall adhere to all instructional text within the template. As per applied template, total GHG emission reductions or removals generated in the monitoring period is incorporated. All necessary information has been added.	
Documentation provided by project participant	
PDMR and ERR sheets	
DOE assessment	**Date: 31/07/2024**
1. The Values are not matching with the Ex ante ERR sheet (Ex ante PAI1 sheet). 2. PP must clarify whether the values mentioned are of the first PAI or for the complete project. 3. PP is required to check all the comments in the ERR sheets and update the values accordingly.	
Project participant response	**Date: 20/09/2024**
1. The corrected values as per the revised ERRs have been incorporated 2. The values derived are explicitly used from PA-1 3. Checked and due changes have been incorporated	
Documentation provided by project participant	
PDMR and ERR sheets	
DOE assessment	**Date: 15/10/2024**
Check the “ERR_Infinite_third round_3562” document and make required correction. The comments related to the ERR are still open	
Project participant response	**Date: 10/11/2024**
This section has been revised with ERR finding.	
Documentation provided by project participant	
PDMR and ERR sheets	
DOE assessment	**Date: 23/11/2024**
Check the “ERR_Infinite_4th round_3562” document and make required correction. The comments related to the ERR are still open	
Project participant response	**Date: 10/11/2024**
This section has been revised with ERR finding.	
Documentation provided by project participant	
PDMR and ERR sheets	
DOE assessment	**Date: 23/11/2024**
Check the “ERR_Infinite_5th round_3562” document and make required correction. The comments related to the ERR are still open. CAR is closed on 23/02/2025	

CAR ID	03	Section no.	1.3	Date: 28/04/2023
Description of CAR				
1. What does PP mean when they claim that a project's boundary has similar geography and weather conditions while the project region is located in a state with different geography and meteorology? Geographically and meteorologically speaking, MP differ significantly from Gujarat and Maharashtra. PP shall check the eligibility criteria requirement and revise the justification as necessary.				

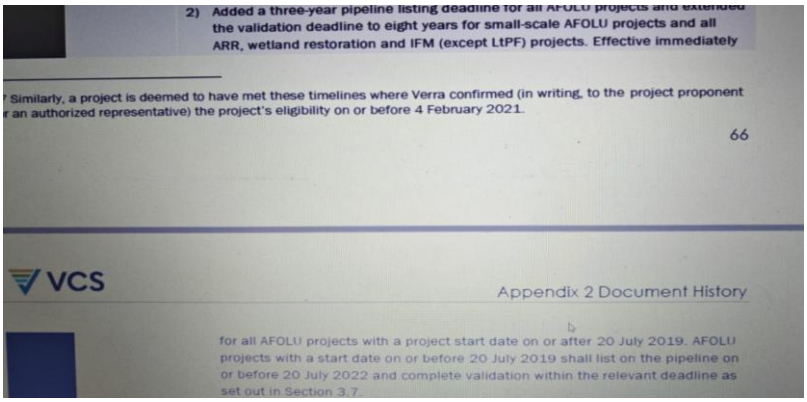
2. The eligibility criteria for inclusion of new PAIs are not in line with the requirement of the VCS Standard. PP must check the latest version of the VCS standard and update the eligibility criteria.
3. The start date justification provides is not in line with the VCS Standard. Per Section 3.8 of the VCS Standard v4.4, the project start date of an AFOLU project is the date on which activities that led to the generation of GHG emission reductions or removals are implemented. PP is requested to justify that how the soil preparation for plantation has been selected as the project start date and how the project is in line with the VCS rules?
4. Per section 3.8.3 of the VCS Standard, v4.7, AFOLU projects shall initiate the pipeline listing process (as set out in the VCS Program document Registration and Issuance Process) within three years of the project start date. PP must justify how the project is in line with section 3.8.3 of the VCS Standard, v4.7 considering the pipeline listing date of the project is 11/09/2023.

Project participant response | **Date: 11/05/2024**

1. Infinite has revised the complete documentation of the project based on the updated data received from the PP.
2. The pipeline listing is done per the applicable VCS standard in 2022. The communication with VERRA is being submitted.



The VERRA guidance document says.



Documentation provided by project participant

PDMR and all the other supporting documents

DOE assessment | **Date: 10/11/2024**

The PP has revised the entire PDMR and has now applied the latest version of the template. The justification provided for the project listing is also in line with Appendix 3 of the VCS standard v4.7. No issues found in the revised PDMR section 1.3. Accordingly, the CAR is closed.

CAR ID	04	Section no.	1.7 (v4.1) and 1.8 (v4.4)	Date: 28/04/2023
Description of CAR				
1. PP must submit the all the documentary evidence establishing project ownership. PP must submit copies of all the agreements PP had with the individual land owners for verification. 2. Per section 3.11.4 of the VCS Standard v4.4, Project ownership includes control over the entire project area.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
1. The project does not demonstrate how Free, Prior, and Informed Consent (FPIC) has been established with the landowners. (refer section 3.18.7 and 3.18.8 of the VCS Standard v4.7) 2. The PD does not provide land ownership details of the validated project activity instance (PAI). 3. It is unclear if the PP controls the entire project area or less than 80% of the total proposed grouped project area (refer section 3.11.4 (3) of the VCS Standard v4.7)				
Project participant response				**Date: 04/07/2024**
4. Section- Addressed 5. 2. Land ownership details will be provided as a proof-agreement details and 7/12 will shared as a link 6. The point has now been explained in the PD and PP controls the entire project area for the PAI-1				
Documentation provided by project participant				
PDMR and ERR sheets				
DOE assessment				**Date: 31/07/2024**
The required details has now been added in the PD. CAR 04 is now closed. .				

CAR ID	05	Section no.	1.8 (v4.1), 1.9 (v4.4)	Date: 28/04/2023
Description of CAR				
Per Section 3.8 of the VCS Standard v4.4, the project start date of an AFOLU project is the date on which activities that led to the generation of GHG emission reductions or removals are implemented. PP is requested to justify that how the soil preparation for plantation has been selected as the project start date and how the project is in line with the VCS rules?.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
1. PP must submit the start date supporting evidence for validation. 2. PP must clarify whether the project interventions were implemented in the fields of all the farmers in the first PAI on the project's start date. If not, PP must also clarify that the start date for crediting parcels differs for farmers and is based on the date they implemented project activities.				
Project participant response				**Date: 04/07/2024**
1. The proof of project start date is nursery bill which has been provided. 2. The project interventions were implemented in the fields of all the farmers in the first PAI on different dates and month in same year. The start date for crediting parcels for each farmer differs based on the year when they implemented the project activity.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 31/07/2024**
The date of implementation for different farmers may vary, which is acceptable. However, according to the definition of the Start Date in the VCS Standard, the PP must clarify how the purchase of saplings can serve as				

proof of the implementation of a project activity on the ground. Additionally, the signing of an agreement cannot serve as proof of on-ground project implementation.
Project participant response **Date: 20/09/2024**
The project start has been substantiated through the provision of nursery bills, and this has also been documented within the resource management plan.
Documentation provided by project participant
PDMR and ERR sheets
DOE assessment **Date: 15/10/2024**
The project start date is substantiated by payment receipts for plant purchases made in the name of the project owners from the nurseries, which were cross-verified. The PP has provided supporting documentation, including an invoice for plant purchases made in the month preceding the official start date. The justification and supporting evidence are satisfactory and the CAR is now closed.

CAR ID	06	Section no.	1.8 (v4.1), 1.9 (v4.4)	Date: 28/04/2023
Description of CAR				
Per Section 3.8 of the VCS Standard v4.4, the project start date of an AFOLU project is the date on which activities that led to the generation of GHG emission reductions or removals are implemented. PP is requested to justify how the soil preparation for plantation has been selected as the project start date and how the project is in line with the VCS rules?.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
1. PP must submit the start date supporting evidence for validation. 2. PP must clarify whether the project interventions were implemented in the fields of all the farmers in the first PAI on the project's start date. If not, PP must also clarify that the start date for crediting parcels differs for farmers and is based on the date they implemented project activities.				
Project participant response				**Date: 04/07/2024**
1. The proof of project start date is nursery bill which has been provided. 2. The project interventions were implemented in the fields of all the farmers in the first PAI on different dates and month in same year. The start date for crediting parcels for each farmer differs based on the year when they implemented the project activity.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 31/07/2024**
The date of implementation for different farmers may vary, which is acceptable. However, according to the definition of the Start Date in the VCS Standard, the PP must clarify how the purchase of saplings can serve as proof of the implementation of a project activity on the ground. Additionally, the signing of an agreement cannot serve as proof of on-ground project implementation.				
Project participant response				**Date: 20/09/2024**
The project start has been substantiated through the provision of nursery bills, and this has also been documented within the resource management plan.				
Documentation provided by project participant				
PDMR and ERR sheets				
DOE assessment				**Date: 15/10/2024**
The project start date is substantiated by payment receipts for plant purchases made in the name of the project owners from the nurseries, which were cross-verified. The PP has provided supporting documentation, including an invoice for plant purchases made in the month preceding the official start date. The justification and supporting evidence are satisfactory and the CAR is now closed.				

CAR ID	07	Section no.	1.9 (v4.1), 1.10 (v4.4)	Date: 28/04/2023
Description of CAR				
PP shall check the instructions of section 1.10 of the applied template and make necessary corrections. Per section 1.10 of the applied template, this information is required for the purpose of listing on the pipeline as under development; otherwise, to be deleted.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
The changes made are fine and in line with the VCS PDMR Template v4.4 requirements. The CAR is now closed.				

CAR ID	08	Section no.	1.10 (v4.1), 1.11 (v4.4)	Date: 28/04/2023
Description of CAR				
the PP has not submitted the ERR sheets (ex-ante and ex-post) for review. PP must submit the required XLX sheets showing complete calculations and also the complete background and baseline data through which the VVB can replicate the complete calculation.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
This CAR will only be closed once the ERR issues are resolved. CAR is closed on 23/02/2025				

CAR ID	08	Section no.	1.11 (v4.1), 1.12 (v4.4)	Date: 28/04/2023
Description of CAR				
1. Are the advantages of carbon credits going to be passed directly on to landowners? Has a benefit-sharing system been devised by the PP? Has it been discussed with and approved by the landowners? Please clarify and include clear statements in the PDMR. 2. In section 1.3 PP has stated that there will be no harvesting in the project. However, the statement mentioned in this section is contradictory to the statement made in section 1.3 of the PD. PP shall check sections 1.3 and 1.11 of the PD and make the appropriate corrections in either of the section. 3. Please submit the working plan developed for validation.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
1. Submit agreement between SAPL and Infinite Environmental Solutions Limited for validation. 2. Submit the working plan for validation. 3. Please provide clarification on this matter “or the Project activity instance 1 company targetted plantation of 606.32 ha” and explain the meaning of the 'First phase' and how it differs from 'PAI1 4. Submit all the trainings records carried out till date under the project activities, photographs and attendance sheets for validation.				
Project participant response				**Date: 04/07/2024**
1. Agreement is being submitted. 2. Management plan is being submitted as supporting documents. 3. Due changes have been incorporated. Erroneously put first phase				

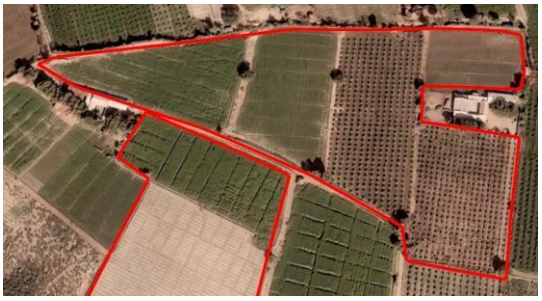
4. The trainings records carried out till date under the project activities, photographs and attendance sheets is being submitted as part supporting documents.	
Documentation provided by project participant	
PDMR Training records	
DOE assessment	**Date: 31/07/2024**
The PP has updated the PDMR and provided all the required documents. The CAR is now closed.	

CAR ID	**09**	**Section no.**	**1.12 (v4.1), 1.13 (v4.4)**	**Date: 28/04/2023**
Description of CAR				
1. For validation, submit the KML files of all the locations 2. PP shall also include name of districts, villages and block in which the project areas are located. 3. PP has given the map of India in this section. What is the relevance of this map in this section? Please clarify.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and KML				
DOE assessment				**Date: 09/08/2024**

1. Geodetic coordinates are not provided. This is required per the VCS Standard, v4.7, Section 3.11 and Section 1.13 template requirements.
2. A separate finding document, namely "RS Observation_3562" has been shared. Please check all the comments and make required corrections and changes in the PD and other documents.

Lat	Long	Remarks	Photo
24.581591°	71.768185°	Plantation already observed in 2016	
24.586955°	71.750582°	Plantation already observed in 2016	

	24.600072°	71.771287°	Plantation already observed in 2016		
	24.315713°	71.726497°	Plantation already observed in 2016		
	24.333004°	71.694277°	Inaccurate geometry of the polygon		

	24.374627°	71.695426°	Plantation already observed in 2016		
	24.375213°	71.685211°	Plantation already observed in 2016		
	24.417344°	71.677326°	Plantation already observed in 2016		

24.408314°	71.675559°	Inclusion of road		
24.447972°	71.742052°	Inclusion of non planted area		

24.453399°	71.707802°	Inclusion of built up area	

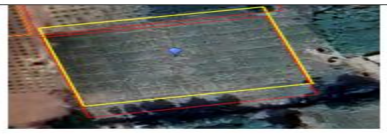
Several such observations added in the finding document. The current project area is 606 ha. Please check, revise the KML and include only the eligible areas.

Project participant response	**Date: 04/07/2024**
Required changes as per the revised area has been incorporated throughout the PDMR also the KMLs have been shared	
Documentation provided by project participant	
PDMR KML	
DOE assessment	**Date: 31/07/2024**

1. Required information has been added, point 1 is now closed.
2. A separate finding sheet “RS Observation_3562_round 3” has been shared. Please check the comments and make the required corrections.

Major issues:
Primarily, the shared spreadsheet indicates majority of the plantation happened in 2018 and 2019. However, a time series analysis using Google Earth imagery from 2019 and 2020 shows no visible signs of the plantation.
Secondary observation: In few land parcels planted in 2019, plantation can be seen prior to 2019.
Request PP to thoroughly check all the land parcels that are planted in 2018 and 2019.
Below are some references for these observations:

Lat	Long	Remarks	Photo
24.626801°	71.589677°	As per the spread sheet shared by the PP, it says Manabhai Nagaji Chaudhari has planted pomegranate in 2018. However, if we look at the imagery of 2019 on google earth, part of land parcel looks cleared. Please check the land parcel	

		However, if we look at the imagery of 2019 on google earth, land parcel looks cleared. Please check the land parcel	
24.52811	71.50344	As per the spread sheet shared by the PP, it says Hareshbhai Gabhabhai Patel has planted pomegranate in 2018. However, if we look at the imagery of 2020 on google earth, land parcel looks cleared. Please check the land parcel	
24.533239°	71.5184988°	As per the spread sheet shared by the PP, the beneficiary has planted pomegranate in 2018. However, if we look at the imagery of 2019 on google	

Several such observations added in the finding document. The current project area is 606 ha. Please check, revise the KML and include only the eligible areas.

Project participant response	Date: 10/11/2024

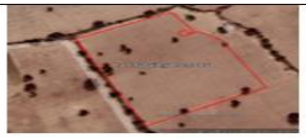
All the finding and observation of RS has been incorporated.

Documentation provided by project participant
PDMR and KML

DOE assessment	Date: 23/11/2024

The polygons appear to be well-delineated, with no overlaps observed between them. Their boundaries are clearly defined, and the overall shapes are consistent and accurate, except for a few land parcels that require further intervention. This indicates that, overall, the mapping process has been carried out effectively, ensuring proper representation of the land parcels with minimal spatial inconsistencies.
However, please refer to the remaining RS findings in the submitted file titled "RS Observation_4th Round.
There is a total of 525 land parcels (field polygons), and the shapes of most of them appear correct. However, a few land parcels (as detailed in Table 2 below) require further clarification and explanations.

A few observations mentioned below:

Sanvalaram Gigaram Patel	25.217912 27	71.89421227	Some land parcels have been incorrectly delineated while marking settlements within the farm. (The highlighted feature in the photo). This has resulted in line-like features with a gap leading to the farm building structure. It would be more appropriate to delineate these polygons using a ring structure after completing shape of the polygon, rather than extending lines from the boundaries. Please review and address such cases. It is ok if the farm building is adjacent to the boundary.	 
Khengarabhai Nathabhai Patel	24.588588 41	71.55474008		
Land cover discrepancy during project period:				
Patel Nagajibhai Pachabhai	24.634	71.4353	This land parcel appears to have been planted recently, as observed when reviewing satellite imagery from the project start period. **Image 1**- April 04th 2018 and **Image 2**- Oct 22nd 2018: The land parcel looks empty without any vegetation. **Image 3** – Jan 13th 2019 and **Image 4** – March 19th 2019: looks like has some Rabi vegetation since the farm is empty in during next image time. **Image 5** - May 5th, 2020: and **Image 6** – Aug 6th 2022: The farm	 

Patel			polygon appears as a single connected shape despite having a clear gap or another farm in between. Would it be more appropriate to represent this as a multipolygon under a single entry instead? There are a few more such land parcels that need to be modified	

such observations added in the finding document. The current project area is 606 ha. Please check, revise the KML and include only the eligible areas.

Project participant response	Date: 10/11/2024
The KML has now been revised per the findings raised by the VVB.	
Documentation provided by project participant	
PDMR and KML	
DOE assessment	**Date: 23/11/2024**
Required corrections have been made. The revised final area of the first PAI is 502.51 ha. The CAR is now closed.	

CAR ID	10	Section no.	1.13 (V4.1), 1.14 (V4.4)	Date: 28/04/2023
Description of CAR				
1. PP shall check the instructions of section 1.13 of the applied template and make necessary corrections. Per section 1.13 of the applied PD template, this information is required for the purpose of listing on the pipeline as under development; otherwise, to be deleted. 2. PP shall further elaborate the climatic condition including temperature, rainfall and seasonality. PP must include references for all the parameters. 3. Add reference for all the physical parameters details PP has added in this section. 4. The information added are not sufficient to represent the features related to ecosystem and vegetation of the project area. PP should include details of types of vegetation (providing, at minimum, estimates of the area of land under different management/vegetation types).				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
The revised section 1.14 is fine and in line with the template requirements. The CAR is now closed.				

CAR ID	11	Section no.	1.14 (V4.1), 1.15 (V4.4)	Date: 28/04/2023
Description of CAR				
PP has not listed all the applicable laws, policies and framework applicable. There are many other international, national and state level policies that PP should list and demonstrate compliance. PP shall make the required corrections in line with section 1.14 of the applied template and identify and demonstrate compliance of the project with all and any relevant local, regional and national laws, statutes and regulatory frameworks.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**

The revised section 1.14 is fine and in line with the template requirements. The CAR is now closed.
Project participant response **Date: 04/07/2024**
Section has been revised as per the comment received.
Documentation provided by project participant
PDMR and ERR sheets
DOE assessment **Date: 31/07/2024**
All the applicable laws and regulations have now been included in the PDMR. The CAR is now closed.

CAR ID	**12**	**Section no.**	**1.15 and 1.16 (V4.1), 1.16 and 1.17 (V4.4)**	**Date: 28/04/2023**
Description of CAR				
In order to validate the claims stated in sections 1.15 to 1.16, PP must submit an undertaking.				
Project participant response				**Date: 11/05/2024**
PP has submitted the required undertaking for sections 1.16-1.17 of the VCS PDMR v4.4.				
Documentation provided by project participant				
PDMR and undertaking for no double counting				
DOE assessment				**Date: 09/08/2024**
PP has submitted the required undertaking. The CAR is now closed.				

CAR ID	**13**	**Section no.**	**1.17 (V4.1), 1.18 (V4.4)**	**Date: 28/04/2023**
Description of CAR				
PP has not added the required details per the applied template. PP must check each and every requirement of the applied template and revise the PDMR. PP must also submit evidence for all the SDG claimed during the MP.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
1. Nowhere in section 1.1 of the joint PD and MR has PP mentioned that the total planned area for this grouped project is 25,000 ha. Consistency in the flow of information across the PD is necessary. PP must add this information in the above relevant sections. 2. PP has submitted ERR estimation for only the first PAI. For validation purposes, it should cover the generic area, i.e., 25,000 ha. Therefore, besides providing the ERR estimate for the first PAI, PP must submit the generic ERR estimate for the planned area (25,000 ha) for this grouped project. 3. The section requirement is about the contribution of the project in the current MP and not the annual sequestration. PP must check the template thoroughly and include relevant information as required by the template. 4. According to the applied template, PP must include details on how the project contributes to achieving any nationally stated sustainable development priorities, including provisions for monitoring and reporting these contributions. This information is currently missing. Review the applied template and add the required details.				
Project participant response **Date: 04/07/2024**				
Section has been revised as per the comment received.				
Documentation provided by project participant				
PDMR and evidence for the SDGs				

DOE assessment	Date: 31/07/2024
1. Please verify the SDG indicator heading and ensure it matches the correct heading as per the UN guidelines. Additionally, the proposed project is on a small scale. Please ensure that it can realistically contribute to eradicating poverty, specifically the proportion of the population living below the international poverty line by sex, age, employment status, and geographical location (urban/rural). Achieving this SDG indicator through a small-scale project appears unreasonable and unachievable to the VVB. Accordingly revise info. in section 1.18.1. 2. PP must elaborate and clarify how imparting training to 103 individual will lead to informal employment generation. 3. Check the SDG target number and add the indicator number for this SDG. 4. Check and revise the ERRs value mentioned per the comments raised for the ERR estimations.	
Project participant response	**Date: 20/09/2024**
1. SDG indicator heading has been corrected as per the per the UN guidelines . The project contribution in the eradicating poverty, specifically the proportion of the population living below the international poverty line by sex, age, employment status, and geographical location (urban/rural) through employment generation. 2. The training provides skill development trainings like plantations, maintenance, agroforestry techniques, fire management. The training involves inclusive approach and involve both men and women. Hence, will indirectly lead to informal and indirect employment generation. 3. The SDG target and indicator number have now been corrected. 4. The ERR has now been revised in line with the revised ERR sheets.	
Documentation provided by project participant	
PDMR and ERR sheets	
DOE assessment	**Date: 15/10/2024**
1. The PP has not provided a complete response. The VVB has also requested that the PP substantiate whether the proposed project qualifies as a small-scale project. Please ensure that the project can realistically contribute to eradicating poverty, particularly regarding the proportion of the population living below the international poverty line, disaggregated by sex, age, employment status, and geographical location (urban/rural). The VVB finds it unreasonable and unlikely that achieving this SDG indicator is feasible through a small-scale project. If the PP is confident that the project can contribute to ending poverty through livelihood generation, the VVB is open to accepting this. However, to provide evidence, the PP must submit sample pay slips that demonstrate income generation as a result of the project activities. **2.** Although the PP has stated that it provided awareness generation and skill development training to 103 farmers, it has not submitted sufficient evidence—such as training records, photographs, or attendance sheets—to substantiate this claim. In the absence of such evidence, it is not possible for the VVB to accept the claim made by the PP for the monitoring period. As this is a monitoring report, the PP must have collected and documented adequate evidence to justify its claims. The PP must address this issue to ensure compliance with monitoring requirements. 3. The corrections made are fine. The findings are now closed.	
Project participant response	**Date: 10/11/2024**
1. This project is committed to poverty alleviation by providing salaried employment to local individuals who might otherwise have limited income opportunities. PP workforce includes people from diverse demographic backgrounds, including households living near or below the international poverty line, and is segmented by sex, age, employment status, and rural geographic location. By aligning compensation with regional standards, the project fosters local economic stability and contributes to progress toward SDG 1 at a community level. The PP also confirms that this initiative functions as a large-scale afforestation and reforestation project, following the AR ACM0003 methodology. The structure of its activities and intended outcomes is designed to create meaningful contributions to local economies through steady employment and sustainable income generation. To provide clear evidence of the project's impact on local livelihoods, the PP has submitted the daily wage charges currently offered to individuals involved in project activities. These documents will offer insight into the wage structure and further validate the project's role in supporting sustainable livelihoods for the local community. 2. All the trainings records from 2018 to March 2024 have now been submitted to the VVB 3. The corrections of the ERR has now been made.	
Documentation provided by project participant	
PDMR	

Training records	
DOE assessment	**Date: 23/11/2024**
1. The justification provided by the PP for SDG 1 is acceptable. The finding is now closed 2. The submitted training records are fine and in line with the trainings provided. The finding is now closed 3. This will only be closed once the ERR finding is closed. CAR is closed on 23/02/2025	

CAR ID	**14**	**Section no.**	**1.18 (V4.1), 1.19 (V4.4)**	**Date: 28/04/2023**
Description of CAR				
1. Please clarify why PP has mentioned that no commercially sensitive information has been excluded from the public version of the project description. Please check the definition of commercially sensitive information as per VCS definition guidelines and make the necessary changes. 2. PP has mentioned that "In case, if any farmer wishes to withdraw their participation from the program there will be no impact on the project, except the carbon benefits and the same will be notified to VVB during verification time". Please justify the statement that there will be no impact on the project in line with section 3.11.4, point 4 of the VCS Standard v4.4. Also, please submit the farmers agreement for validation. Also, in the response please confirm whether or not the farmers agreement are irrevocable till the project crediting period.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
The commercially sensitive documents list should not be open-ended; the PP must specify commercially sensitive documents explicitly. Furthermore, per the applied template, the PP has not included Appendix I, which lists the commercially sensitive documents. .				
Project participant response				**Date: 04/07/2024**
Section has been revised as per the comment received. Appendix 1 has been added with the commercially sensitive documents list.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 31/07/2024**
The changes made are fine and in line with the VCS guidelines. The CAR is now closed.				

CAR ID	**15**	**Section no.**	**2.1 (V4.1), 2.1.1 (V4.4)**	**Date: 28/04/2023**
Description of CAR				
1. PP has not submitted the required details in line with the temaplate requirements. 2. PP must submit all the stakeholder consultation records, PRAs, FGDs, etc. carried out till date including the photographs, attendance sheets and feedback forms.				
Project participant response				**Date: 11/05/2024**
Infinite has revised the complete documentation of the project based on the updated data received from the PP.				
Documentation provided by project participant				
PDMR and all the other supporting documents				
DOE assessment				**Date: 09/08/2024**
1. According to the LSC report submitted, PP has conducted the LSC only in Gujarat. PP must clarify how stakeholders from Rajasthan participated in the stakeholder consultations for the project.				

2. It is unclear from the LSC report how inputs from the stakeholders were gathered. The report also does not explain how PP responded to the opinions raised by the farmers.
3. No attendance sheet has been submitted for the LSC.
4. There is no discussion of benefit sharing in the LSC report. Please clarify when and how the Benefit Sharing Mechanism (BSM) was discussed with the beneficiaries.
5. PP has not provided details in the LSC report on how and when the points mentioned in section 3.18.2 of the VCS Standard v4.7 were discussed.
6. It is also not clear from the LSC report how consultations were conducted in a manner that is inclusive, culturally appropriate, and respectful of local knowledge (refer section 3.18.2 of the VCS Std.).
7. The invitation sample given in the LSC is only in English. No samples in the local and national languages have been included in the report.
8. This parameter description may need to be updated based on the list that PP will add in the first row of this table. Include the list of stakeholders in the first row of this table and make any necessary corrections in this row accordingly (if required).
9. For location of stakeholders parameter "This parameter description may need to be updated based on the list that PP will add in the first row of this table. Include the list of stakeholders in the first row of this table and make any necessary corrections in this row accordingly (if required)."

Project participant response	Date: 04/07/2024

1. The details of Rajasthan stakeholders have been included in the training record as well as in the LSC report.
2. Following the completion of the LSC, the PP recorded responses from farmers using feedback forms. Based on the feedback received, appropriate actions have been taken to improve project activities.
3. Attendance records have been submitted in the LSC report.
4. The benefit-sharing mechanism was discussed during the LSCs, and beneficiaries provided their agreement and consent.
5. The PP has included details in the LSC report, specifically in Section 3.18.2 of the VCS Standard v4.7.
6. The revised LSC report has been shared.
7. Samples of invitations have been attached along with the summarized LSC report.
8. This parameter description is updated as per the list of identified stakeholders which are in the first row of the table

Documentation provided by project participant
PDMR Stakeholder consultations supporting evidence

DOE assessment	Date: 31/07/2024

1. ADDRESSED
2. In the LSC report PP has mentioned that "feedback was collected from stakeholders regarding the project through both oral discussions and feedback forms". PP must submit samples of the filled feedback form for review.
3. Addressed
4. Addressed
5. Addressed
6. Addressed
7. Addressed
8. Addressed

CAR ID	16	Section no.	2.1.3 (V4.4)	Date: 09/08/2024
Description of CAR				
PP has not furnished all the necessary details for the "Outcome of FPIC" point. PP should refer to section 2.1.3 of the applied template and section 3.18.8 of the VCS Standard to make the required corrections and additions.				
Project participant response				Date: 14/07/2024
This section has been rewritten and which is now furnishing all necessary details for the "Outcome of FPIC" as per section 2.1.3 of the applied template and section 3.18.8 of the VCS Standard v4.7.				

Documentation provided by project participant	
PDMR and all the other supporting documents	
DOE assessment	**Date: 31/07/2024**
PP has not included the major outcome of the FPIC, i.e., the signing of the agreement between the PP and the beneficiaries. Please clarify the same.	
Project participant response	**Date: 20/09/2024**
the same has been updated in the revised PDMR. It was left by mistake	
Documentation provided by project participant	
PDMR Stakeholder consultations supporting evidence	
DOE assessment	**Date: 15/10/2024**
The revised PDMR is fine. The CAR is now closed	

CAR ID	17	Section no.	2.1.4 (V4.4)	Date: 09/08/2024
Description of CAR				
PP has provided details in line with the requirements of section 2.1.4 of the applied template and section 3.18.4 of the VCS standard v4.7.				
Project participant response				**Date: 14/07/2024**
This section has been rewritten and the required information has been added.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 31/07/2024**
PP has now included all the required details in line with the applied template and VCS Standard v4.7. However, for a remaining concern FAR 01 has been raised.				

CAR ID	18	Section no.	2.2.1 (V4.4)	Date: 09/08/2024
Description of CAR				
PP has provided details in line with the requirements of section 2.2.1 of the applied template and section 3.19.6 of the VCS standard v4.7.				
Project participant response				**Date: 14/07/2024**
This section has been rewritten and the required information has been added.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 31/07/2024**
PP has now included all the required details in line with the applied template and VCS Standard v4.7. the CAR is now closed.				

CAR ID	19	Section no.	2.2.2 (V4.4)	Date: 09/08/2024
Description of CAR				
PP has identified no risks for women and girl safety, workers safety, risk of stakeholder participation, safety of minority and marginalized communities. PP must submit its SOPs or Policy documents to prove the same.				
Project participant response				**Date: 14/07/2024**
PP has submitted all the required policies.				
Documentation provided by project participant				
EH&S HR policy				

Code of conduct
DOE assessment **Date: 31/07/2024**
The required documents have now been submitted and are satisfactory. The CAR is now closed.

CAR ID	20	Section no.	2.3.1 (V4.4)	Date: 09/08/2024
Description of CAR				
1. Per the applied template requirement, PP has to demonstrate that “no discrimination or sexual harassment has occurred or will occur”. The same details has not been provided. Please check and adhere to the guidelines of the applied template. 2. For claims made in section 2.3.1, Please submit the HR policy, Code of Conduct, or any other relevant documents from the PP's organization to support this claim..				
Project participant response				**Date: 14/07/2024**
1. Thus, section revised as per applied template and sections 3.19.11 - 3.19.15 of the VCS Standard v4.7. The PP has his own structure no discrimination or sexual harassment policies and hence PP is assuring no discrimination or sexual harassment will occur. 2. PP has submitted all the required policies.				
Documentation provided by project participant				
EH&S HR policy Code of conduct				
DOE assessment				**Date: 31/07/2024**
The required changes were made and documents have now been submitted and are satisfactory. The CAR is now closed.				

CAR ID	21	Section no.	2.3.4 (V4.4)	Date: 09/08/2024
Description of CAR				
1. PP has not provided details in line with the requirements of section 3.19.19 of the VCS Standard v4.7 and section 2.3.4 of the applied template. PP should refer to the aforementioned sections and ensure that all required details are added according to the VCS Rules. 2. Please provide clarification on the term IK/TK. Add the full form as well.				
Project participant response				**Date: 14/07/2024**
1. Edits have been carried out as per the suggestions 2. IK (Indigenous knowledge) and TK (Traditional Knowledge)				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 31/07/2024**
Changes made are okay. The CAR is now closed.				

CAR ID	22	Section no.	2.3.5 (V4.4)	Date: 09/08/2024
Description of CAR				
3. PP has not provided details in line with the requirements of section 3.19.22 of the VCS Standard v4.7 and section 2.3.5 of the applied template. PP should refer to the aforementioned sections and ensure that all required details are added according to the VCS Rules. 4. PP must include the terms of the Benefit Sharing Mechanism (BSM) between PP and the farmers. The details provided are vague and inadequate for understanding the agreed-upon BSM design between PP and the farmers.				
Project participant response				**Date: 14/07/2024**
3. This section has been rewritten as per section 3.19.22 of the VCS Standard v4.7 and section 2.3.5 of the applied template. 4. Detailed percentage of benefit sharing has been discussed before the enrollment of farmers and has been laid down in the agreement copies				
Documentation provided by project participant				

PDMR
DOE assessment **Date: 31/07/2024**
1. There is no discussion of the BSM mentioned in the LSC. PP must ensure that it provides accurate and truthful details to the VVB and does not include any incorrect or unsupported information that is not substantiated by evidence and reports. 2. Noted. However, PP must mention the percentage sharing of BSM agreed for PAI1 in the PD.
Project participant response **Date: 20/09/2024**
1. The benefit sharing mechanism was duly discussed during LSC and the same is elaborated in the agreement, copy of which is shared with VVB for assessment purpose. 2. Benefit-sharing details are commercially sensitive, and a copy has been shared with the VVB for assessment purposes. However, the specific percentage breakdown is not included in the PD document.
Documentation provided by project participant
PDMR Stakeholder consultation reports
DOE assessment **Date: 15/10/2024**
1. Ok, the other stakeholder reports submitted contains the BSM details and also the agreement has the BSM details. However, the PP has not mentioned the BSM between the PP and the landowners in this document which will be shared on the Public Domain. In this case, categorize it as commercially sensitive and list it in section 1.19. 2. Ok, then mention the same In the PD. Additionally, in this case, categorize it as commercially sensitive and list it in section 1.19.
Project participant response **Date: 10/11/2024**
Same has been listed in the section 1.19 as well mentioned in PD.
Documentation provided by project participant
PDMR
DOE assessment **Date: 23/11/2024**
The updated information in the PDMR related to the BSM is now ok. The CAR is now closed.

CAR ID	**23**	**Section no.**	**2.4.2 (V4.4)**	**Date: 09/08/2024**
Description of CAR				
PP has not provided details in line with the requirements of section 3.19.27 of the VCS Standard v4.7 and section 2.4.2 of the applied template. PP should refer to the aforementioned sections and ensure that all required details are added according to the VCS Rules.				
Project participant response				**Date: 14/07/2024**
This section has been rewritten as per section 3.19.27 of the VCS Standard v4.7 and section 2.4.2 of the applied template.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 31/07/2024**
The updated information in the PDMR related to the BSM is now ok. The CAR is now closed.				

CAR ID	**24**	**Section no.**	**2.4.3 (V4.4)**	**Date: 09/08/2024**
Description of CAR				
1. PP has not provided details in line with the requirements of section 3.19.27 of the VCS Standard v4.7 and section 2.4.2 of the applied template. PP should refer to the aforementioned sections and ensure that all required details are added according to the VCS Rules. 2. PP must provide data and LULC that project activity has not cleared the native ecosystems within last 10 years				
Project participant response				**Date: 14/07/2024**
1. This section has been rewritten as per section 3.19.27 of the VCS Standard v4.7 and section 2.4.2 of the applied template. 2. The data and LULC shpefiles has now been provided for validation and to prove project activity has not				

cleared the native ecosystems within last 10 years
Documentation provided by project participant
PDMR LULC shapefiles
DOE assessment **Date: 31/07/2024**
The updated information and the supporting evidence submitted are fine. The CAR is now closed.

CAR ID	25	Section no.	3.1	Date: 09/08/2024
Description of CAR				
PP has not included all the required Tools in the section. PP has not added reference for the methodology and Tool as required by the applied template.				
Project participant response				**Date: 14/07/2024**
This section has been rewritten and the required information has been added.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 09/08/2024**
PP must provide justification and demonstrate why AR-AMS0007 is the applicable methodology for this project considering the proposed project size of this grouped project is 25,000 ha. Additionally, on the VERRA landing page of the project, the methodology mentioned by PP is ACM0003. PP must review the overall Project Design and apply the correct methodology.				
Project participant response				**Date: 04/07/2024**
Initially the Methodology of the project is designed as per the PAI-1 over the grouped project area. After Reviewing the Project Design, the methodology AR-AMS0007 replaced with AR-ACM0003.				
Documentation provided by project participant				
PDMR and ERR sheets				
DOE assessment				**Date: 31/07/2024**
The revised methodology is in line with the VCS guidelines. The CAR is now closed. .				

CAR ID	26	Section no.	3.2	Date: 09/08/2024
Description of CAR				
PP has not included all the required Tools in the section. PP has not added reference for the methodology and Tool as required by the applied template.				
Project participant response				**Date: 14/07/2024**
This section has been rewritten and the required information has been added.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 09/08/2024**
PP has not provided justification of compliance of all the applicability conditions of the applied methodology and tools. Per the applied template section 3.2 PP must demonstrate and justify how the project activity(s) meets each of the applicability conditions of the methodology(s), tools, and modules applied by the project (where applicable). Address each applicability condition separately. PP must update the table and provided justification of compliance with the remaining applicability condition of the applied methodology, and tools.				
Project participant response				**Date: 04/07/2024**
This section as rewrite as per VCS joint PD & MR Template v4.3. All applicability condition of applied methodology and tools incorporated with justification.				
Documentation provided by project participant				

PDMR	
DOE assessment	**Date: 31/07/2024**
The revised PDMR is fine. The CAR is now closed	

CAR ID	27	Section no.	3.3	Date: 09/08/2024
Description of CAR				
1. Per the applied PD template PP must include diagram or map the locations of where the various measures are taking place. Please check the applied template and add the required details. 2. In section 1.18.2, the PP has mentioned a different number (533). Please review the PD and ensure that a consistent value is used throughout. 3. PP has not provided details of carbon pools and GHG sources in line with the applied methodology Table 1 and Table 2.				
Project participant response				**Date: 14/07/2024**
All the necessary information as per applied VCS Template of joint PD & MR v4.3 are added.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 09/08/2024**
1. PP has now added the required maps. 2. The total beneficiaries number has now been made consistent across the PD. 3. The Carbon pools and GHG sources tables are now in line with the applied methodology. The CAR is now closed.				

CAR ID	28	Section no.	3.4	Date: 09/08/2024
Description of CAR				
In addition to furnishing field observation and consultation details, PP must include references to secondary published data to substantiate the baseline assessment claim. Please note: If PP chooses to revise the methodology to include a larger scale, both the baseline and additionality assessments will need to undergo complete revision. This section will be reviewed once the methodology has been finalized.				
Project participant response				**Date: 14/07/2024**
This section is revised as per applied methodology along with baseline assessment, references of secondary published data has been incorporated.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 09/08/2024**
The references provided is showing error. Please check and provide correct reference link.				
Project participant response				**Date: 04/07/2024**
The references has now been provided				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 31/07/2024**
The revised PDMR is fine. The CAR is now closed				

CAR ID	29	Section no.	3.5	Date: 09/08/2024
Description of CAR				
the PP has not provided the Step wise approach as mentioned in the Additionality Tool applied.				
Project participant response				**Date: 14/07/2024**

This section is revised as per applied tool
Documentation provided by project participant
PDMR
DOE assessment **Date: 09/08/2024**
PP has now provided the step wise approach. However, following issues has now been raised: 1. Provide references for the claims made. PP must specify the basis for any claims mentioned in sections 3.4 and 3.5. 2. Please clarify and elaborate on how PP has conducted the baseline carbon stock assessment. 3. From point 1 under social condition, it is not clear how the demographic pressure will not allow the implementation of the Scenario B in the project area. Check and elaborate. 4. The PP has not adequately demonstrated the common practice. a. It is crucial for the PP to clarify the scale it assumes at the stage of project registration. b. PP has not mentioned the geographical area it has considered for assessing the common practice. PP must check points 32, 33 and 34 of the applied additionality and provide sufficient information, justification and references to support the claims. 5. Apart from NAP, there are other ongoing schemes in Gujarat and Rajasthan - A few e.g., a. Social Forestry Schemes https://forests.gujarat.gov.in/sf-schemes.htm b. Rajasthan https://forest.rajasthan.gov.in/content/raj/forest/en/aboutus/departmental-wings/rfbp21/packages/agro-forestry.html c. https://www.usaid.gov/india/press-releases/feb-07-2023-government-rajasthan-and-usaid-launch-new-initiative-increase-tree-coverage-rajasthan d. https://forest.rajasthan.gov.in/content/raj/forest/en/aboutus/departmental-wings/forest-devlopment/development-projects/other-projects.html PP must justify why the project Is not a common practice, considering the ongoing schemes. PP is required to provide a more robust assessment of common practice considering different schemes and projects in the current project locations. 6. Per the applied template PP must include information related to the following requirements “If no, describe which mandated laws, statutes, or other regulatory frameworks require project activities and provide evidence of systematic non-enforcement to demonstrate regulatory surplus”. Check the applied template and add the required details.
Project participant response **Date: 04/07/2024**
1. The section has been revised to include references supporting the baseline scenario claim. 2. The PP did not conduct a baseline carbon stock assessment. This was an editorial error and now has been removed. 3. This point has been revised as suggested, the required figures in the table reflects the detailed overview of state-wise data on demographic pressure. The demographic data shows that how scenario B cannot be implemented without additional support (revenue/carbon incentives). 4. This section has been rewritten in accordance with Tool 2, addressing checkpoints 32, 33, and 34. References have also been added. 5. All the applicable small and large size schems and programs were analyzed in the revised PDMR. 6. As the project activity is is located inside a Non-Annex 1 country but not mandated by any law, no need to tick the options. The corrections are made in the revised PDMR.
Documentation provided by project participant
PDMR
DOE assessment **Date: 31/07/2024**
The revised PDMR is fine. The CAR is now closed

CAR ID	30	Section no.	4.1	Date: 09/08/2024
Description of CAR				
1. Check the findings raised in the document “RS observation_3562”. Loss can be seen during the RS data assessment. PP must check the findings and revise the details accordingly. 2. PP must specify which areas of the project are susceptible to flooding. This aspect was not reported or discussed by the landowners during the VVBs site visit.				
Project participant response				**Date: 14/07/2024**

1. Details of this section has been revised as per the finding in "RS observation_3562 2. None of the project area are susceptible to flooding. This is editorial error. Sentence has revised
Documentation provided by project participant
PDMR and KML
DOE assessment | **Date: 09/08/2024**
1. PP must check the remaining RS findings and see if any changes required in this section. 2. The correction made is fine. The finding is closed.
Project participant response | **Date: 04/07/2024**
This section has been revised with as per finding of RS.
Documentation provided by project participant
PDMR
DOE assessment | **Date: 31/07/2024**
The PP has revised the complete KML, more than 100 ha has now been removed from the initial KML submitted. The final KML does not have any area showing carbon/biomass loss. The CAR is now closed.

CAR ID	32	Section no.	5.1	Date: 09/08/2024
Description of CAR				
The PP has not provided the required details as per the applied template. According to the applied template, the PP must describe the procedure for quantifying baseline emissions and/or carbon stock changes in accordance with the applied methodology. The PP must: a. Specify reductions and removals separately where the applied methodology provides procedures and equations to do so. b. Include all relevant equations and provide sufficient information to enable readers to reproduce the calculations. c. Explain and justify all methodological choices, such as the selection of emission factors and default values. d. Include all calculations in the emission reduction and removal calculation spreadsheet.				
Project participant response | **Date: 14/07/2024**				
the section has now been revised in line with the template requirement.				
Documentation provided by project participant				
PDMR and ERR sheet				
DOE assessment | **Date: 09/08/2024**				
1. PP needs to clarify the method it will employ to ensure that the baseline trees are distinguished from the project trees during inventory. Also Please explain how PP has done the baseline inventory, how it will ensure that the baseline trees will be identified and will not be accounted for the project emissions removal estimation. 2. PP has not clearly mentioned why the shrub biomass is considered as zero.				
Project participant response | **Date: 04/07/2024**				
1. Tree plantation has been done in a pattern with homogeneous stand and most of them have the similar growth. So difference is Cleary identifiable if there was any tree present in the baseline. Any presence of scattered trees will be identified on high-resolution satellite imagery. 2. PP has now include the clear justification.				
Documentation provided by project participant				
PDMR				
DOE assessment | **Date: 31/07/2024**				
The revised PDMR is okay. The CAR is now closed.				

CAR ID	33	Section no.	5.2	Date: 09/08/2024
Description of CAR				
The PP has not provided the required details as per the applied template. As specified in the applied template, the PP must describe the procedure for quantifying project emissions and/or carbon stock changes in accordance with the applied methodology. The PP must: e. Specify reductions and removals separately where the applied methodology outlines procedures and equations for doing so. f. Include all relevant equations and provide sufficient information to enable readers to reproduce the calculations. g. Explain and justify all methodological choices, including the selection of emission factors and default values. h. Provide all calculations in the ERR calculation spreadsheet.				
Project participant response				**Date: 14/07/2024**
The section has now been revised in line with the template requirement.				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 09/08/2024**
The required details have now been added. The CAR is now closed.				

CAR ID	34	Section no.	5.3	Date: 09/08/2024
Description of CAR				
Section 5.3 of the PD does not enable the reader to replicate the calculation process. Furthermore, it is unclear how the PP estimated the emissions due to leakage to arrive at this value. Please review and revise the section accordingly.				
Project participant response				**Date: 14/07/2024**
the section has now been revised in line with the template requirement.				
Documentation provided by project participant				
PDMR and ERR sheet				
DOE assessment				**Date: 09/08/2024**
3. As part of this tool, PP must also assess and demonstrate whether there is any leakage attributable to the displacement of grazing activities. This has not been demonstrated. Please review the applied tool and include the required details.				
Project participant response				**Date: 04/07/2024**
1. AR-AM- tool 15 -v2.0 Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity. 2. There is no open grazing system in the project area. All the cattle of the beneficiaries are fed in the cattle shed and hence there is no displacement				
Documentation provided by project participant				
PDMR				
DOE assessment				**Date: 31/07/2024**
The justification provided is okay. The CAR is now closed.				

CAR ID	35	Section no.	5.3 and ERR sheets	Date: 09/08/2024
Description of CAR				

The ERR estimation has the following issues:

1. PP must provide justification for initiating the ERR estimation from the first year. It should be clarified whether the trees achieve the required density and biomass necessary for biomass estimation from the initial year.
2. BEF used for Mahagony is 3.14- No justification provided for using a higher range as compared to 1.5. Additionally, how PP has calculated BEF i.e. 3.14 is missing (IPCC table gives an average of 3.4 or 1.5).
3. References are missing for SOC estimates.
4. PP should clarify the purpose and necessity of two separate tabs, namely the summary and LTA.
5. The buffer estimation lacks clarity. PP must justify the allocation of buffer values based on the project emission figures rather than on the credits available for issuance. Additionally, the buffer allocation cannot result in a negative value.
6. Long-term averaging has been applied to all species at the conclusion of the model. Several columns are ambiguous, making it difficult to discern the intended final figures that PP aims to estimate and present.
7. PP has not furnished biomass inventory data and ERR estimations for the MP.
8. PP has not included the buffer value.

Project participant response	Date: 14/07/2024

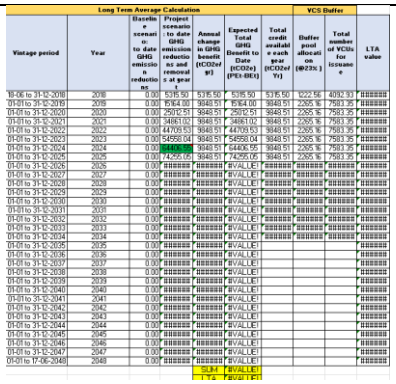
1. Plantation has been done at minimum 1111 trees/ha density which clearly shows that trees have potential to achieve the 15% crown cover and tree species involved on the project has input variables such as collar diameter, which can be achieved and monitored from 1st year of plantation.
2.The equation of mahogany is revised form Volumetric to allometric equation. The allometric equation which directly calculate the AGB of tree hence there is no need of BEF. So, it is removed. Also the revised calculation corrected BEF 3.4 is used.
3.Refernces are added in SOC calculation
4.There are two separate tabs namely the summary and LTA. Summery include the calculation as per applied template and in LTA has been calculated as per VCS Guidelines.
5.Correction are carried out as per suggestion.
6. Necessary corrections has done.
7.The furnished data of the MP is added in the section 7 of the this documents.

Documentation provided by project participant
PDMR and ERR sheet

DOE assessment	Date: 09/08/2024

The finding is not closed. Check the comments below:

1. Since the grouped project has a 30-year crediting period, it is unclear whether replanting will be done for plantations from the second year onward. If so, the management plan needs to address the proposed 15-year cycle. The LTA calculation does not align with the AFOLU Guidance: Example for Calculating the Long-Term Average Carbon Stock for ARR Projects with Harvesting. Additionally, the PD does not specify whether PP will replant after harvesting. Please check the PD and include all project implementation details in section 1.12.
2. The averaging should be based on cumulative biomass, which is currently missing.
3. The numbers are hard-coded, and no references have been provided. Additionally, in the Ex Post LTA sheet, most columns show errors. The LTA calculation done by the PP for the ex post estimation is not clear to the VVB. PP must check and ensure all values are properly calculated and traceable.



Long Term Average Calculation							VCS Buffer		
Vintage period	Year	Baseline scenario: to date GHG emission reductions	Project scenario to date GHG emission reductions and removals at year t	Annual change in GHG benefit (tCO2e/yr)	Expected Total GHG Benefit to Date (tCO2e) (PEt-BEt)	Total credit availability each year (tCO2e/Yr)	Buffer pool allocation (@23%)	Total number of VCUs for issuance	LTA value
18-06 to 31-12-2018	2018	0.00	5315.50	5315.50	5315.50	5315.50	1222.56	4092.93	#######
01-01 to 31-12-2019	2019	0.00	15764.00	3948.51	15764.00	3948.51	2265.16	7583.35	#######
01-01 to 31-12-2020	2020	0.00	25912.51	3948.51	25912.51	3948.51	2265.16	7583.35	#######
01-01 to 31-12-2021	2021	0.00	34861.02	3948.51	34861.02	3948.51	2265.16	7583.35	#######
01-01 to 31-12-2022	2022	0.00	44709.53	3948.51	44709.53	3948.51	2265.16	7583.35	#######
01-01 to 31-12-2023	2023	0.00	54558.04	3948.51	54558.04	3948.51	2265.16	7583.35	#######
01-01 to 31-12-2024	2024	0.00	64406.55	3948.51	64406.55	3948.51	2265.16	7583.35	#######
01-01 to 31-12-2025	2025	0.00	74255.05	3948.51	74255.05	3948.51	2265.16	7583.35	#######
01-01 to 31-12-2026	2026	0.00	#######	#######	#VALUE!	#######	#######	#######	#######
01-01 to 31-12-2027	2027	0.00	#######	#######	#VALUE!	#######	#######	#######	#######
01-01 to 31-12-2028	2028	0.00	#######	#######	#VALUE!	#######	#######	#######	#######
01-01 to 31-12-2029	2029	0.00	#######	#######	#VALUE!	#######	#######	#######	#######
01-01 to 31-12-2030	2030	0.00	#######	#######	#VALUE!	#######	#######	#######	#######
01-01 to 31-12-2031	2031	0.00	#######	#######	#VALUE!	#######	#######	#######	#######
01-01 to 31-12-2032	2032	0.00	#######	#######	#VALUE!	#######	#######	#######	#######
01-01 to 31-12-2033	2033	0.00	#######	#######	#VALUE!	#######	#######	#######	#######
01-01 to 31-12-2034	2034	0.00	#######	#######	#VALUE!	#######	#######	#######	#######
01-01 to 31-12-2035	2035	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2036	2036	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2037	2037	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2038	2038	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2039	2039	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2040	2040	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2041	2041	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2042	2042	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2043	2043	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2044	2044	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2045	2045	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2046	2046	0.00	#######	#######	#VALUE!				#######
01-01 to 31-12-2047	2047	0.00	#######	#######	#VALUE!				#######
01-01 to 17-06-2048	2048	0.00	#######	#######	#VALUE!				#######
				SUM	#VALUE!				
				LTA	#VALUE!				

4. The figures for annual emission reductions/removals (tCO2e) are incorrect.
5. The SOC calculations are unclear. References for the following parameters are missing: fLU, fMG, and fIN. Additionally, it is unclear how the SOC is still increasing after harvesting/replantation.
6. Different buffer values are considered in the ex-ante and ex-post estimations. It is 21% in the grouped project and 23% in the PAI-1. However, the actual buffer values estimated per the NPRT is 14%. PP must check all sheets and ensure the buffer value estimated per the NPRT is used for calculations.
7. Common equations have been used for Daman/Pomegranate and Sitafal/Custard Apple. Though the estimations seems reasonable. However, PP must justify using common equation for these two species.
8. PP must clarify how they can refer to another VERRA project for Allometric equation for Mohogany.
9. PP has not provided source for girth values considered for the species in ex ante calculations.
10. LTA and buffer estimations are wrong. Refer to the above findings. Buffer value cannot be validated, since PP has not submitted the NPRT Excel tool for the review.

Project participant response	**Date: 04/07/2024**
1. PP has completely revise the ERR sheets and updated it per the fidnings. 2. NPRR tool and excel has now been submitted.	
Documentation provided by project participant	
PDMR	
DOE assessment	**Date: 31/07/2024**

Sheet 1: Ex ante ER 3562 (25000 ha)

- Common equations have been used for Daman/Pomegranate and Sitafal/Custard Apple. It is unclear in the Excel sheet whether replanting or coppicing will be done after 15 years, though the project documentation mentions replanting.
- Since the grouped project has a 30-year crediting period, it is unclear whether replanting will be done for plantations from the second year onward. If so, the management plan needs to address the proposed 15-year cycle.
- Long-term averaging has not been calculated correctly. The averaging should be based on cumulative biomass, which is currently missing.
- Annual emission reductions/removals (tCO2e) figures are incorrect.
- Negative values are present, which should not be the case.
- Verra equation is used for Mahogany, which should not be done. Please check and use another appropriate equation.
- The SOC calculation are not clear. The reference for the following parameters are missing.

Land use factor	fLU ,i	**0.58**
Management factor	fMG,i	**1.09**
Input factor	fIN,i	**0.92**

- It is not clear how the SOC is still increasing after harvesting/replantation.

Ex-Ante ER 3562 (PAI-1)

- **The major difference is the NPRT numbers. It was 21% in the grouped project however 23% in the PAI-1**

Ex-post ER 3562

- Reference is missing for Default values For baseline biomass. The referred table from IPCC guideline table 4.4 is regarding the Root to Shoot Value.

TABLE 4.4
RATIO OF BELOW-GROUND BIOMASS TO ABOVE-GROUND BIOMASS (R)

Domain	Ecological zone	Above-ground biomass	R [tonne root d.m. (tonne shoot d.m.)$^{-1}$]	References
Tropical	Tropical rainforest		0.37	Fittkau and Klinge, 1973
	Tropical moist deciduous forest	above-ground biomass <125 tonnes ha^{-1}	0.20 (0.09 - 0.25)	Mokany *et al.*, 2006
		above-ground biomass >125 tonnes ha^{-1}	0.24 (0.22 - 0.33)	Mokany *et al.*, 2006
	Tropical dry forest	above-ground biomass <20 tonnes ha^{-1}	0.56 (0.28 - 0.68)	Mokany *et al.*, 2006
		above-ground biomass >20 tonnes ha^{-1}	0.28 (0.27 - 0.28)	Mokany *et al.*, 2006
	Tropical shrubland		0.40	Poupon, 1980
	Tropical mountain systems		0.27 (0.27 - 0.28)	Singh *et al.*, 1994
Subtropical	Subtropical humid forest	above-ground biomass <125 tonnes ha^{-1}	0.20 (0.09 - 0.25)	Mokany *et al.*, 2006
		above-ground biomass >125 tonnes ha^{-1}	0.24 (0.22 - 0.33)	Mokany *et al.*, 2006
	Subtropical dry forest	above-ground biomass <20 tonnes ha^{-1}	0.56 (0.28 - 0.68)	Mokany *et al.*, 2006
		above-ground biomass >20 tonnes ha^{-1}	0.28 (0.27 - 0.28)	Mokany *et al.*, 2006
	Subtropical steppe		0.32 (0.26 - 0.71)	Mokany *et al.*, 2006
	Subtropical mountain systems		no estimate available	

- The buffer is 23%. We have 21% mentioned in the grouped project ERR.
- The SOS estimates are not clear. The Tool used has to be referred correctly.
- Rest of the calculation seems ok.

Ex- Post LTA

- The numbers are hard coded and no reference has been provided.
- The LTA method is different in the ex-Post. More clarity and justification for different methods needs to be there.

Project participant response	**Date: 20/09/2024**
Appropriate actions are taken and the revised ex-ante, ex-post sheets have now been submitted.	

Documentation provided by project participant
PDMR and ERR sheets

DOE assessment	**Date: 15/10/2024**

PP has not provided point wise response, which will not be accepted by the VVB from nowonwards. Fine the following remaining issues.

1. **Missing Reference for Sitafal / Custard Apple Allometric Equation: The provided link only references growth but lacks the specific allometric equation. The PP must include the correct reference or publication for the allometric equation used in estimating biomass for Sitafal/Custard apple.**
2. **Mahogany Allometric Equation Reference: The reference for Mahogany allometric equation currently cites a project from the Verra registry, which is not an acceptable source. PP must provide a direct reference from peer-reviewed literature or recognized sources. Specific allometric equations for Mahogany are available and should be utilized for more accurate estimates rather than relying on general equations.**
3. **Carbon Estimation Timeline: The current carbon estimation begins from Year 1. PP must clarify considering the growth from the very first year of plantation and if it is acceptable for all the species planted under the project.**

4. **Psidium Guava Allometric Equation Standard Error: The allometric equation for Psidium Guava includes a standard error, which has not been factored into the estimates. The PP should clarify whether this error is statistically insignificant and, if so, justify why it was considered zero in the calculations.**
5. **5. LTA (Long-Term Average) Estimation: The LTA calculation does not align with VCS guidelines, particularly regarding cumulative biomass averaging. The presence of negative values in the estimates indicates a methodological error that needs to be corrected. 6.Incorrect Annual Emission Reductions/Removals (tCO2e): due to the above-identified issues, the annual figures for emission reductions/removals (tCO2e) are inaccurate. These must be recalculated based on corrected data and methodology.**

EX ANTE 25,000

6. Same Issues as PAI ERR Sheet: The issues identified in the PAI ERR sheet are also present in this sheet, and they need to be addressed similarly.

EX-POST LTA

7. Inconsistent LTA Methodology: The LTA methodology used in the Ex-Post calculation differs from the Ex-Ante estimates. The LTA method applied ex-ante is okay. The same approach must be applied to both to ensure consistency in the emission reduction estimations.
8. **Missing Reference for Default Baseline Biomass Values: The reference provided for baseline biomass values is incorrect; Table 4.4 of the IPCC guidelines refer to root-to-shoot ratios, not biomass (sub-sheet – baseline). The PP must include the correct reference for default baseline biomass values.**
9. Missing Reference for SOC Default Values: The PP needs to provide the reference for the default SOC values in the sheet as well.

General corrections in the PD

10. The PD contains tables with negative GHG values in the ERR estimates, which are not in line with LTA guidelines. These estimates must be revised to comply with the appropriate methodology, and the negative values should be corrected.

Project participant response	**Date: 10/11/2024**

Ex-ante PAI 1

1. The equation and growth model for the Custard apple were taken from the same research paper. Please see the footnote of Table 2. (ROC 16(3) Sept. 28-09-2015.p65)
2. The reference of Mahogany Allometric Equation Reference has been revised. Equation is derived from Bangladesh, a neighboring country with similar conditions to the Project Area . (Development and Evaluation of Species-Specific Biomass Models for Most Common Timber and Fuelwood Species of Bangladesh
3. Response-
    a. 1. Pomegranate-According to the allometric equation used for biomass calculation in pomegranate, the required diameter should be more than 3 cm . Based on the growth model applied, the tree achieves a diameter more than 3 cm within two years. So, Equation has been applied onward 2 year.
    b. 2. Guava- In the applied allometric equation for biomass estimation of guava, trees aged two years or older were used for equation development . Therefore, carbon estimation has been recalculated starting from second year onward.
    c. 3. Custard Apple- The equation used for biomass calculation of custard apple is based on the collar diameter of the tree, no specific criteria have been mentioned for the applicability of the equation in the research paper. Therefore, carbon estimation for custard apple can begin from Year 1.
    d. 4. Mahogany- The equation used for biomass calculation of mahogany depends on parameters such as DBH and tree height. DBH is measured when trees reach a height sufficient. According to the applied growth model, the tree exceeds a height of 3 meters by the onwards second year, allowing carbon estimation to begin from Year 3.
4. The allometric equation used for Psidium guajava has been updated to include the standard error, which is significant. The revised equation now accounts AGB with standard error. (Microsoft Word - May250)
5. The presence of negative values in the estimates, caused by methodological errors, has also been corrected in the revised approach.

6. This issue has been identified alongside the above-mentioned issue and has been revised accordingly in line with the adjustments made above.

EX ANTE 25,000

7. Same changes have been carried out as per the PAI ER sheet.

EX-POST LTA

8. The LTA methodology used in the Ex-Post is revised as per the ex-ante calculation.
9. The Baseline value has been revised with the correct references.
10. The reference of SOC default values has been incorporated in EX post ER sheet.

General corrections in the PD

11. Negative value has been corrected with appropriate methodology.

Documentation provided by project participant

PDMR and ERR sheets

DOE assessment	**Date: 23/11/2024**

1. Addressed
2. **Addressed**
3. **The Issue is still not resolved. The Allometric equation are used for DBH >5cm to 10cm case to case. The estimates still starts from year 1.**
4. **The estimates ranges from - 3.446 to + 3.446 kg/ tree in the referred paper however in the calculation only positive estimates are considered. Kindly explain.**
5. **The LTA estimates are required to resolved at individual specie level estimates, the annual GHG estimates at individual instead cumulative numbers.**
6. **Will have to check again after correct LTA estimates**

Ex ante 25,000

7. **The LTA estimates must be resolved at individual specie level estimates, the annual GHG estimates at individual level are cumulative instead of annual numbers.**

Ex post LTA

8. Could not check due to error in the sheet
9. Addressed
10. Addressed

General corrections in the PD

11. **Negative value has been corrected with appropriate methodology.**

Project participant response	**Date: 10/11/2024**

1. According to the allometric equation used for biomass calculation in pomegranate, the required diameter should be more than 3 cm . Based on the growth model applied, the tree achieves a diameter more than 3 cm within two years. So, Equation has been applied onward 2 year. The biomass calculation has been revised with starting onward complete 2 year. At the age of 2-year, tree reach their sufficient growth parameter (collar diameter, DBH, height) which is completing applicability of equation for biomass calculation.
2. The allometric equation has been replaced with another equation.
3. The LTA calculation has been revised with Scenario-4 in the VCS harvesting guidelines with resolving at individual species and rotation age.
4. LTA calculation approach has been revised.

Ex ante 25,000

5. **The same correction has been carried out in grouped project ERR as per ERR of PAI-1.**

Ex post LTA

6. Error in the sheet has been removed.
7. Addressed

General corrections in the PD

8. LTA sheet has been revised as per Scenario-4 in the VCS harvesting guidelines with resolving at individual species and rotation age.
Documentation provided by project participant
PDMR and ERR sheets
DOE assessment **Date: 23/02/2025**
All the required corrections has been made. The CAR is now closed

CAR ID	**36**	**Section no.**	**6.1**	**Date: 09/08/2024**
Description of CAR				
1. It is unclear what the measurement methods and procedures for calculating the parameters included in section 6.1. 2. For most of the parameters PP has not provided sources/reference for the ex ante girth value. PP must add the reference and include the same in this table. 3. The format of this table (Wi) does not appear to be consistent with the other tables in the section. Please check and make the necessary corrections. 4. There are other parameters available at the stage of validation which PP has not included. Please check the applied methodology and tools and include all the applicable parameters.				
Project participant response				**Date: 14/07/2024**
All the required corrections has been made and the required details has been added.				
Documentation provided by project participant				
PDMR and ERR sheet				
DOE assessment				**Date: 09/08/2024**
The PP has provided the required details. The CAR is now closed.				

CAR ID	**37**	**Section no.**	**6.2**	**Date: 09/08/2024**
Description of CAR				
1. PP has not provided any field inventory data for validation and verification. It is necessary for PP to submit this data. 2. Please fill the applicable statement/values for all the parameters 3. It is unclear what the measurement methods and procedures for calculating it are. PLEASE CONSIDER THIS COMMENT FOR all the PARAMETERS OF SECTION 6.1 AND 6.2. Accordingly add the required information 4. No estimations have been submitted for review for calculations of PSPs and Std. dev.. PP is required to provide all estimations conducted for the MP. 5. There are other parameters to be monitored during the project crediting period which PP has not included. Please check the applied methodology and tools and include all the applicable parameters.				
Project participant response				**Date: 14/07/2024**
1. Field Inventory data has been 2. Required details has been added 3. Details have now been added for all the parameters 4. The PSP calculation sheet has been submitted 5. Other parameters which are monitored incorporated.				
Documentation provided by project participant				
PDMR and ERR sheet				
DOE assessment				**Date: 09/08/2024**
The PP has provided the required details. The CAR is now closed.				

CAR ID	38	Section no.	7.1	Date: 09/08/2024
Description of CAR				
There are other parameters monitored during the MP which PP has not included. Please check the applied methodology and tools and include all the applicable parameters.				
Project participant response				**Date: 14/07/2024**
All applicable parameter monitored during monitoring period are incorporated.				
Documentation provided by project participant				
PDMR and ERR sheet				
DOE assessment				**Date: 09/08/2024**
The PP has provided the required details. The CAR is now closed.				

CAR ID	39	Section no.	7.2	Date: 09/08/2024
Description of CAR				
1. In section 5.1, PP has stated that the baseline estimation is derived from TOOL 14, but in the subsequent paragraph, PP refers to the baseline estimation as based on AR-AMS0007. Furthermore, PP mentions again in this section that the estimation is per the AR TOOL 14. The lack of consistency in the PD makes it challenging to grasp and conclude the estimation process. 2. PP needs to rewrite the entire section according to template requirements, which necessitate the inclusion of all relevant equations and adequate information for readers to reproduce the calculations. PP must include all calculations in the emission reduction and removal calculation spreadsheet. However, PP has not provided the necessary details for readers to comprehend the baseline quantification process. Additionally PP has not provided ERR estimation excel calculation for the MP.				
Project participant response				**Date: 14/07/2024**
1. At the earlier stage there was in consistency in deriving the baseline emission but now PP are finalized the Baseline emission as per TOOl-14. The section has now been completely revised. 2. This section is rewrite as per applied template, which necessitate the inclusion of all relevant equations and adequate information for readers to reproduce the calculation. ERR calculation sheet of MP has been submitted.				
Documentation provided by project participant				
PDMR and ERR sheet				
DOE assessment				**Date: 25/02/2025**
The PP has provided the required details and necessary calculations. The CAR is now closed.				

CAR ID	40	Section no.	7.2 and 7.3	Date: 09/08/2024
Description of CAR				
3. In section 5.1, PP has stated that the baseline estimation is derived from TOOL 14, but in the subsequent paragraph, PP refers to the baseline estimation as based on AR-AMS0007. Furthermore, PP mentions again in this section that the estimation is per the AR TOOL 14. The lack of consistency in the PD makes it challenging to grasp and conclude the estimation process. 4. PP needs to rewrite the entire section according to template requirements, which necessitate the inclusion of all relevant equations and adequate information for readers to reproduce the calculations. PP must include all calculations in the emission reduction and removal calculation spreadsheet. However, PP has not provided the necessary details for readers to comprehend the baseline quantification process. Additionally PP has not provided ERR estimation excel calculation for the MP.				
Project participant response				**Date: 14/07/2024**

3. At the earlier stage there was in consistency in deriving the baseline emission but now PP are finalized the Baseline emission as per TOOl-14. The section has now been completely revised. 4. This section is rewrite as per applied template, which necessitate the inclusion of all relevant equations and adequate information for readers to reproduce the calculation. ERR calculation sheet of MP has been submitted.
Documentation provided by project participant
PDMR and ERR sheet
DOE assessment **Date: 25/02/2025**
The PP has provided the required details and necessary calculations. The CAR is now closed.

CAR ID	**40**	**Section no.**	**7.4**	**Date: 09/08/2024**
Description of CAR				
Refer to the comment raised in section 5.3 and accordingly update this section				
Project participant response				**Date: 14/07/2024**
the section has now been revised in line with section 5.3 of the PDMR				
Documentation provided by project participant				
PDMR and ERR sheet				
DOE assessment				**Date: 31/07/2025**
The PP has provided the required details and necessary calculations. The CAR is now closed.				

CAR ID	**41**	**Section no.**	**7.5**	**Date: 09/08/2024**
Description of CAR				
The difference is too high. Even with the justification, this situation doesn't seem reasonable. This will impact the additionality assessment as well. PP must check the ex-ante sources for the girth considered. This will be verified once PP provides the reference for considering the girth of species in the ex-ante estimation.				
Project participant response				**Date: 14/07/2024**
As per the revised calculation the deviation is at 33 %. The refrence of ex-ante sources for the girth considered has been provided.				
Documentation provided by project participant				
NPRR Tool v4.2				
DOE assessment				**Date: 31/07/2025**
Check the ERR findings submitted in a separate document "ERR findings_Infinite 3562_third round"				
Project participant response				**Date: 01/08/2024**
The estimation, both ex-ante and ex-post has now been done based on the actual and real time date. The ex-ante calculation is based on real time data which has been taken from the project area and the same has been extrapolated for 30 years.				
Documentation provided by project participant				
NPRR Tool v4.2				
DOE assessment				**Date: 25/02/2025**
The corrections made are reasonable. The CAR is now closed.				

CAR ID	**42**	**Section no.**	**NPRR**	**Date: 09/08/2024**
Description of CAR				
1. *This risk factor indicates tree plantation associated with stocks on which GHG credits have previously been issued. The species planted having more than 25% of the stocks on which GHG credits have previously been issued is Punica granatum which is native to the agro ecological zone*. Please clarify this statement, considering the project is at its validation stage.				

2. Submit the financial analysis based on which PP has concluded that the project breakeven point is between 4 and up to less than 7 years from the current risk assessment. 3. Please justify considering the response "No" for this parameter for project longevity Q3 4. Please justify considering the risk score of -2 for this parameter for Land Tenure and Resource Access/Impacts, when there is no disputes recorded in this MP. 5. Please review the project location information and ensure consistency across all project documents. 6. Add reference to support the claim made for all the natural risks. 7. PP should review the NPRR per the revised ERR estimations and make any necessary adjustments accordingly. Additionally, please review the comments in the NPRR and make any required changes if necessary.
Project participant response **Date: 14/07/2024**
PP has now updated the NPRR tool and has now applied v4.2.
Documentation provided by project participant
NPRR Tool v4.2
DOE assessment **Date: 31/07/2025**
The PP has provided all the required details per the NPRR v4.2 and no issues were identified. The CAR is now closed. The final buffer value is 19%

CAR ID	43	Section no.	NA	Date: 09/08/2024
Description of CAR				
Apart from the supporting documents asked in the above comments, PP must also provide the following documents for validation: 1. Copy of agreements signed between PP and Landowners 2. Copy of agreements signed between PP and Other Entities 3. copy of PRA, FGDs, SE survey reports 4. Stakeholder consultations (carried out from 2018 till date) reports/Minutes of meetings, attendance sheets and photographs 5. copy of worker training records/reports. 6. copy of HR policy 7. copy of Grievances Redressal Policy 8. copy of PP's Recruitment Policy 9. copy of PP's Code of Conduct (if available) 10. copy of PP's Financial Audit Report -copy of Project Area and related land records 11. copy of PP's undertaking/declaration letter for management of double counting, not participating in other GHG programs, emissions trading program and other binding limits, scope 3 emissions 12. Remote Sensing Data: Land use land cover data of project area, Shape files - Project Area 13. Kml file of geographical coordinates of project boundaries 14. SOPs of carbon, monitoring and assessment (if available) 15. Non Permanence Risk Assessment report and excel 16. Permanent sample Plots inventory data (if available) 17. Permanent sample plots shape files 18. Baseline inventory data (Socioeconomic and ecological) 19. Additionality assessment supporting documents 20. Plantation records and Operational plan			
Project participant response **Date: 14/07/2024**				
1. Carbon agreement has been provided 2. Copy of PRA , FGDs , SE survey reports have been provided 3. Minutes of meetings, attendance sheets and photographs have been provided 4. Copy of HR policy is provided 5. copy of Grievance Redressal policy is provided 6. copy of PP's Recruitment Policy is provided				

7. copy of PP's Code of Conduct (if available) is provided 8. copy of Project Area and related land records 9. copy of PP's undertaking/declaration letter for management of double counting, not participating in other GHG programs, emissions trading program and other binding limits, scope 3 emissions is provided 10. Remote Sensing Data: Land use land cover data of project area, Shape files - Project Area (updated) 11. Kml file of geographical coordinates of project boundaries(updated) 12. SOPs of carbon, monitoring and assessment is provided 13. Non Permanence Risk Assessment report and excel will be provide as updated 14. Permanent sample Plots inventory data (if available) 15. Permanent sample plots shape files 16. Baseline inventory data (Socioeconomic and ecological) has been provided 17. Additionality assessment supporting documents\ 18. Plantation records and Operational plan has been provided
Documentation provided by project participant
Supporting documents.
DOE assessment **Date: 31/07/2025**
PP has submitted all the required documents. The CAR is now closed.

APPENDIX 5: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Certificate of Competence		
Name	☒ Mr. ☐ Ms.	**Ma Paa Puratchikkanal**
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GCC/GHG Projects.*

Appointed to work as:

	Validator/ Verifier	**Team Leader**	**Trainee**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**	**Approver**
Appointed	Yes	Yes	No	Yes	Yes	Yes	Yes
Appointed Date	28-08-2023						

Authorized to work as Technical Expert for:

Authorized Technical Area	**Sectoral Scope**	**TA Code**	**Technical Area within the scope**
	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables
	Energy demand	3.1	Energy demand
	Construction	6.1	Construction
	Waste handling and disposal	13.1	Solid waste and wastewater
	Waste handling and disposal	13.2	Manure
	Agriculture	15.1	Agriculture

Authorized to work as Local Expert for:	
Country/Countries	India and Sri Lanka
Compliance check by:	Anand S. R.

Certificate of Competence

Name	☐ Mr. ☒ Ms.	**Zainab Hassan**
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GCC/GHG Projects.*

Appointed to work as:

	Validator/ Verifier	**Team Leader**	**Trainee**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**	**Approver**
Appointed	No	No	No	Yes	No	No	No
Appointed Date	28-08-2023						

Authorized to work as Technical Expert for:

Authorized Technical Area	**Sectoral Scope**	**TA Code**	**Technical Area within the scope**
	Afforestation and reforestation	14.1	Afforestation and reforestation

Authorized to work as Local Expert for:	
Country/Countries	India
Compliance check by:	Anand S. R.

Certificate of Competence

Name	☒ Mr. ☐ Ms.	**Chetan Swaroop Sharma**
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GCC/GHG Projects.*

Appointed to work as:

	Validator/ Verifier	**Team Leader**	**Trainee**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**	**Approver**
Appointed	Yes	Yes	No	Yes	Yes	No	Yes
Appointed Date	30-08-2023						

Authorized to work as Technical Expert for:

	Sectoral Scope	**TA Code**	**Technical Area within the scope**
Authorized Technical Area	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables
	Energy distribution	2.1	Energy distribution
	Energy demand	3.1	Energy demand
	Waste handling and disposal	13.1	Solid waste and wastewater
	Waste handling and disposal	13.2	Manure

Authorized to work as Local Expert for:

Country/Countries	India, Mauritius

Compliance check by:	Anand S. R.

Certificate of Competence

Name	☒ Mr. ☐ Ms.	**Nandagopal Paramesh**
Qualification Procedure		*Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GCC/GHG Projects.*

Appointed to work as:

	Validator/ Verifier	**Team Leader**	**Trainee**	**Technical Expert**	**Technical Reviewer**	**Financial Expert**	**Approver**
Appointed	No	No	No	Yes	No	No	No
Appointed Date	28-08-2023						

Authorized to work as Technical Expert for:

	Sectoral Scope	**TA Code**	**Technical Area within the scope**
Authorized Technical Area	Afforestation and reforestation	14.1	Afforestation and reforestation

Authorized to work as Local Expert for:

Country/Countries	-

Compliance check by:	Anand S. R.