This PDD is open for public consultation. This PDD has not yet undergone a full review, is not approved under the Plan Vivo Standard, and does not represent the final version of the PDD if the project eventually successfully registers. This is an opportunity for anyone to give their feedback on anything, including but not limited to the appropriateness of:

- The interventions
- Carbon benefit quantification
- Community engagement and FPIC process
- Coordinating body and governance structures
- Carbon and land rights
- Monitoring plans and indicators
- Environmental and social risks and safeguards

This feedback is then considered by the validation team during the validation process. For more information on the review and certification processes, please consult the Plan Vivo Procedures Manual.

Please submit any feedback to projects@planvivofoundation.org

Public consultation opening date: 24th Novermber 2025

Public consultation closing date: 22nd December 2025

PV CLIMATE

PROJECT DESIGN DOCUMENT

Empowering Communities, Enriching Private and Community Lands in Rural Odisha

Gajapati, Ganjam, Kalahandi, Kandhamal - Odisha

Version 1.2
29 July 2025

Developed by:

Details of Project Coordinator Organization

Gram Vikas Community Development Foundation

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Enter details of Validation and Verification Body that validated the project.

Contents

Overview

Project Title:	Empowering Communities, Enriching Private and Community lands in Rural Odisha
Location:	Country: India State: Odisha Districts targeted in the first instance: Gajapati, Ganjam, Kalahandi, Kandhamal
Version:	1.2
Project Coordinator:	Name & Designation: Liby T Johnson, Executive Director, Gram Vikas Community Development Foundation, Phone number: +91 94465 15053, Address: GVCDF, Opp. Ganesh Temple, Hillpatna, Ram Nagar, Berhampur - 760005 India Email address: liby@gramvikas.org
Validator:	-
Validation Date:	-
Project Intervention(s):	Following is the segregation of the project activity: • **Restoration** - Undertaking Agroforestry plantations on privately owned land by planting fruit-bearing species to improve the livelihood of the local beneficiaries. • **Restoration** - Undertaking social-forestry plantations on community lands to provide benefits like establishment of carbon sink by increasing the green cover, regulation in micro-climate and improvement in soil and water resources. • **Improved Management** – Improved Land Management by construction of soil and moisture conservation structures such as stone bunds and contour trenches for soil stabilization, sustainable agriculture, and landslide management. The project has started its on-ground implementation of the project interventions, with approximately 500 hectares of land already planted with a diverse mix of agroforestry and social forestry species on privately owned and community lands. Additionally, significant progress has been made in the construction of water conservation structures aimed at enhancing soil moisture retention and mitigating erosion risks. While the enumeration work of these water conservation structures is ongoing, the exact number will be accurately documented and incorporated into the Project Design Document (PDD) stage. From the implementation of this Project, it is estimated that 2,460,438 tons of carbon dioxide emissions (excluding risk buffer allocation) will be avoided during the period of 30 years of the project activity.
Project Participants:	Approximately a total of 6000 farmers (private lands) belonging to Khond and Saora tribes with an average land holding of 0.4 Ha and several community lands will be covered under the project. The project area aims to include 3561 hectares of land within the state boundary of Odisha. In the first instances, the project has targeted Gajapati, Ganjam, Kalahandi and Kandhamal districts of Odisha. Project participants will be smallholder farmers largely belonging to Khond and Saora tribes of Odisha and Gram Panchayat/village council that are owners of community lands.

Project Area:	To cover the total area of 3561 ha the project will cover the geographical boundary of Odisha, however, in the first instance these four districts including Gajapati, Ganjam, Kandhamal, Kalahandi, are targeted. In the first instance, the proposed project is implemented in blocks which are mentioned below: Gumma, Nuagada, Mohana, Koinpur, Patrapur, Surada, Jagannathprasad, Daringbadi, Baliguda, Thuamul, Rampur, Nuagaon. The project area may expand in the future based on requirements, but it will remain within the defined project region boundary.
Project Period:	The crediting period of the project is 30 years and can be renewed for 20 more years to cover a total of 50 years.
Methodology:	The Plan Vivo methodology PM001, Agriculture and Forestry Carbon Benefit Assessment Methodology, V1.0 is being used to quantify the emission reduction for the development of project.
Expected Carbon Benefit:	The project is proposed to remove 2,460,438 tCO2eq from the atmosphere over the course of 30 years.
Expected Ecosystem Benefit:	• Restoration through Agroforestry Plantations primarily enhances biodiversity and soil health. By planting fruit-bearing species on privately owned land, the project increases plant diversity, which can attract a variety of fauna and contribute to a more balanced ecosystem. These agroforestry practices also improve soil fertility while reducing soil erosion. Additionally, the presence of trees and plants enhances water regulation by improving water infiltration and retention, thereby reducing surface runoff and supporting groundwater recharge. • Restoration through Social-Forestry Plantations provides significant ecological advantages by increasing green cover on community lands. This expansion of vegetation serves as a carbon sink, absorbing CO2 from the atmosphere and contributing to climate change mitigation. The enhanced vegetation also plays a crucial role in regulating the local micro-climate. Furthermore, it improves soil stability and water resources by reducing erosion and promoting better water retention and quality, benefiting both agricultural practices and natural ecosystems. • Conservation through Improved Land Management involves the construction of soil and moisture conservation structures, such as stone bunds and contour trenches. These structures stabilize soil, prevent erosion, and help maintain land productivity, which is essential for sustainable agriculture. They also play a critical role in managing landslides by stabilizing slopes and controlling water flow, thereby protecting natural habitats.
Expected Livelihood Benefit:	The Project is poised to deliver substantial livelihood benefits to local communities. By implementing agroforestry plantations on privately owned land, the project creates new income sources through the sale of fruit-bearing species and generates employment opportunities in planting, maintenance, and local supply chains. Improved agricultural productivity is achieved through sustainable practices and enhanced soil and water conservation, leading to better crop yields and food security. Capacity-

	building initiatives equip residents with essential skills in sustainable farming, and land conservation, fostering economic resilience and empowering marginalized groups, including women. Furthermore, as part of the project's benefit-sharing mechanism, 60% of the total income generated from the sale of PVCs will flow back to the participants. It will ensure that the participating communities and individuals receive a fair share of the benefits derived from the project activities.

1 General Information

1.1 Project Interventions

Intervention type	**Project Intervention**	**Expected Benefits**
Restoration	Undertaking agroforestry plantations on privately ownedland by planting fruit-bearing species to improve the livelihood of the tribal communities.	Plantation of fruit bearing species will generate an additional source of income for tribal communities. The produce from the trees such as fruits or other NTFPs will enable the local communities to sell in the markets, contributing to improved economic conditions and livelihoods. Fruit-bearing trees contribute to improved food security by providing a sustainable source of nutritious food for local communities. Agroforestry plantations will contribute to carbon sequestration and assist in mitigating climate change by reducing the concentration of greenhouse gases. It helps in maintaining a more stable and favorable environment for both crops and surrounding ecosystems. Additionally, 60% of the income generated from the sale of PVCs will flow back to the project participants. Native fruit bearing tree species to be planted are as follows: *Mangifera indica, Anacardium occidentale, Syzium cuminii, Atrocarpus hetrophyllus, Litchi chinensis*etc.
Restoration	Undertaking social-forestry plantations on community lands to provide benefits like establishment of carbon sink by increasing the green cover, regulation in micro-climate and improvement in soil and water resources.	Social forestry, a concept rooted in community engagement and sustainable land management, involves the deliberate cultivation of trees on communal lands. In the proposed project, we aim to plant 16 diverse social forestry tree species on community lands. These carefully selected species, *including Millettia pinnata, Tamarindus indica, Dalbergia sissoo, Bombax ceiba, Simarouba glauca, Pterocarpus marsupium, Terminalia ballerica, Terminalia chebula, Azadirachta indica, Melia Azaderach, Cassia tora, Neolamarckia cadamba, Syzyium cuminii, Madhuca longifolia, Phyllanthus emblica* etc. are native to the area and were suggested by the community, chosen for their ecological significance and local adaptability. This initiative contributes to environmental conservation and also holds immense potential for community benefits. The plantation enhances biodiversity, providing habitat for various plants, animals, and microorganisms. Additionally, the diverse tree cover promotes soil stability, reduces erosion, and contributes to improved water quality. As these trees mature, they act as natural air purifiers, absorbing pollutants and releasing oxygen, thereby enhancing air quality.

		Beyond the environmental impact, social forestry initiatives offer both social and economic benefits within the project framework. Community members, overseen by the Village Development Committee (VDC), play a central role in various project activities, including land preparation, plantation, and post-plantation management. These activities provide employment opportunities for community members, who will receive their daily wage determined by the VDC. Additionally, Self-Help Groups (SHGs) play a vital role in seed collection from the plantation area, establishing nurseries, and selling saplings. This economic activity not only generates income for SHG members but also contributes to local livelihoods and sustainable forestry practices. Additionally, they will also get revenue generated from the sale of PVCs. In essence, this project encapsulates the essence of social forestry, intertwining environmental sustainability with community well-being.
Improved Land Management	Undertaking soil and moisture conservation works such as stone bunds and contour trenches for sustainable agriculture and environmental management	Implementation of systematic and community-driven approach to enhance water conservation through the strategic construction of various structures. The process includes hydrogeological mapping of the watershed/spring shed, followed by an analysis of topographic parameters like relief and slope. Based on the above analysis, suitable specific structures such as staggered contour trenches, continuous contour trenches, stone bunding, gully plugs, water absorption trenches, and farm bunds are identified to harness water efficiently. The local communities are actively engaged in the construction process by providing temporary labour opportunities for the project. Payments to community labour are facilitated through schemes like MGNREGA or by Gram Vikas with the assistance from the Village Development Committees (VDC) in coordinating and determining fair wages. The benefits of these water conservation structures are manifold, including improved land and soil stability, decreased disturbance of topsoil, soil recharge, water conservation, and ultimately, enhanced growth within the agro-forestry ecosystem. This holistic approach integrates ecological considerations, community participation, and sustainable funding mechanisms, creating a comprehensive strategy for watershed management and the sustainable development of agro-forestry initiatives.

Photo : Photo of Afforestation activity on Community Land

Photo : Measurement and Construction of Water Conservation Structures

1.2 Management Rights

1.2.1 Project Boundaries

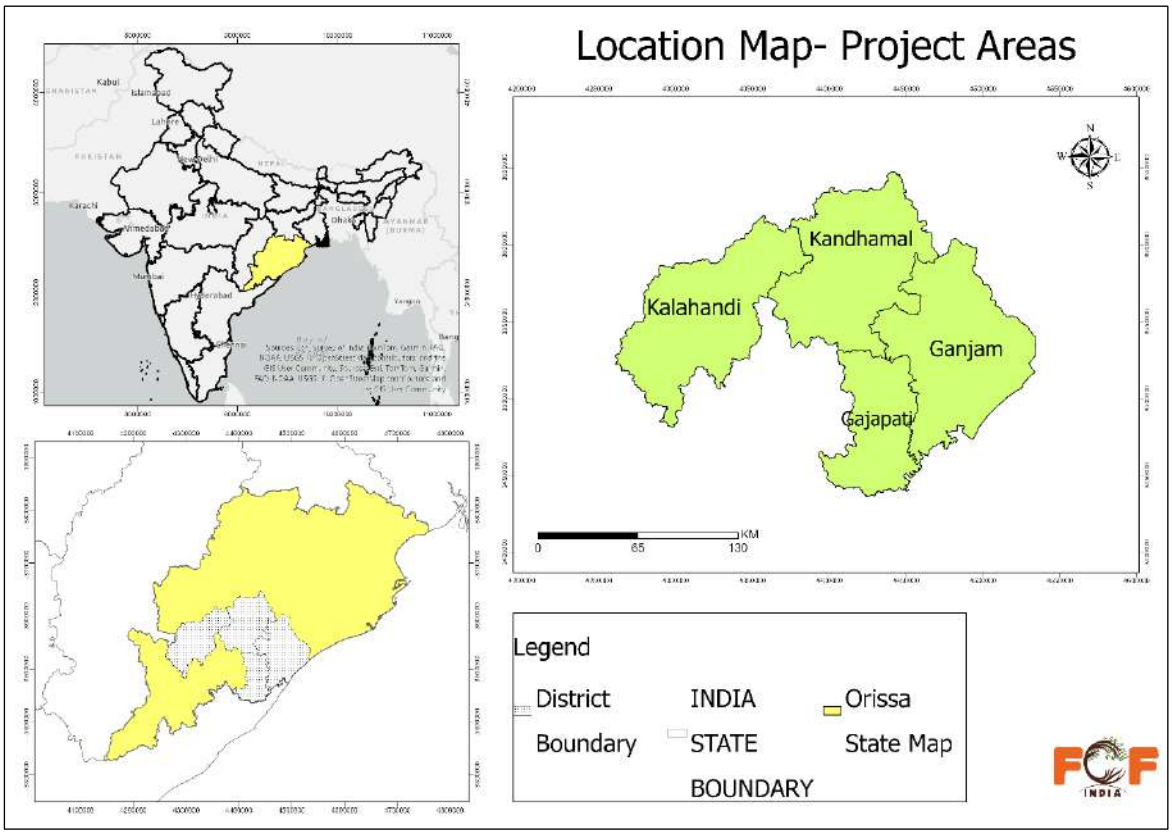


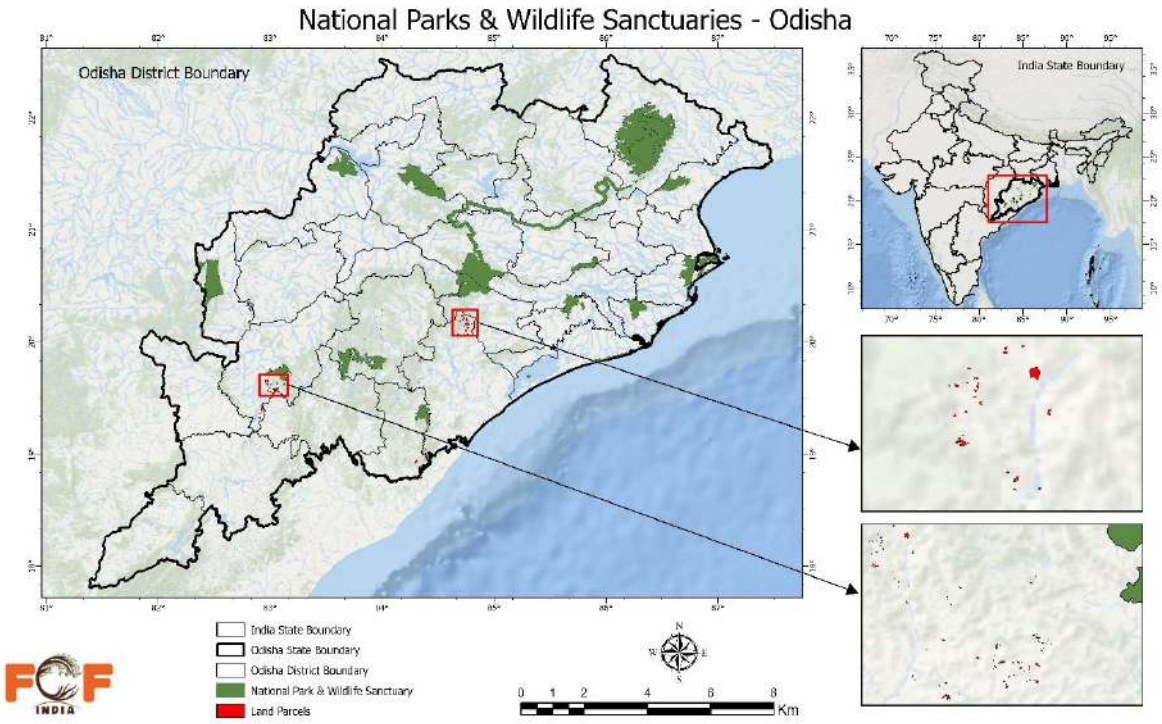
Photo : Map of the Project Region and Area

Table 1.2 Project Boundaries

Location	Country: India State: Odisha District: Gajapati, Ganjam, Kalahandi and Kandhamal,
Project Regions	The project region is the state boundary of Odisha, India. Total proposed project region: 3561 ha in the Odisha state.
Project Areas	In the first instance, four districts, Gajapati, Ganjam, Kandhamal, Kalahandi, are targeted. The proposed project is implemented in blocks which are mentioned below: Gumma, Nuagada, Mohana, Koinpur, Patrapur, Surada, Jagannathprasad, Daringbadi, Baliguda, Thuamul, Rampur, Nuagaon. The project area may expand in the future based on requirements, but it will remain within the defined project region boundary.
Protected Areas	There are a total of 2 national parks and 19 wildlife sanctuaries in the state of Odisha. Out of which, 3 wildlife sanctuaries are situated within the proposed project districts. However, the land parcels included in the project do not fall inside of any wildlife sanctuary. The three wildlife sanctuaries present inside the proposed project district boundaries are: • Ganjam District –

	➢ Lakhari Valley wildlife sanctuary declared under the notification No.8F (W)-37/85. 2333/FFAH dated 8th February, 1985[1]. • Kalahandi District – ➢ Karlapat wildlife sanctuary declared under the notification No. 8F (W) 41/92 – 24498/F&E., dated 15th October, 1992[2]. • Kandhamal District – ➢ Kotagarh wildlife sanctuary declared under the notification No. 30253 – 8F (W) – 162/81-F.F.A.H dated 3rd December, 1981[3]. There are 8 wildlife sanctuaries adjacent to the project districts: • Nuapada District – ➢ Sunabeda wildlife sanctuary declared under the notification No. 8F (W) 40/88 10772 FFAH., dated 10th May, 1988[4]. • Nayagarh District – ➢ Baisipalli wildlife sanctuary declared under the notification No. 8F (W) – 115/81 25335/FFAH dated 6th May, 1981 ➢ Satkosia Gorge wildlife sanctuary declared under the notification No. 8F (W) 33/76 12727/FFAH dated 19th May, 1976. • Khordha District – ➢ Chandaka Dampara wildlife sanctuary declared under the notification No. (N) – 4/88 13482/FFAH dated 10th June, 1988. ➢ Nandankanan wildlife sanctuary declared under the notification No. 935/79 dated 3rd August, 1979. • Puri District – ➢ Balukhand Konark wildlife sanctuary declared under the notification No. 15216 – 8F (W) – 66/87 – FFAH dated 1st September, 1987. ➢ Chilika (Nalaban) wildlife sanctuary declared under the notification No. 8F (W) (pt). 23403/FFAH dated 17th December, 1987[5]. • Srikakulam District (Andhra Pradesh state) – ➢ Telineelapuram and Telukunchi Bird Sanctuaries

[1] https://e-planet.co.in/images/Publication/vol14_1/studyofecologyofleopard.pdf
[2] https://rcdcindia.org/PbDocument/8a2da4ad94c8452-e70b-4285-92e1-b54ab77681c9Community%20Reserves%20&%20Conservation%20Reserves%20in%20Odisha.pdf
[3] http://www.csdhyd.org/i/reports/FINAL-FRA.pdf
[4] https://www.rtiodisha.gov.in/pa/T1RILzIyLzIzNDkvMjU=
[5] https://wiienvis.nic.in/Database/Orissa_7834.aspx



Map 1 Protected Area

1.2.2 Land and Carbon Rights

The land included in the project area for agroforestry plantations are privately owned by the local farmers who have the land title rights. These lands are acquired mostly through inheritance and there are no conflicts on these lands. The farmers shall sign a carbon rights agreement with the project proponent to transfer the carbon rights. The non-timber forest produce from plantations will belong to farmers and a minimum of 60% of revenue generated from the sale of carbon credits will flow back to them.

For social forestry plantations: Following the election of the Village Development Committee (VDC) (please refer to section 2.3 for the election process and inclusive approach of the election process), the VDC takes the initiative to identify areas of concern within both community-owned and privately owned lands. Subsequently, the VDC requests Gram Vikas to conduct a thorough assessment of these areas. Based on the assessment findings, Gram Vikas proposes measures to address the identified issues. Engaging in mutual discussions with the community members, the VDC deliberates on the suggested measures (more detail of these consultations can be found in section 2.3). Upon reaching a consensus, the VDC passes a resolution to adopt the proposed measures. This inclusive approach ensures active participation and engagement of the community in decision-making processes, thereby promoting transparency and accountability within the project framework. Following this process, gram panchayat/community lands will be identified for implementation of project activity. The ownership of gram panchayat/community lands will be recognized as legal resolution and no objection certificate from the gram panchayat and village development committees.

To secure and formalize the carbon rights generated from this Agroforestry project, each participant in the initiative will be required to sign a carbon rights agreement. By signing the carbon rights, participants acknowledge and voluntarily relinquish any potential claim to the carbon credits generated by the project. This ensures that the project organizers can effectively manage and utilize

the carbon credits for environmental conservation and climate change mitigation efforts. Additionally, certain percentage of the revenue generated from the sale of carbon credits will flow back to the beneficiaries as per mutually agreed benefit sharing plan which will be part of the Carbon rights agreement. The carbon rights agreement not only fosters transparency and accountability but also underscores the participants' collective dedication to the long-term sustainability of the agroforestry project, emphasizing the shared responsibility for environmental stewardship within the community.

Table 1.2.2 Land and Carbon Rights

Project Area	Ownership and user rights status	Carbon rights	Evidence
Gajapati, Ganjam, Kalahandi and Kandhamal districts of Odisha	The land included in the project are private lands and community lands. In private lands, small holder farmers who are the beneficiary of the project holds the legal right of the land. Majority of the lands are owned through inheritance. For community lands, Village development community holds the legal right of the land. There are no tenure conflicts associated to land or land rights in the proposed project area.	The private lands are privately owned, and community lands are under the control of village development committee. Both the individual farmer and Village development committee has signed the carbon rights agreement to transfer the rights of carbon to GVCDF and FCF India have the inclusive rights of the trade of carbon credits generated from the project. All the necessary FPIC process has been done before signing of the carbon rights agreement (refer to section 2.6 for details). The benefits accrued from the selling of the carbon credits will flow back to the beneficiary with a minimum of 60: 40 ratio. Additionally, the beneficiary will get additional income from the sale of horticultural produce.	The ownership land records of the parcels included can be checked physically by visiting the farmer and the village development committee. Signed copies of carbon rights agreement are maintained by Gram Vikas Resolutions passed by Village development committee

2 Stakeholder Engagement

2.1 Stakeholder Analysis

2.1.1 Stakeholder Identification

Table 2.1.1 Stakeholder Analysis

Stakeholder Group	Stakeholder Type	Impact	Influence	Engagement
Local Farmers belonging to Khond and Saora tribe (Indigenous	Local Stakeholder	Positive, High	Positive, High	The landowner, referred to as the farmer, voluntarily participates in the project after free, prior, and informed consent. The selected agroforestry species, namely mango, cashew, litchi, or jackfruit, will be planted on their land. The farmer retains the rights to the benefits such as selling non-timber forest

tribes of the area)				produce (NTFP) of the planted species. Additionally, the farmer will also receive the benefits accrued from the sale of PVC. A minimum of 60% of revenue generated from the sale of carbon credits will flow back to them. Farmers who are landless or choose not to include their lands in the project can still actively participate and benefit from various project activities. They can engage in activities such as land preparation, plantation, post-plantation management, monitoring, and the construction of water conservation structures on the community lands. These activities provide employment opportunities for these farmers, allowing them to earn a daily wage determined by the Village Development Committee (VDC). By participating in these activities, landless farmers can contribute to the project's objectives while also improving their livelihoods and economic well-being.
Farmer Producer Groups (FPG's)- Comprising of 10-15 small holder farmers	Local Stakeholder	Positive, High	Positive, High	Farmers with adjacent lands are encouraged to form FPGs under the supervision of VDCs. The establishment of Farmer Producer Groups (FPGs) within the agroforestry initiative is a key element in ensuring successful implementation and monitoring. The FPGs comprise of 10-15 local smallholder farmers that active actively engage in the project. These groups serve as a bridge between project organizers and the beneficiaries for on-the-ground implementation of activities. The FPGs, as part of the local community work as a knowledge database to leverage and integrate their indigenous knowledge with the project's activities catering the specific needs and practices of the region. Acting as effective communicators, they instil a sense of ownership within the community and disseminate project goals and methodologies. Moreover, the FPGs take a leading role in monitoring the project's progress on both community and privately owned lands, ensuring adherence to sustainable practices. Their well-being is secured through the

				guidance and support provided by Village Development Committees (VDCs), highlighting the cooperative and community-centric nature of the agroforestry initiative. This collaborative approach enhances the project's prospects for enduring success and positive impacts on both local farmers and the broader ecosystem. All the Stakeholders including FPGs have specific roles and responsibilities within the project and will be safeguarded using existing governance structures without any biases. The existing governance structure is being followed locally by all the stakeholders for all the project interventions, and it is mutually agreed by everyone. The evidence of participatory process and the engagement of stakeholders are added in the relevant sections and Annexes.. Also, just to emphasise, the communities are mostly homogenous in terms of their economic and social status.
Village Development Committees (VDC's)	Local Stakeholder	Positive, High	Positive, High	The Village Development Committee (VDC) is a representative body comprising members from the local communities, with a commitment to inclusivity and gender diversity. There are 10-15 members in the VDC, with number increasing depending on the size of habitation within the village. President, Secretary and Treasurer are mandatory positions in the election process. The VDC is structured to include 50% women members, ensuring a balanced and representative composition. The election process for VDC members is participatory and community-driven, where villagers collectively nominate and choose candidates based on mutual agreement. Gram Vikas act as a facilitator in the community development process to actively assists in the election and registration procedures of the VDC. The existing collaborative effort ensures the representation of diverse perspectives within the community in the VDC and also fosters a sense of shared responsibility for decision-making and development initiatives.

				In this project, Village Development Committees (VDCs) act as linchpins in orchestrating seamless coordination between farmer producer groups/local communities and Gram Vikas. From the initial awareness sessions to the community members, VDCs play an instrumental role in rallying other farmers, encouraging the formation of Farmer Producer Groups (FPGs). Their tireless efforts extend throughout the project's lifecycle, assisting the Gram Vikas team in implementation and monitoring. This collaborative and community-centric approach, steered by the diligent work of VDCs, underscores the commitment to sustainable development, ensuring the project's success and leaving a lasting positive impact on the local landscape. Refer to section 2.3 for more detailed engagement.
Self Help Groups (SHG's)	Local Stakeholder	Positive, High	Positive, High	Self-Help Groups (SHGs) comprise of women from tribal communities comprising of 10 members at the village level. SHGs are formed by women from the village by themselves with support from government departments, such as Mission Shakti and Odisha Livelihoods Mission. Some SHGs might have homogenous members, and some might have women from different groups. If it is a SHG from tribal village/GP/Block, obviously there will be women from tribal group. Mostly women are part of one SHG or the other. Wherever women are left out, Gram Vikas facilitates in joining with some other SHG in their village or to the nearest ones. If more than 10 women are found outside SHGs in a village, Gram Vikas facilitates creation of a new SHG with these left-out women and its linkage with government system. These SHGs actively engage in nursery management practices. The role of SHGs in management practices include raising, maintenance and providing saplings for plantation activities. Consisting of dedicated members from the local community, these established SHGs play a vital role in seed collection from the community forests. The collected seeds are

				then utilized to raise nurseries, responding directly to the demand generated by Farmer Producer Groups (FPGs) actively participating in plantation activities. This collaborative effort ensures a sustainable and locally adapted approach to afforestation. Importantly, beyond their environmental impact, these nursery activities serve as a significant source of income for the tribal women already organized within the SHGs. Moreover, the collected seeds present a potential source of revenue in the open market, further contributing to the economic empowerment of these women. Through the active involvement of SHGs, the project not only promotes sustainable agroforestry practices but also empowers women in tribal communities, offering them ongoing economic opportunities and a pivotal role in the project's continued success.
VISP (Village Institution Service Provider)	Local Stakeholder	Positive, High	Positive, High	Village Institute Service Providers (VISP), is recruited by the VDC, play a vital role in assisting and monitoring plantation activities, and providing regular reports to the VDC.
Jalabandhu	Local Stakeholder	Positive, High	Positive, High	Jalabandhu is local youth from the community. Community youth who are interested in community mobilization for village development are identified by field staff of Gram Vikas and called for an interview. Based on their interest in forestry and groundwater management and willingness to learn and work, they are selected as Jalabandhu, wherein they go through a fellowship of one year. During fellowship, Jalabandhus learn about aspects of plantations and hydrogeology, while also implementing those in the field in parallel Usually, there is only 1 Jala Bandhu for a Gram Panchayat of 20-30 villages. However, if the Gram Panchayat area is huge, then there will be 2 Jalabandhus.
Gram Vikas Community Development Foundation (GVCDF)	Local Stakeholder	Positive, High	Positive, High	Gram Vikas Community Development Foundation (GVCDF) will be the project coordinator for the project, working in collaboration with FCF India. GVCDF will have the primary responsibility of overseeing the overall implementation work done by Gram

				Vikas in the project. Subsequently, GVCDF will manage the benefit sharing mechanism in order to ensure benefits flowing back to the communities. This process will be facilitated with the assistance of Gram Vikas, ensuring equitable and transparent distribution of benefits within the community.
Gram Vikas	Local Stakeholder	Positive, High	Positive, High	Gram Vikas is the implementation partner of this project who will handle all the ground operations like land parcel mapping, farmer on-boarding, carbon agreements with the farmers and the local communities for agroforestry and social-forestry plantations, community engagement, capacity building and skill development to the local people, project implementation ranging from planting of the trees and monitoring the plantations, and construction of soil and moisture conservation works. Gram Vikas is responsible to look after all on ground operations for the whole duration of the project.
Government Departments - Forestry and Horticulture	Secondary	Positive, Moderate	Positive, Moderate	The forestry department and horticulture department support in providing plant saplings, and other value – added inputs to the farmers.
MGNREGA (Mahatama Gandhi National Rural Employment Guarantee Act)	Secondary	Positive, Moderate	Positive, Moderate	Providing 100 days of employment to the participating households for work on land and water conservation, land development, pit digging, fencing etc. for soil-water conservation and plantation. The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), launched in 2005, ensures 100 days of wage employment per year for rural households engaged in unskilled labour. Integrating MGNREGA with the carbon project will support labour-intensive activities like pit excavation and water conservation, reducing costs while creating jobs and boosting community participation. This collaboration enhances rural livelihoods, promotes environmental sustainability, and strengthens climate resilience by encouraging sustainable land-use practices and long-term resource conservation.

				A detailed information is added in section 2.3. and 2.5.2
FCF India	Local Stakeholder	Positive, High	Positive, High	FCF India will provide carbon advisory services to Gram Vikas and be involved in the project's development, validation, and verification processes. The engagement between Gram Vikas and the investors would be facilitated by the FCF. With FCF's assistance, Gram Vikas will get assistance with conceptual, strategic, and policy guidelines for project implementation in addition to a venue for the exchange of knowledge and experience.
Centre for Grower-centric Eco-value Mechanism (C-GEM)	Secondary	Positive, High	Positive, High	C-GEM will provide accountability services to Gram Vikas. It will help Gram Vikas in negotiating the T&C of the carbon agreement. C-GEM as an accountability partner to Gram Vikas and will ensure transparency in all processes and stages of the carbon projects.

2.1.2 Indigenous Peoples and Local Communities

Table 2.1.2: Indigenous Peoples and Local Communities

Indigenous Peoples or local communities	Rights to land or resources in the project area(s)	Governance structure	Involvement of women and marginalised groups	Engagement
Local Communities - majorly Khond and Saora tribes	Majority of the private land included in the project are owned by the members of khond and Saora tribes. The lands are owned through inheritance and they are legal owners of the parcel.	The tribal villages follow panchayat system of governance.	The mandate of having 50% women participation in the Village Development Committee (VDC) ensures that women's voices and perspectives are integral to community decision-making processes. This mandate empowers women, enabling them to influence and contribute to decisions that affect	The project will actively engage Indigenous Peoples and local communities by involving them in both the development and implementation phases. Community members will participate in pre and post plantation activities, including pit digging, planting, and maintenance. Village Development Committees (VDCs)

			their lives and communities. The formation of Self-Help Groups, including only women is integral. Entrusting SHGs with the responsibility of nursery development is a significant move. This responsibility not only provides economic opportunities for SHG members but also ensures that they are directly involved in every stage of the project development.	have been established with a 50:50 gender ratio at each hamlet level to ensure balanced representation. These VDCs will oversee the implementation of project activities on community lands and the construction of water conservation structures. Additionally, Self-Help Groups (SHGs) will take charge of nursery development.
Village Developmen t Committee	The VDC have the legal rights of the community lands.	The tribal villages follow panchayat system of governance	The VDC is structured to include 50% women members, ensuring a balanced and representative composition. The election process for VDC members is participatory and community-driven, where villagers collectively nominate and choose candidates based on mutual agreement.	VDC play a central role in various project activities, including land preparation, plantation, and post-plantation management. These activities provide employment opportunities for community members, who will receive their daily wage determined by the VDC.
SHGs (Self Help Group)	SHG women belong to families owning private lands.	In the Project area some of the Self-Help Groups (SHGs) have been formed by the among the villagers itself through Odisha	All willing women in the project area are included to be a part in an SHG. These village-level groups of 10 women, supported by Mission Shakti and Odisha Livelihoods Mission, may consist of members from the same or different communities and	Self-Help Groups (SHGs) in tribal villages typically consist of 10 women. While some women are already part of SHGs, those left out are supported by Gram Vikas (GV) and integrated into existing groups. In the project area,

		government with support from Mission Shakti, while the remaining women have been integrated into these groups by Gram Vikas. All these tribal women within our project area are included under the support of Gram Vikas.	nearby villages. In tribal areas, SHGs naturally include tribal women. Most women are already in SHGs, but Gram Vikas helps integrate those left out by linking them to existing groups or forming new ones if needed, ensuring full participation and access to government support.	SHGs are responsible for seed collection from forests and managing nursery activities, including planting, watering, weeding, and ultimately supplying seedlings for the plantation activities.
Jalabandhu	Jalabandhus are individuals especially youth from families that own private lands within the project area.	Jalabandhu operate under Gram Vikas and are supervised by the Water Source Sustainability (WSS) Thematic Coordinator. Thematic Coordinators are responsible for overseeing Jalabandhu, ensuring effective monitoring and reporting of their activities.	A Jalabandhu is a local youth from the community. Gram Vikas field staff have identify young individuals interested in community mobilization and village development to take on this role.	Jalabandhu will lead plantation and water conservation efforts under the guidance of the Water Source Sustainability (WSS) thematic coordinator. They will acquire hands-on experience in plantations and hydrogeology while applying these skills in the field. Each Gram Panchayat, covering 20-30 villages, has only one Jala Bandhu. They act as mediator between the VDC and Gram Vikas
VISP (Village Institution Service Provider)	VISP are governed under the VDC who owns the legal rights of the	VISPs are governed by the Village Developmen t Committee	VISPs are established by the VDC, ensuring that half of the representatives are women from the	They play a key role in managing and supervising plantation activities within the

	community lands.	(VDC). In case of any project-related queries, they will refer to the assigned VDC members under the guidance of Gram Vikas.	villages within the project area.	community. They ensure smooth implementation by offering technical support, tracking sapling growth, and resolving challenges. Additionally, they document progress, evaluate survival rates, and take necessary steps to improve plantation success.
Farmer Producing Groups (FPGs)	Farmer Producer Groups (FPGs) are composed of individuals who either own private land or are members operating under the Village Development Committee (VDC), which holds rights over community lands.	FPGs are formed by VDC members for farmers with adjacent lands. They are governed by VDC members and supported by the Gram Vikas team.	FPGs consist of 10-15 members, with at least one member being a woman. The Village Development Committee (VDC) and the field team from Gram Vikas will ensure this representation.	Farmer Producer Groups (FPGs) play a key role in ensuring execution and oversight of agroforestry initiative thus acting as a crucial link between project organizers and beneficiaries. As they well versed with community ownership, FPGs facilitate the effective communication of project objectives, methodologies, and long-term benefits to local farmers. FPGs actively track progress on both community and private lands, ensuring adherence to sustainable land-use practices.

2.1.3 Disputed Land or Resources

There are no land tenure conflicts associated with land ownership or land rights in the proposed project areas. The ownership of these lands are through inheritance and the farmer have legal ownership documents. For the community lands, VDC have the ownership of the community lands.

To ensure transparency, VDC will pass a resolution for the incorporation of community land into the project and sign the carbon rights agreement.

2.2 Project Coordination and Management

Table 2.2 Responsibility for Project Coordination and Management Functions

Project Coordination and Management Function	Responsible Party/Parties
Stakeholder engagement during project development and implementation	FCF India & Gram Vikas
Ensuring conformance with the Plan Vivo Standard and compliance with applicable policies, laws and regulations	FCF India
Developing technical specifications, land management plans and project agreements with project participants	FCF India
Ensuring that the PDD is updated with any changes to the project	GVCDF & FCF India & Gram Vikas
Registration and recording of management plans, project agreements, monitoring results, and sales agreements	FCF India
Managing project finances and dispersal of income to project participants as described by the benefit sharing mechanism	GVCDF, FCF India & Gram Vikas
Managing Plan Vivo Certificates in the Plan Vivo Registry	GVCDF, FCF India & Gram Vikas
Preparing annual reports and coordinating validation and verification events	FCF India
Securing certificate sales and other means of funding the project	GVCDF, FCF India & Gram Vikas
Assisting Project Participants to secure any legal or regulatory permissions required to carry out the project	FCF India
Providing technical assistance and capacity building required for project participants to implement project interventions	Gram Vikas
Monitoring progress indicators, livelihood indicators and ecosystem indicators and providing ongoing support to project participants	Gram Vikas
Measurement, reporting and verification of carbon benefits	Gram Vikas

The Applicant Organisation is Fair Climate Fund India Private Limited (FCF India).

FCF India Pvt Ltd. Is registered as a private limited company as per the regulations of the Government of India.

Long-term objectives of the organisation: As a social enterprise FCF India will work on Carbon projects with various stakeholders to ensure that vulnerable communities have a direct and long term socioeconomic and environmental impact through the sale of carbon credits generated.

Brief history of projects and current projects: Involved in various projects with different stakeholders in varying capacities as an investor, carbon project developer providing technical skills and knowledge in the development of carbon projects across different countries, as well as brokering with private sector to ensure a fair pricing for the carbon so relevant experience of FCF India.

Below is the list of projects developed by FCF India in past years:

- **Climate Resilient Assessment for rural villages**

The climate audit was conducted to assess the vulnerability of each village towards the impact of climate change and identify the possible interventions for consideration to make the agriculture and livelihood system more resilient. The multiple sets of information were assessed for completing the climate audit that includes impact of climate change and resources/opportunities available to minimise risk and market needs and adaptability for the target group.

Clean Air and Healthy Soil

Clean Air and Healthy Soil is a unique soil carbon sequestration project which addresses the severe crop residue burning issue in North India in an environmentally sustainable and cost-effective manner. The project integrates Sustainable Agriculture Land Management (SALM) practices as a solution to stubble burning. The project ensures nutrient recycling, carbon sequestration, water conservation, weedicide savings, improved yield, climate resilience of crops, and change in farmer's behaviour, which is the primary reason for burning. The adopted practices bring significant improvements to farmer livelihoods, such as improved air quality, and the entire rural ecosystem.

- **Climate Change study for Fairtrade Rice Producers in India**

FCF India is working on Fairtrade NAPP's project to develop a climate change strategy for Fairtrade Rice producers to help them adapt to climate change. The study intends to focus on quantifying emissions from the current scenario and implementing strategies to reduce carbon emissions while recognising the devastating impacts of climate change and the necessity to develop a more sustainable way of production. The study is planned with the Fairtrade Certified Producer Organisations, who are growing rice in Jammu & Kashmir, Uttar Pradesh, and Uttarakhand in India.

- **Pan-India Program for Sustainable Agricultural Land Management**

FCF India is developing a nation-wide Carbon financing project for farmers by partnering with the Private sector/NGOs/Autonomous bodies, disbursing their knowledge, and consolidating the agricultural land holdings to implement Sustainable Agricultural Land Management (SALM) practices. These activities will increase soil carbon sequestration through improved cropland management, and reduce GHG (CO2, CH4, N20) emissions by reduced crop residue burning, mulching, composting, growing green manure crops, using more organic fertilisers, reducing biomass burning and agroforestry.

- **Carbon financing for shea farmers in collaboration with Global Shea Alliance (GSA)**

FCF India, GSA and CO2 logic are working together to plan and execute the preliminary work for assessing new and innovative carbon financing opportunities in the Shea Value Chain. We are helping GSA to finalise the mobilisation structure of carbon financing towards shea farming and upliftment of socioeconomic conditions of shea farmer community, especially women farmers. Besides this, FCF India is helping GSA to develop carbon projects separately or in various combinations like afforestation/reforestation, sustainable agriculture land management, energy efficiency system within shea processing, soil organic carbon for better yield and productivity.

- **Rehabilitation of barren uplands of vulnerable communities in West Bengal and Jharkhand**

The project aims to restore barren uplands by adopting soil and water conservations methods and undertaking intensive plantations to improve the socio-economic conditions of the tribal communities and improving the medium and lowlands by arresting run-offs during monsoon and improvement in soil-water condition and agriculture over a period in West Bengal and Jharkhand, India.

• **Restoration of Homestead Lands**

FCF India is engaged in a project that focuses on improving the livelihood of nearly 16,150 farmers by restoring barren uplands through plantation of forest and fruit bearing tree species and providing sustainable source of income to the farmers apart from income generated by carbon credits. The project is being implemented in the states of Assam and Meghalya in India.

• **Rural farmers Livelihood Generation**

The project aims to enhance the livelihoods of 32,000 tribal people by restoring 10,000 acres of barren uplands through tree plantation, while also providing sustainable income opportunities through sericulture linked with Asana and Arjuna plantation. Furthermore, intercropping with high-value vegetable crops and value chain development in horticulture produce are integral components of the project's expected outcomes.

• **Afforestation, Reforestation and Revegetation activities on Degraded Barren/ Waste Land**

In Ethiopia, Afforestation, Reforestation, and Revegetation activities are being undertaken on degraded and fallow lands to restore ecosystems and enhance environmental sustainability. Through these efforts, barren lands are being transformed into thriving forests, contributing to biodiversity conservation, soil stabilization, and climate change mitigation. The expected outcome of these initiatives includes increased carbon sequestration, improved soil fertility and enhanced water retention.

Personnel to be involved in the project:

1) Director: More than 14 years of experience in the field of Climate Change working with national and international organisations on carbon development projects. Projects ranging from clean and renewable energy, Sustainable agriculture, cookstoves etc.

2) Climate Specialist: More than 14 years of experience in the field of Natural resource Management, mitigation and adaptation projects in India and South Asia. Has experience in REDD plus, Sustainable Agriculture, Forestry, cook stoves among other carbon projects.

3) Manager, Nature Based Solutions: more than 6 years of experience working on climate change projects, developing state action plans for climate change, GIS and Carbon project development sector.

4) Technical Associate, Nature Based Solutions: 1.5 years of experience working in different Afforestation and reforestation project, developed micro plan for Van Panchayats, Carbon stock assessment and Carbon project development.

5) Carbon Partnership Consultant: Has more than 20 years of experience with the most prominent NGO's in India working on Sustainable Agriculture practices. Has a grounded understanding of communities and their livelihood especially in the project region. Has a strong understanding of government programs and policies.

FCF India will provide the required technical expertise to the Project Developers on matters relating to preparing the Emission Calculations or any other technical assistance required in the project.

Gram Vikas Community Development Foundation (GVCDF):

Gram Vikas Community Development Foundation is registered under the Companies Act, 2013 (18 of 2013). Government of India. GVCDF was founded in the year 2021. The main objectives of the

Company is to advance relief to poor, protection of environment, sanitation, education and other permissible charitable purposed under the auspices of Gram Vikas.

Gram Vikas:

Gram Vikas is an Indian non-governmental organisation based in Odisha, and founded in 1979, by Joe Madiath. Gram Vikas partner with rural communities to enable them to lead a dignified life by building their capabilities, strengthening community institutions, and mobilising resources. Gram Vikas works in the areas of water, livelihoods, sanitation & health, habitat & technology, village institutions, education & youth, disaster response. Gram Vikas is present in 2 states across India i.e., Orissa and Jharkhand[6].

Vision: An equitable and sustainable society where people live in peace with dignity.

Mission: To promote processes which are sustainable, socially inclusive, and gender equitable, to enable critical masses of poor and marginalised rural people and their communities to achieve a dignified quality of life.

Approach: The Movement and Action Network for Transformation of Rural Areas (MANTRA) approach promotes a socially inclusive, gender equitable, self-managed and financially viable model of sustainable and holistic development, where everybody benefits. The principles that guide the approach demonstrate the commitment to such a development process – all or none, financial sustainability, share costs, take responsibility, and equitable participation.

Key achievements in the last 40 years[7]:

In the forty years, Gram Vikas has enabled and supported rural communities across Odisha to build a dignified, sustainable quality of life.

1. Supported over 60 villages to reclaim their rights over land, trees and other resource, through mobilizing people's movements in Ganjam and Kalahandi districts

2. Built 54,000 biogas plants, enabling as many families to access a safe and renewable source of energy for cooking

3. Regenerated more than 10000 acres of wastelands into productive community managed fuel/fodder and fruit plantations

4. Established four residential schools for children from remote, tribal villages; providing good quality education to 1500 children every year

5. Supported 3500 families to build permanent, disaster-proof houses after the 1999 Super Cyclone; and 16000 families after Cyclone Phailin in 2014

6. Supported 80,000 families in 1400 villages to build household toilets & bathing rooms and get piped water supply

Personnel to be involved in the project with details of relevant skills and experience

[6] https://www.gramvikas.org/

[7] https://www.gramvikas.org/wp-content/uploads/2019/04/Gram-Vikas-Decade-V-Plan-Document.pdf

Executive Director: More than 26 years of experience in policy making, natural resource management, alternate energy disaster management, community institutions and organisational development.

Thematic Manager: More than six years of experience in civil engineering, data management, hydrogeology, natural resource management.

Junior Manager: More than two years of experience in Hydrogeology and natural resource management.

Thematic Coordinators: More than 20 years of experience in springshed/ watershed, water conservation, community mobilisation and plantation activity.

Field Experts: More than 4 years of experience in springshed/ watershed, water conservation, community mobilisation and plantation activity.

Technical Functions: Facilitating and planning of project activities with the communities, technical skill building of the community and the Local service providers (Jalabandhus), management of the Springshed/watershed and plantation activities and their linkages with carbon and livelihoods.

Administrative Functions: Adhering to government laws and policies partnering with community institutions, other organisations, funding agencies, and liasoning with Government departments.

Social Functions: Building community institutions for the development of rural communities and natural resources.

Legal Status: Gram Vikas is registered under Societies Registration Act, 1860 with the Registrar of Societies, Odisha.

Long-term objectives of the organisation: To promote processes which are sustainable, socially inclusive and gender equitable, to enable critical masses of poor and marginalised rural people communities to achieve a dignified quality of life.

Centre for Grower-centric Eco-Value Mechanisms –

Centre for Grower-centric Eco-value Mechanisms, known as C-GEM, is the world's first farmer centric non-profit platform incubated under Aga Khan Rural Support Programme (India)'s Climate Change vertical, aiming to accelerate the adoption of agroecology by leveraging ecosystem markets (Carbon, water, biodiversity) for farmers transitioning toward agroecology. C-GEM aims to incentivize farmers to take up agroecological transformations while de-risking and supporting transitioning farmers by providing additional revenue streams to compensate for ecosystem services provided by such transition.

C-GEM onboards, handholds, and negotiates climate market mechanisms for grassroots communities and maintain accountability and transparency in the carbon markets and other climate financing mechanisms for public stakeholders. C-GEM's portfolio includes three high-value projects with nine partners in 4 states, covering 60,000 farmers and 75,000 ha for Natural Farming, Agroforestry, and Social Forestry projects.

C-GEM is actively involved in developing knowledge products for rural communities, CSOs and CSR/ESG professionals to disseminate knowledge and create awareness on pro-community carbon projects.

Website: www.cgem.org.in

2.3 Project Participants

The heart of the proposed project lies in the active participation of the local communities residing in the project area. There are more than 60 tribal groups present in the project area. Out of these 13 are 'Particularly Vulnerable Tribal Groups' (PVTGs). The classification of these tribes into PVTGs are based upon their relative physical isolation, stagnant and declining population, extremely low level of literacy and low level of techno-economy. The project mostly works with the Khond and Saora PVTGs who are local residents in the project area. These vulnerable and non- vulnerable tribal communities constitute the local stakeholder and major beneficiary of the project. The land parcels identified for agroforestry plantation within our project are owned by farmers belonging to the above-mentioned communities. The clear ownership of the lands is demonstrated by the land title certificates issued by state government in the name of each beneficiary. The risk of land related conflicts are mitigated as the land title is heritable but not alienable and transferable, hence the land rights remain with the beneficiary. The lands are generally characterized as fallow, uncultivable croplands that are not collaborative spirit for sustained development within the project area. The leadership structure within VDCs, SHGs, and FPGs includes a president, secretary, and treasurer. Members of VDCs are elected without any discrimination based on gender, age, religion or creed. See Section 2.4 for more details.

Table 2.3: Project Participants (grouped by village, area or region)

Project Participant	**Participant Type***	**Location of Residence**	**Typical Land Holding**	**Land and Natural Resource Use**
Small and marginalised farmers belong majorly to Khond and Saora tribe	Type 1	The participants are local residents of Odisha state of India. In the first instance, participants are residing in Gajapati, Ganjam, Kalahandi, and Kandhamal districts of Odisha.	Less than or equal to 1 ha	Uncultivated Agriculture and fallow lands
Village Development Committee	Type 1		0.5- 3 ha	Fallow community lands

* Type I = Project Participants that are resident within the Project Region; who manage and use land or natural resources within the Project Region for subsistence or small-scale production; and are not structurally dependent on year-round hired labour for their land or natural resource management activities; Type II = Project Participants that do not meet the Type 1 definition.

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), enacted in 2005, is one of India's most impactful social welfare initiatives. It guarantees a minimum of 100 days of wage employment per financial year to every rural household willing to undertake unskilled manual labor. This rights-based framework aims to enhance livelihood security, drive rural development, create durable assets, and mitigate rural distress and migration.

The integration of MGNREGA into the carbon project will strengthen its implementation by supporting labour-intensive activities such as pit excavation for plantations and the development of water conservation structures. By utilizing MGNREGA funds, the project can substantially lower operational expenses while promoting community participation and generating employment for rural workers. This collaboration not only delivers economic advantages to local populations but also fosters environmental sustainability. Additionally, leveraging MGNREGA for project activities will aid in the long-term conservation of natural resources, encourage sustainable land-use practices, and enhance climate resilience. The convergence of MGNREGA with the carbon project will ultimately contribute to improved rural infrastructure, ecological stability, and greater socio-economic security for the communities involved.

Odisha has more than 83% of its population dependent on agriculture, with a significant reliance on rainfed farming systems. Agriculture in Odisha is largely monsoon dependent. Over 75% of the state's farmers are small and marginal, holding less than 2 hectares of land on average. Paddy cultivation dominates, covering about 50% of the cropped area, highlighting its critical role in the state's food security and livelihood. The project area primarily consists of smallholding tribal farmers as Khond and Saora tribe with most owning average land holding of 0.4 ha land.

The project actively involves vulnerable tribal communities, who play key roles in various implementation activities such as pit digging, land preparation, and constructing water conservation structures. They receive compensation based on government-mandated daily wage rates, with a strong emphasis on supporting vulnerable households. The project ensures equal livelihood opportunities for all households, promoting inclusivity and non-discrimination.

Each village elects a Village Development Committee (VDC) for each habitation to oversee livelihood activities within the project area. The VDC comprises 10-15 members, depending on the size of the habitation, ensuring inclusive representation, with at least 50% of the members being women and youth. Farmer Producer Groups (FPGs) are established, each consisting of 8 to 10 farmers with adjacent landholdings.

VDC elections are typically conducted at the start of the project cycle and are refreshed every 3-5 years or earlier as per community dynamics. Elections are held through open community meetings facilitated by Gram Vikas field staff. Villagers nominate candidates by consensus and affirm choices in a public forum. No secret ballot is used. Any adult member of the community (18+ years), regardless of gender, caste, or income, is eligible for nomination. Emphasis is placed on selecting individuals with a demonstrated interest in village development and willingness to volunteer time.

Each VDC includes 10–15 members, depending on village size. Mandatory roles include President, Secretary, and Treasurer, ensuring structured governance and accountability. The same process is followed everywhere within the project area.

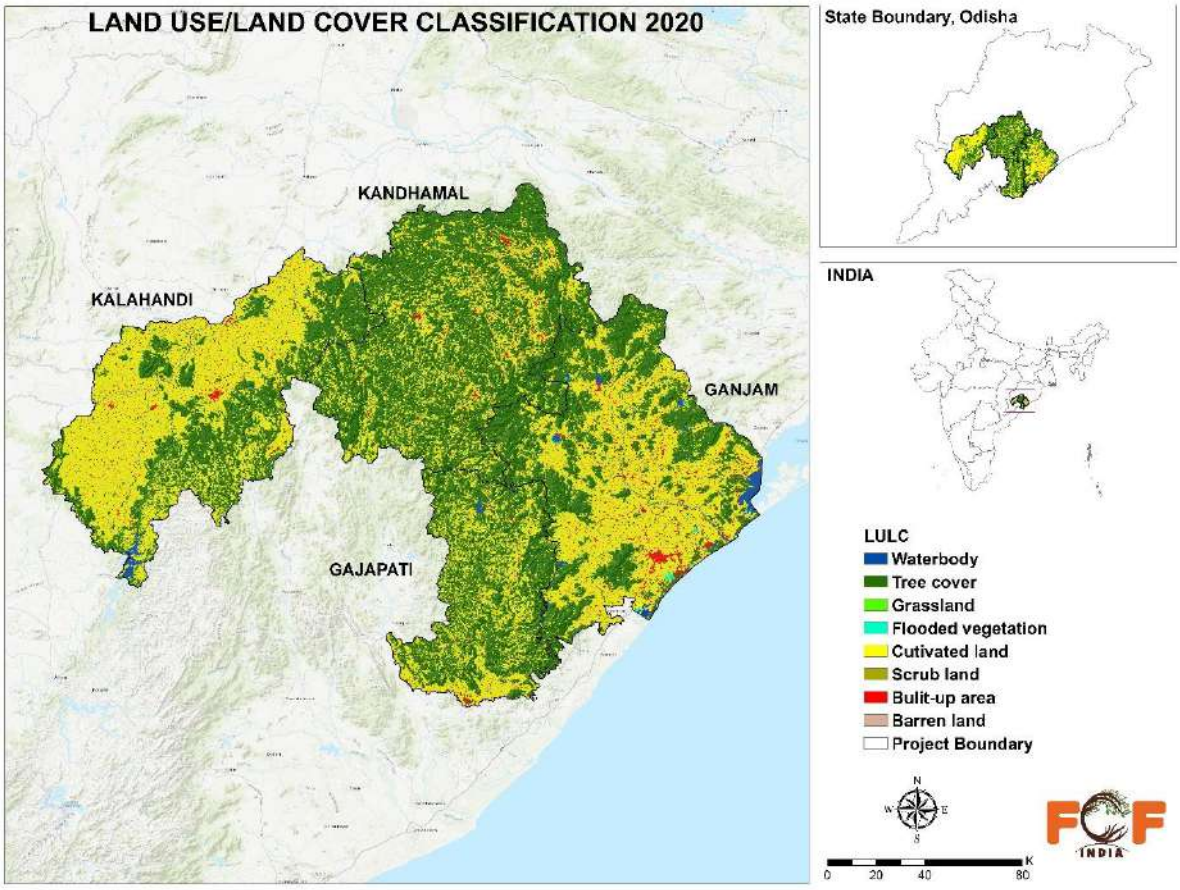
Participatory and Inclusive Elections Approach:

- Pre-election Awareness: Awareness sessions are held to brief the community on the VDC's purpose and the importance of inclusive participation.
- Timing & Venue: Elections are scheduled at times and locations accessible to all, including women, elderly, and daily wage earners.
- Inclusivity Measures: A minimum of 50% representation for women is mandatory in all VDCs. Youth representation: At least 33% of each gender group must be youth. Representation is also ensured from across all social and habitation groups.

- Documentation: All election processes are documented through:
    - Attendance sheets
    - Resolution entries in the VDC Khata Book maintained at village and FCO levels

These procedures are uniformly followed across all project districts, blocks and FCOs and are based on Gram Vikas' long-standing institutional model developed over the past four decades.

The leadership structure of VDCs, SHGs, and FPGs includes a president and a secretary, with members elected fairly, without discrimination based on gender, age, religion, caste, or creed. To enhance community capacity, Self-Help Groups (SHGs) receive training from Gram Vikas in nursery management, allowing them to cultivate tree saplings in village nurseries, which are later transplanted for plantation activities.



2.4 Participatory Design

FCF India conducted an in-depth orientation for the Gram Vikas Team, covering key aspects of climate change, carbon markets, carbon project implementation, and data collection. This training equips the team with essential knowledge to navigate environmental initiatives effectively.

The Village Development Committee (VDC) is elected at the village level to oversee livelihood activities, comprising 10-15 members with at least 50% representation of women and youth. Elections are participatory, and key positions include a President, Secretary, and Treasurer. Members serve a

three-year term, with annual rotations through a fair election process. Gram Vikas facilitates the election and supports VDCs in identifying community challenges. The VDC collaborates with Gram Vikas to survey issues, consult the community, incorporate feedback, and pass resolutions for project implementation. Following community consensus, the VDC ensures smooth coordination with the Gram Vikas Team, who provide detailed insights into the carbon project and its benefits. For Social-Forestry initiatives, VDCs identify suitable community lands, and plantations commence after community approval. In Agroforestry, Farmer Producer Groups (FPGs) of 8-10 farmers with contiguous landholdings are formed, and carbon agreements are executed with consenting farmers. Leadership across VDCs, SHGs, and FPGs is inclusive, with at least one woman in key roles. Self-Help Groups (SHGs) receive training from Gram Vikas on nursery management, contributing saplings for plantations and actively participating in afforestation efforts.

Village Institution Service Providers (VISPs) support and monitor plantation activities, reporting to VDCs. Jalabandhus, selected based on their interest in forestry and groundwater management, receive a year-long training and serve as key facilitators between VDCs and Gram Vikas. Typically, one Jalabandhu is appointed per 20-30 villages, coordinating plantation and water conservation activities under the Water Source Sustainability (WSS) thematic coordinator. Thematic Coordinators oversee project execution, liaising with VDCs, Jalabandhus, and stakeholders, while ensuring effective monitoring and reporting. They work under the guidance of the Thematic Manager, who is responsible for planning, budget management, and overall project quality. Each Field Coordinating Office (FCO) supports multiple Gram Panchayats, with thematic coordinators focusing on areas like livelihood, village institutions, water, sanitation, and health. For this project, the Water Source Sustainability team primarily leads implementation, ensuring alignment with project goals and community needs.

Detailed Participatory design process with all evidence and photos is explained in Annex 4.

2.5 Stakeholder Consultation

2.5.1 Design Phase Consultations

The Project Coordinator along with the support of FCF India and Implementation partner Gram Vikas, conducted local stakeholder consultations to ensure inclusivity, transparency, and alignment with local needs and priorities. These consultations were organized systematically and involved all key stakeholder groups identified in Section 2.1.1, including smallholder farmers, community-based organizations (CBOs), Village development committees, local government bodies for example Sarpanch and Gram Pradhan, and civil society representatives.

Before the project is implemented, extensive consultations have been conducted in each village following Free, Prior, and Informed Consent (FPIC) protocols. This process included multiple discussions, focus group meetings, and training sessions for community members. The communities have been fully informed about the project's design, implementation, monitoring, reporting, and verification (MRV) processes, as well as its costs, potential risks, and the roles of all stakeholders. Engagement was carried out in English, Hindi, and Odia (the local languages) to ensure inclusivity and transparency in project execution.

The project will adhere to FPIC protocols throughout its duration and will document key lessons learned to enhance future initiatives, mitigate risks, and address challenges more effectively. An agreement will be established with the indigenous communities, the primary project participants, to secure their consent. Additionally, a structured grievance mechanism will be implemented to address concerns and maintain community trust and support. The project will also ensure full disclosure of any financial or non-financial compensation provided to community members as part of the engagement process.

In this Project as important stakeholders, women are organized into SHGs, FPGs and CBO and will be involved in preparing village-level micro-plans, work schedules, doing community-based review of activities and protecting and maintaining plantations and various conservation structures.

Informing Stakeholders and Gathering Feedback

Stakeholders were informed through village-level meetings organized by Village Development Committees (VDCs) and Self-Help Groups (SHGs). These meetings were to share the idea of the project and gather feedback. Verbal invitations by Village Development Committee were given to all the village members and local government individuals like Sarpanch.

Detailed non-technical summary in local languages were distributed to further educate stakeholders on the potential benefits and responsibilities involved. Stakeholders were provided the opportunity to give feedback in Open forums during village meetings, Focus group discussions with farmers and women's groups, Individual interviews conducted by Village Resource Persons (VRPs).

Feedback Received

Farmers suggested species like Jackfruit and Bel associated with agroforestry plantations. They asked for the maintenance of the plantations, to address financial constraints. Additionally, farmers emphasized the need for training on best practices in plantation and soil conservation.

Community-based organizations highlighted the importance of clear benefit-sharing mechanisms, particularly for community lands. They also recommended regular monitoring and evaluation to ensure transparency and accountability.

Local authorities suggested the need to align project interventions with existing government schemes such as MGNREGA and CAMPA to maximize resource utilization. They also advocated for including marginalized groups and women in decision-making processes.

Action Taken:

The feedback received was instrumental in refining the project design. Key adjustments included:

- Include jackfruit in the agroforestry plantation plans to meet farmers' preferences. Bel (Aegle marmalos) were not considered for the plantation due to unavailability of the market access for the farmers.
- Design and implement training sessions on best practices for plantation management, agroforestry techniques, and soil conservation.
- Develop clear guidelines for benefit-sharing from community lands, with input from all stakeholders, to ensure fairness and transparency.

2.5.2 Stakeholder Engagement Plan

The community engagement plan has been integral to the project from its inception, ensuring a participatory approach is embedded in every stage. The project adhered to Free, Prior, and Informed Consent (FPIC) procedures, supported by focus group discussions (FGDs), to guarantee the permanence of project activities. Before implementation, each village underwent extensive consultations through FPIC protocols, a series of FGDs, participatory rural appraisals (PRAs), and community training sessions. These efforts ensured that community members were fully informed about the project's design, implementation, monitoring, reporting, verification (MRV) processes, associated costs, potential risks, and the roles of all stakeholders.

To maximize inclusivity and transparency, all engagement activities were conducted in Odia, the local language. Women, as key stakeholders, have been organized into Self-Help Groups (SHGs) and are actively involved in critical activities such as nursery preparation, community-based reviews, plantation maintenance, and conservation structure protection.

Local Stakeholder Consultation

The project team, in collaboration with Gram Vikas, C-GEM, and FCF India, conducted multiple stakeholder consultations within the project area. These consultations aimed to inform stakeholders about the project while seeking their feedback, opinions, and recommendations on activities, coverage, and other design aspects.

The consultations included community members and extended to broader stakeholders such as representatives from the Gram Panchayat, including the village Sarpanch, and other community institutions. Stakeholders were notified well in advance through formal invitation letters accompanied by a non-technical summary, ensuring adequate time for preparation and participation.

Information made available to stakeholders:

The project will bring a comprehensive set of advantages, as outlined below:

• Restoration of private lands - Undertaking agroforestry plantations on privately owned land by planting fruit-bearing species to improve the livelihood of the local beneficiaries.

• Restoration of community lands - Undertaking social-forestry plantations on community lands to provide benefits like establishment of carbon sink by increasing the green cover, regulation in micro-climate and improvement in soil and water resources.

• Conservation - Improved land management by construction of soil and moisture conservation structures such as stone bunds and contour trenches for soil stabilization, sustainable agriculture, and landslide management.

This project description serves to inform stakeholders about the initiatives of our land restoration project in the context of Plan Vivo Standard Certified Local Stakeholder Consultation. This consultation is a crucial step in the certification process outlined by Plan Vivo, which is responsible for certifying projects dedicated to reducing Greenhouse Gas (GHG) emissions and generating carbon credits. Our project is focused on land restoration and aims to rejuvenate fallow lands, improve soil quality, and contribute to biodiversity conservation. By adhering to Plan Vivo standards, we seek to generate Plan Vivo certificates (PVCs) because of our environmental efforts, making a positive impact on mitigating climate change.

Entities Involved

- **Local Farmers belonging to Khond and Saora tribe –**The Khond tribe is among the largest indigenous communities in Odisha, primarily residing in the districts of Kandhamal, Kalahandi which fall within our project area. They inhabit remote, forested hills and plateaus, typically living in dispersed villages rather than densely populated settlements. The Khonds are predominantly concentrated in Kandhamal and Kalahandi districts, with their economy primarily reliant on shifting cultivation, horticulture, and forest-based livelihoods. They also practice subsistence farming, growing crops such as millets, pulses, maize, and yams.

The Saora tribe is another prominent indigenous community, primarily residing in the districts of Gajapati, Ganjam, and Kandhamal. Renowned for their expertise in terraced farming, they practice

step cultivation on hill slopes to minimize soil erosion. The Saoras have a rich heritage of traditional agricultural techniques, including terraced farming and shifting cultivation.
The landowner, referred to as the farmer, voluntarily participates in the project after free, prior, and informed consent. The selected agroforestry species, namely mango, cashew, litchi, or jackfruit, will be planted on their land. The farmer retains the rights to the benefits such as selling non-timber forest produce (NTFP) of the planted species.

Farmers who are landless or choose not to include their lands in the project can still actively participate and benefit from various project activities. They can engage in activities such as land preparation, plantation, post-plantation management, monitoring, and the construction of water conservation structures on the community lands. These activities provide employment opportunities for these farmers, allowing them to earn a daily wage determined by the Village Development Committee (VDC). By participating in these activities, landless farmers can contribute to the project's objectives while also improving their livelihoods and economic well-being.

- SHGs and FPG Engagement- Self-Help Groups (SHGs) in tribal communities consist of around 10 women at the village level, formed voluntarily with support from government initiatives like Mission Shakti and Odisha Livelihoods Mission. While some SHGs are homogenous, others include women from diverse backgrounds. In tribal villages, SHGs primarily comprise tribal women, with most women being part of one group or another.

The selection of Self-Help Groups (SHGs) for the afforestation project begins with clearly defined criteria, prioritizing groups established under the State Rural Livelihoods Mission (SRLM). Preference is given to SHGs with prior experience in natural resource management, strong financial accountability, and a demonstrated interest in environmental initiatives. Inclusivity is a key factor, ensuring active participation from women, marginalized communities, and landless farmers.

The process starts with village-level awareness meetings, involving Gram Panchayats and local leaders, followed by inviting expressions of interest from SHGs. A thorough field verification is then conducted to assess their past activities, leadership strength, and commitment to afforestation efforts.

Once selected, SHGs receive capacity-building training on nursery development, plantation management, and sustainable forest conservation. To facilitate smooth implementation, financial and logistical support is provided. The project incorporates a robust monitoring system, with community-led evaluations and performance-based incentives, ensuring long-term engagement and success.

Gram Vikas helps integrate excluded women into existing SHGs or facilitates the formation of new groups if needed. These SHGs play a crucial role in nursery management, including seed collection, sapling cultivation, and plantation support. By supplying seedlings to meet the demands of Farmer Producer Groups (FPGs), they contribute to afforestation efforts in a sustainable and locally adaptive manner. Beyond environmental benefits, nursery activities provide a steady income for tribal women, with collected seeds also holding market value. Through SHGs, women gain economic empowerment while actively supporting agroforestry, ensuring both livelihood enhancement and the long-term success of the project.

Farmers with adjacent lands are encouraged to form Farmer Producer Groups (FPGs) under the guidance of Village Development Committees (VDCs). These groups, consisting of 10-15 local smallholder farmers, play a crucial role in the agroforestry initiative, ensuring effective implementation and monitoring. Acting as a link between project organizers and beneficiaries, FPGs

integrate indigenous knowledge with project activities to meet regional needs. They also foster community ownership by communicating project goals and methodologies.

FPGs actively monitor progress on both community and private lands, ensuring sustainable practices are followed. Their efforts are supported by VDCs, reinforcing the collaborative and community-driven nature of the initiative. All stakeholders, including FPGs, have defined roles within the project, safeguarded by existing governance structures that ensure fairness and inclusivity. The participatory process and stakeholder engagement will be documented during the PDD development phase. Notably, the communities involved are largely homogenous in terms of economic and social status

Village Development Committee (VDC)- The Village Development Committee (VDC) is responsible for identifying and mapping community lands within the designated project area .Additionally, the VDC serves as a vital link between local communities and project development partners, facilitating communication, collaboration, and effective implementation of project initiatives. They play a crucial role in conducting awareness campaigns, mobilizing farmers, and promoting the establishment of Farmer Producer Groups (FPGs). Their involvement continues throughout the project, assisting the Gram Vikas team in execution, supervision, and evaluation. By actively engaging in the initiative, VDCs help ensure smooth implementation while reinforcing community ownership and participation.

Jal Bandhu - A Jalabandhu is a local youth from the community who plays a key role in village development. The selection process begins with Gram Vikas field staff identifying young individuals interested in community mobilization. These candidates are then interviewed, and those who demonstrate a keen interest in forestry, groundwater management, and a willingness to learn and contribute are chosen for the role. Selected Jalabandhus undergo a one-year fellowship, during which they receive training in plantation management and hydrogeology while simultaneously applying their knowledge in the field. Typically, one Jalabandhu is assigned to a Gram Panchayat covering 20-30 villages. However, in cases where the Gram Panchayat spans a large area, two Jalabandhus may be appointed to ensure effective coverage and implementation.

MGNREGA - The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is a major employment and social security program started by the Government of India in 2005. It aims to provide job security in rural areas by guaranteeing 100 days of paid work each financial year to rural households whose adult members are willing to do manual labour.

In this carbon project, MGNREGA will help by supporting labour-intensive work such as digging pits for plantations and building water conservation structures. Using MGNREGA funds will reduce project costs while also involving the local community and creating job opportunities.

-**Village Institute Service Providers (VISPs)-**Village Institute Service Providers (VISPs), appointed by the Village Development Committee (VDC), play a crucial role in facilitating and overseeing plantation activities within the community. They are responsible for ensuring that plantations are carried out efficiently by providing technical guidance, monitoring sapling growth, and addressing any challenges faced during implementation. Additionally, they regularly document progress, assess survival rates of planted species, and report their findings to the VDC to ensure transparency and accountability in the project.

Gram Vikas Community Development Foundation (GVCDF) - Project Coordinator

Gram Vikas Community Development Foundation (GVCDF) is registered under the Companies Act, 2013 (18 of 2013) Government of India. GVCDF was founded in the year 2021. The objectives of the

company are advance relief to poor, protection of environment, sanitation, education and other permissible charitable purposed under the auspices of Gram Vikas.

Gram Vikas Community Development Foundation (GVCDF) is the Project Proponent.

Fair Climate Fund (FCF) - Project Applicant and Developer

The overarching programme is coordinated by Fair Climate Fund (FCF) India a social enterprise working with an aim for a fair climate: a world in which those who contribute most to climate change invest in CO_2-reduction projects that benefit people who are most vulnerable to the effects of climate change.

Fair Climate Fund India is project developer and carbon consultant.

Gram Vikas - Implementation partner

Gram Vikas is an Indian non-governmental organisation based in Odisha, and founded in 1979, by Joe Madiath. Gram Vikas partner with rural communities to enable them to lead a dignified life by building their capabilities, strengthening community institutions, and mobilising resources. Gram Vikas works in the areas of water, livelihoods, sanitation & health, habitat & technology, village institutions, education & youth, disaster response etc. Gram Vikas is present in 2 states of India: Orissa and Jharkhand.

Centre for Grower-centric Eco-Value Mechanisms- Accountability partner to Gram Vikas

Centre for Grower-centric Eco-value Mechanisms, known as C-GEM, is the world's first farmer centric non-profit platform incubated under Aga Khan Rural Support Programme (India)'s climate change vertical, aiming to accelerate the adoption of agroecology by leveraging ecosystem markets (carbon, water, biodiversity) for farmers transitioning toward agroecology. C-GEM aims to incentivize farmers to take up agroecological transformations while de-risking and supporting transitioning farmers by providing additional revenue streams to compensate for ecosystem services provided by such transition.

C-GEM onboards, handholds, and negotiates climate market mechanisms for grassroots communities and maintain accountability and transparency in the carbon markets and other climate financing mechanisms for public stakeholders. C-GEM's portfolio includes three high-value projects with nine partners in 4 states, covering 60,000 farmers and 75,000 ha for natural farming, agroforestry, and social forestry projects.

C-GEM is actively involved in developing knowledge products for rural communities, CSOs and CSR/ESG professionals to disseminate knowledge and create awareness on pro-community carbon projects.

Government Departments- Forestry and Horticulture: These government departments will support in providing plant saplings, and other value-added inputs to the farmers. Collaboration with government departments will be enhanced through formal agreements, specialized training programs, and joint research initiatives. The forestry and agriculture departments will play a key role in evaluating soil health, tracking tree growth, and offering expert insights to refine and optimize agroforestry models. Their continuous involvement will ensure effective implementation and long-term sustainability of the project.

2.6 Free, Prior and Informed Consent (FPIC)

2.6.1 FPIC Legislation

Table 2.6.1: National Legislation and International Standards on FPIC

Legislation /Standard	Relevance to Project	Compliance Measures
UNDRIP	The project participants belongs to the indigenous communities of Odisha and hence the said declaration aligns with the project. The project ensures that the rights and interests of indigenous communities are respected and promoted throughout the project's implementation. A critical aspect of UNDRIP is the requirement for free, prior, and informed consent (FPIC), which mandates that indigenous peoples must be fully informed and consent to projects that affect their lands, territories, or resources. The Project adheres to the principle, ensuring transparency and voluntariness in community participation. Refer section 2.6.2 for the FPIC process.	The project includes comprehensive stakeholder engagement to ensure that all stakeholders are fully informed about the project's objectives, processes, impacts and benefits. The project follows the principle of obtaining free, prior and informed consent by signing of carbon rights agreement. A grievance mechanism has been established through collaboration with local villagers, SHGs, and VDC staff, who will engage with community concerns and inputs. These grievances or issues will be forwarded to the VDC, which will then escalate them to the senior manager for resolution. VISP, and Jalabandhus play a vital role in maintaining regular communication with beneficiaries at the village level, ensuring any concerns that arise during project implementation are addressed effectively.
ILO 169	The project works with indigenous and tribal communities; hence the law is relevant to the project. The project ensures that the project participants are fully informed and voluntarily agree to participate in the project. The project recognises and preserve the traditional practice and knowledge of indigenous people.	

2.6.2 FPIC Process

As described in the participatory process, the Gram Vikas team along with the VDC's inform village communities about the details of the project details along with the associated benefits. The approach of the project underlines the importance of a genuine expression of interest from the local community. The initial design phase incorporates various elements, such as a series of introductory meetings designed to understand the community's interest in the plantations. In the event of questions or requests for additional clarification by the village people, the VDC and Gram Vikas organizes numerous follow-up meetings to fully address any concerns or clarification possible. Participation in the project is on a voluntary basis and the local communities are free to decide whether or not to join the project. Once the interest is expressed by the villagers, Gram Vikas team engages the communities using PRA tools like resource mapping to identify the potential land areas for plantations.

Once the land areas are identified, for agroforestry plantations – a FPG will be formed including 10 – 15 farmers who have contiguous land holdings. The FPG expresses consent voluntarily that their landholdings can be utilised for undertaking agroforestry plantations, thus executing the carbon agreements with the Gram Vikas.

For social-forestry plantations – the carbon agreements are executed with Village development committees who majorly have the rights to community lands. Additionally for free consent, no objection certificates and resolution from VDCs are obtained.

An input and grievance mechanism is established within the project framework to address community concerns and suggestions effectively. The process begins with community members communicating their inputs or grievances to the Village Development Committee (VDC). Subsequently, the VDC forwards these to Jalabandhu, who then escalates them to the thematic coordinator. The thematic coordinator passes them on to the project manager, who collaborates with FCF India to determine the best approach for addressing and incorporating these inputs or resolving grievances. Additionally, a register is maintained at the Gram Panchayat level, overseen by Jalabandhus, to document and track these inputs and grievances, ensuring transparency and accountability throughout the process. Upon receiving an input or grievance, FCF India discuss the most effective approach to incorporate or address the matter within the project. Following mutual agreement, Gram Vikas instructs the thematic coordinator to notify the Village Development Committee (VDC) about the decision. Subsequently, the VDC consults with the community and passes a resolution to formalize the decision.

Photo: Monthly meeting for Input and Grievances by FPG and VDC

Photo: Meeting for Input and Grievances by FPG and VDC

Photo: Meeting for Input and Grievances by FPG and VDC

The steps involved for the FPIC process are as:

1. Gram Vikas, in collaboration with VDCs, identifies community lands owned by Gram Panchayat/ Village Council and privately owned lands by farmers, eligible (clear ownership) according to project requirements.

2. FPGs will be formed, consisting of a group of 10-15 farmers who have expressed their interest in the project. Carbon agreements are executed upon obtaining consent from the participating farmers, ensuring that their agreement is voluntary and without any external pressure.

3. Resolutions are formulated jointly by the FPGs and VDCs, confirming the commitment to undertake plantation activities on their lands in their respective villages. This collaborative approach ensures a consensus-driven decision-making process, fostering a sense of ownership among the farmers. Tree species selected under plantation activities are based on the natural demography of the project area and interest of the farmer.

4. The Gram Vikas team, working with VDCs, actively addresses and clarifies any concerns raised by the FPGs during the meetings. Farmers report their grievances during monthly meetings with FPGs and VDC. Ensuring effective communication, this step aims to resolve grievances and provide clarity to the farmers, fostering a positive and transparent engagement. For unresolved queries and continuous input, VDC will act as a bridge in informing Gram Vikas on the input and grievances. After consultation with FCF India to reach the potential solution, Gram Vikas will conduct resolution meeting with farmers.

5. Monitoring of the engagement process throughout the lifecycle of the project.

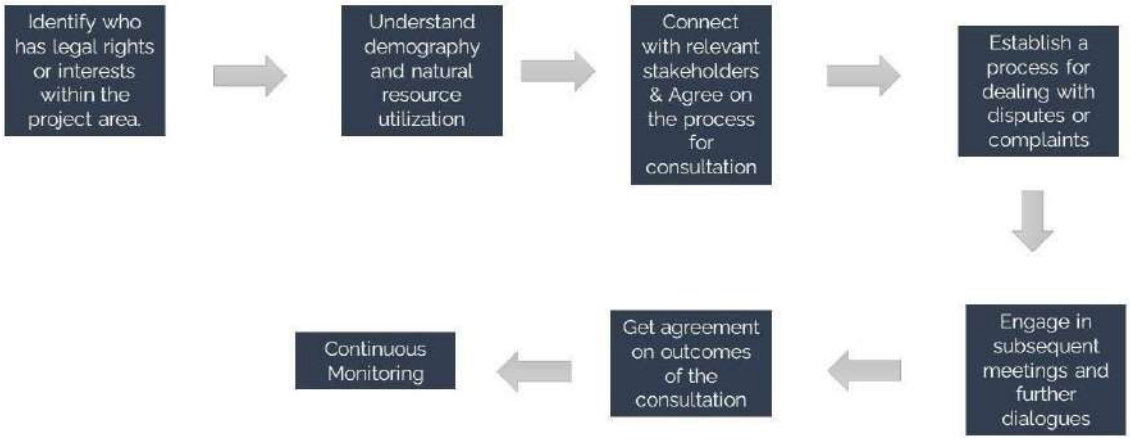


Photo: Steps to be taken in FPIC Process

2.6.3 Initial FPIC

The project ensures strong community engagement from the outset, adopting a participatory approach that integrates local knowledge through Free, Prior, and Informed Consent (FPIC), stakeholder meetings, and expert consultations. Prior to implementation, extensive village consultations, focus group discussions and community training were conducted to secure long-term involvement. Communities were thoroughly briefed on the project's design, implementation, monitoring, reporting, verification (MRV), costs, risks, and stakeholder roles, with engagement facilitated in English, Hindi, and Odia to promote inclusivity and transparency. The project commits to adhering to FPIC protocols throughout its lifecycle, continuously documenting lessons to enhance future initiatives and mitigate risks. Formal agreements with indigenous communities will secure their consent, while a structured grievance redressal mechanism will be established to address concerns and build trust. All financial and non-financial compensations provided to the community will be disclosed to maintain transparency and accountability.

The project has formalized an agreement with the indigenous communities to secure their consent for participation. To address any concerns, a structured grievance mechanism will be put in place at the project level, ensuring that issues are managed effectively. This will foster trust and support within

the community. Furthermore, the project will maintain transparency by openly disclosing any financial or non-financial compensation provided to community members as part of the engagement process.

Women will play a central role as key stakeholders, actively participating through Self-Help Groups (SHGs), FPG and VDC. Their involvement will span village-level micro-planning, scheduling, community-based monitoring, and the protection and maintenance of plantations and conservation structures, ensuring the project's long-term sustainability and success.

An FPIC meeting was organized in Kantabhanji village, Kalahandi district to inform and engage local farmers about the carbon project, a joint initiative between FCF India and Gram Vikas. The meeting was attended by local farmers from the village willing to participate in the project.

Objective explained in the initial FPIC:

1. Ensuring community participation and decision-making

2. Enhancing Transparency and benefit sharing

3. Strengthening Environmental protection

4. Preventing Conflict and ensuring social justice

5. Protection of Land and resource rights

A representative from Gram Vikas facilitated the meeting, starting with a comprehensive introduction to the carbon project. The farmers were informed about the partnership between Gram Vikas and FCF India and the rationale for selecting the area for project implementation.

The discussions were conducted in an inclusive, transparent, and culturally respectful manner, ensuring that community members had the opportunity to voice their concerns, ask questions, and suggest alternatives. These discussions were carefully recorded and documented to reflect community perspectives accurately.

Following the presentation, the meeting transitioned into an open dialogue, where farmers were encouraged to share their needs, concerns, and expectations regarding the project. The community was given the freedom to deliberate independently, without external influence, to reach a collective decision.

Once the decision-making process was complete and consent was granted, agreements were formalized based on community preferences. This included documentation through written agreements, signed contracts, or video recordings, ensuring transparency and mutual understanding.

Farmers Feedback Summary:

1. Long-term commitment and sustainability: Some community members expressed concerns about the project's continuity and sought assurances that it would be sustained and not discontinued midway.

2.Concerns about maintenance Inputs for the plantation: Some farmers shared concerns about the availability of resources, such as seeds, fertilizers, and water, which they fear might limit their ability to implement sustainable practices.

3. **Understanding Carbon Credits:** Many farmers requested more information on how carbon credits work and how they would directly benefit them.

4. **Need for Training and Support:** Several participants expressed the need for ongoing support and training on sustainable farming techniques

5. **Social and Environmental Concerns:** How will the project impact water availability and soil health? "Can this project support our efforts in restoring degraded land and improving biodiversity" were some the questions asked by the community through their engagement in the FPIC meeting.

Meeting was wrapped up by reiterating the importance of collaboration between Gram Vikas, FCF India, and the local community to ensure the success of the project and the community was encouraged to actively participate and stay engaged for long-term benefits

Please refer to Annex 5 for the photographs and sample evidences from FPIC

3 Project Design

Baselines

3.1 Baseline Scenario

In the absence of afforestation activities and the construction of water conservation structures, the degraded lands resulting from historical slash-and-burn agricultural practices are likely to undergo continued deterioration. Devoid of active restoration measures, the soil quality will remain inadequate, exacerbating erosion and degradation over time. The absence of water conservation structures will further impede any efforts to address water scarcity, leading to prolonged fallow periods and rendering the land unsuitable for cultivation. The continued neglect of these degraded lands increases the risk of soil infertility, loss of biodiversity, and susceptibility to environmental hazards such as cyclones.

Additionally, the absence of sustainable land management practices may contribute to the perpetuation of these adverse conditions, prompting communities to face heightened challenges in terms of livelihoods and necessitating potential migration in search of more viable opportunities. The implementation of afforestation and water conservation activities is crucial to interrupt this cycle of degradation, fostering environmental resilience and sustainable land use.

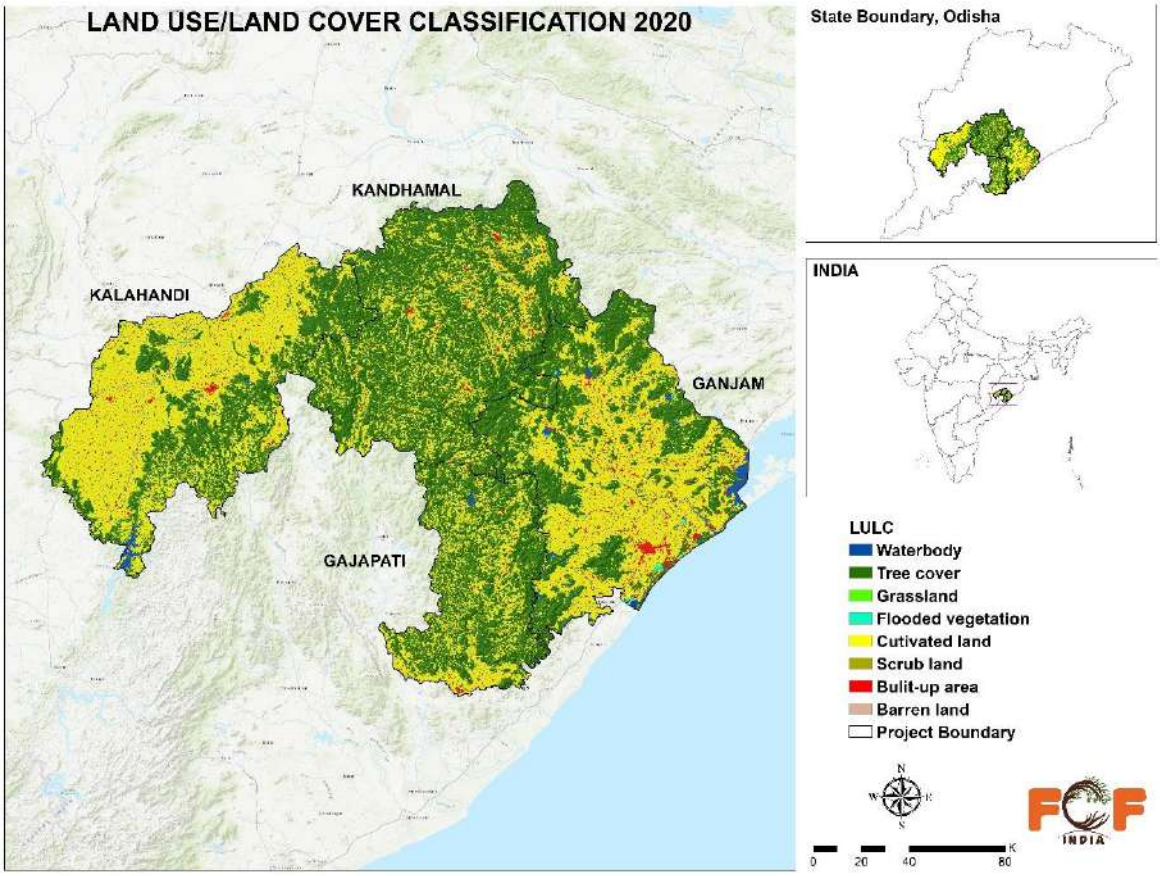
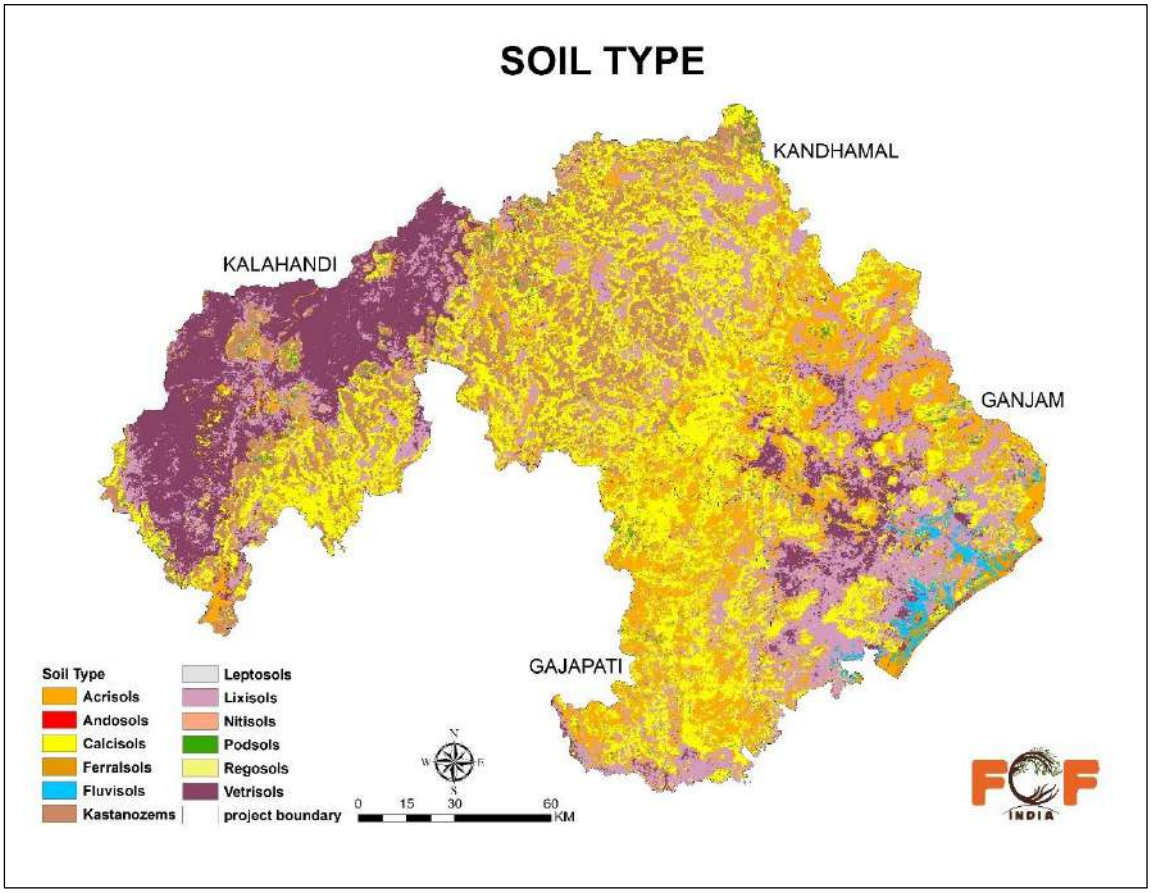
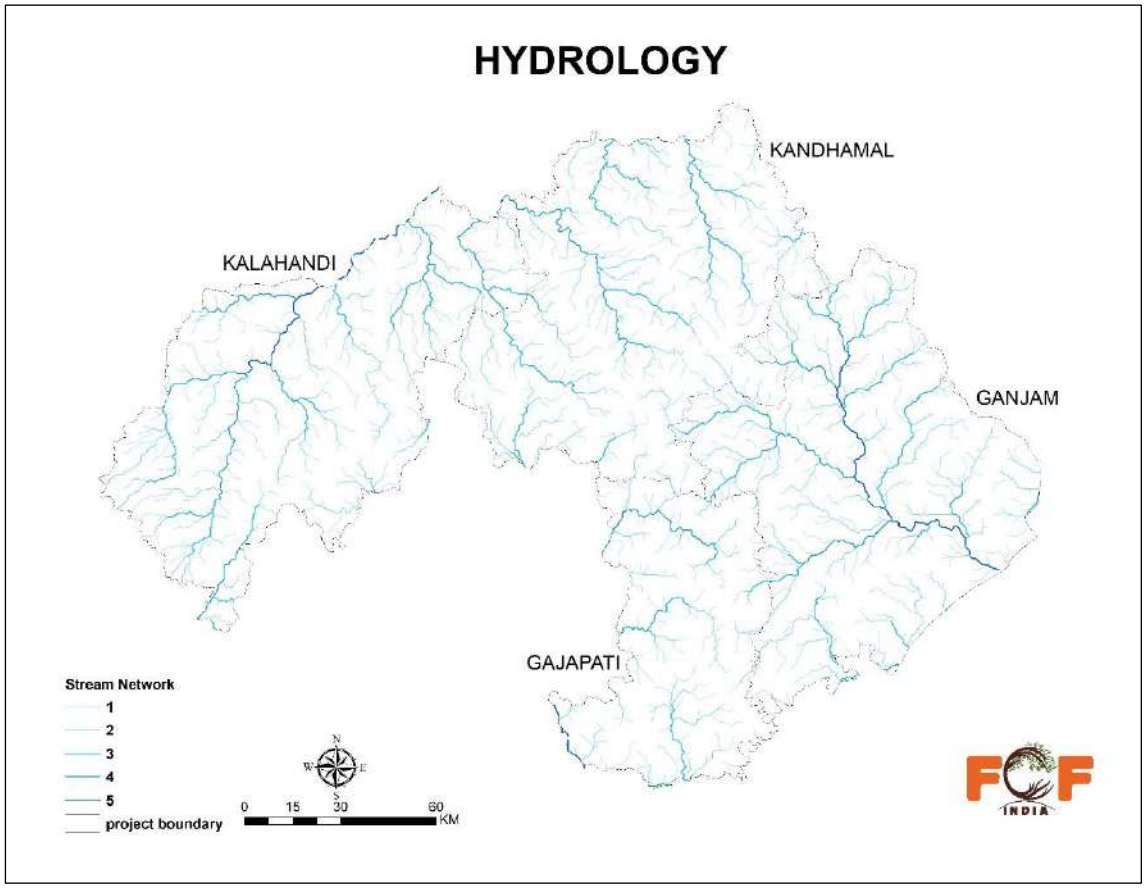


Photo: Condition prior to the initiation of the project activity

Photo : Condition prior to the initiation of the project activity



Map: Soil type of the Project Area



Map: Hydrology of the project area

The demonstration and assessment of the additionality of the project is made in accordance with the applied methodology (PM001) following the steps of the "Combined tool to identify the baseline scenario and demonstrate additionally in PLAN VIVO project activities" (Version 01).

Refer to Annex 7 for the steps included in the identification and establishment of baseline scenario.

3.2 Carbon Baseline

Table 3.2 Total net-greenhouse gas emissions under the baseline scenario

Year	Expected GHG emissions under baseline scenario
1	0
2	0
3	0
4	0
5	0
6	0

7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	0
26	0
27	0
28	0
29	0
30	0
Total tCo2e	**0**

To estimate the baseline emissions, the module PU001, "Estimation of Baseline and Project GHG removals by Carbon pools in Plan Vivo projects, Version 1.0 was used.

Refer to Annex 6 for detailed calculations

3.3 Livelihood Baseline

3.3.1 Initial Livelihood Status

A livelihood comprises the abilities, skills, proficiencies, and assets (both material and social) required for a way of life. Livelihood security is a prime concern where most of its population depends on agriculture, livelihood plays a vital role. Livelihood security has a direct linkage with poverty, unemployment, food security, and management and conservation of natural resources[8].

Odisha is one of the major states of India, known more for its many retrogressive features such as mass poverty, food insecurity and hunger despite its rich natural resource endowment[9]. There are sixty-two tribal communities living in Odisha. Together they form 22.1 percent of the total population of the State and 9.7 per cent of the total tribal population of the country. Among these, thirteen tribal communities are recognized as Particularly Vulnerable Tribal Groups or PVTGs. Their way of life is considered to be under threat due to depleting forest resources and the ingress of mainstream cultures into their region of habitation[10].

[8] https://www.sciencedirect.com/science/article/pii/S2666660X22000330
[9] 9 https://www.ostm.in/tribes-of-odisha/
[10] 9 https://www.ostm.in/tribes-of-odisha/

The tribal groups[11] residing in the project area are:

1. Particularly Vulnerable Tribal Groups (PVTGs): Birhor, Bonda, Chuktia Bhunjia, Didayi, Dongria Kondh, Hill Kharia, Juang, Kutia Kondh, Lanjia Saora, Lodha, Mankirdia, Paudi Bhuyan, Saora

2. Tribes in Transition: Santal, Kharia, Oraon, Kissan

3. Assimilated Tribes: Savar, Gond, Bathudi, Bhuyan, Saunti

In the poverty-stricken state of Odisha agriculture remains the major source of livelihood for almost three-fourths of the population. Because of the undulating topography interspersed with forests, agriculture in the tribal districts is mostly rain-fed and subject to the vagaries of monsoon with a recurrent drought situation almost every year, and the increasing deforestation of the region cause erratic precipitation. The higher incidence of poverty, the tribals fails to acquire adequate nutrition and earning capabilities. The state had 78.70 percent rural families listed as BPL and out of that 55.90 percent were found to be ultra-poor families with an earning of less than Rs 6,000 per annum. The percentages of ultra-poor households in our tribal concentrated districts were: Gajapati 68.75, Kandhamal 76.38 and Kalahandi 63.29[12].

Expected Change:.

Without project interventions, the socio-economic conditions and income opportunities for tribal communities in the project area will be at risk. The challenging undulating terrain means that agriculture in these tribal districts heavily depends on rain, making it vulnerable to the unpredictable monsoon. These climate fluctuations can dramatically reduce crop yields, and the frequent droughts faced by the region only compound the problem. Consequently, the area has seen alarming rates of soil erosion, which leads to diminished crop productivity and a lack of diverse income sources. This vicious cycle leads to financial insecurity and destabilize food security for these communities. It is imperative that we take action to support these tribal populations and safeguard their livelihoods.

Deforestation has significantly impacted tribal communities that rely on forests for their livelihoods, leading to numerous challenges due to the depletion of forest resources. The loss of non-timber forest products (NTFPs) such as mahua flowers, kusum seeds, and kendu leaves—essential sources of income—has forced many men to migrate to cities in search of work to support their families. With limited local employment opportunities, most households continue to remain below the poverty line (BPL). Migration, primarily driven by the lack of viable livelihood options, exposes individuals to exploitation, harsh working conditions, and poorly paid, informal jobs. Reliance on forest-based livelihoods is likely to persist, but without effective conservation and sustainable harvesting practices, the availability of forest resources may diminish, leading to further declines in household incomes. The absence of value addition and strong market connections means that communities will continue to earn minimal income from selling non-timber forest products and agricultural produce.

The absence of sustainable alternatives for income generation has resulted in widespread migration, causing socio-economic disruptions within these communities. Project area forest and agriculture-based livelihoods are increasingly threatened by environmental degradation, resource depletion, and economic hardships. While agriculture remains the primary source of income, NTFPs and farm labour serve as vital supplementary earnings. However, many individuals lack formal education or marketable skills, further limiting their opportunities for stable employment.

[11] Tribal Profiles of Orissa Book_303-327-.pmd
[12] 2 https://journals.sagepub.com/doi/abs/10.1177/097206340700900303

Category	Local Name	Scientific Name
Agroforestry Species	Mango	Mangifera indica
	Cashew	Anacardium occidentale
	Litchi	Litchi chinensis
	Jackfruit	Artocarpus heterophyllus
Social Forestry Species	Amla	Phyllanthus indica
	Tentuli	Tamarindus indica
	Harad	Terminalia chebula
	Baheda	Terminalia ballerica
	Mahua	Madhuca latifolia
	Chakunda	Cassia tora
	Karanj	Milletia pinnata
	Harad	Terminalia chebula
	Mahaneemba	Melia azaderach
	Pia Sal	Pterocarpus marsupium
	Jamkuli	Syzium cuminii
	Kadam	Neolamarckia cadamba
	Simli	Bombax ceiba
	Shishu	Dalbergia sissoo
	Simarua	Simaruba glauca
	Bamboo	Dendrocalamus strictus
	Neemba	Azadirachta indica
	Siris	Albizia lebbeck

3.3.2 Expected Livelihood Change

Stakeholder Group	Impact	Expected Livelihood Change
Local Farmers	High	The project is expected to significantly enhance the livelihood of local farmers. By planting fruit bearing species like mango, cashew and jackfruit, farmers will gain additional income from the sale of produce. This will provide a continuous and stable source of income for the farmers thus enhancing their socio-economic status.
Village Development Committee	High	The Village Development Committee (VDC) holds the rights to manage and monitor community lands, where the plantation of social forestry species such as jamun, neem, and bamboo will significantly enhance biodiversity. These plantations will provide a stable source of income from the sale of non-timber forest products (NTFPs). Additionally, the VDC will generate additional revenue from the sale of Project Verification Certificates (PVCs), which can be reinvested into further community-related initiatives, fostering sustainable development and economic growth within the community.
Self Help Groups	High	Self Help Groups (SHGs), comprised of women from the community, will play a pivotal role in the project. They will be responsible for the maintenance and development of community-based nurseries, earning revenue from the sale of saplings to the project. Additionally, these groups will engage in various pre- and post-plantation activities, further enhancing their socio-economic status. Through their involvement, SHG members will gain valuable skills and income opportunities,

		empowering them and contributing to the overall well-being and resilience of the community.
Jalabandhu	High	The Jalabandhus will benefit from the project in many ways including skill development, employment opportunities. They receive technical training in plantation management and hydrogeology, which enhances their expertise in groundwater conservation, afforestation, and sustainable land management. They play a critical role in improving local water security and reforestation efforts, directly benefiting their communities.
VISP (Village Institution Service Provider)	High	The project will benefit VISPs by enhancing their skills and creating employment opportunities, enabling them to earn wages or stipends while actively contributing to the well-being of their community.
Farmer Producing Group	High	The project will benefit Farmer Producer Groups (FPGs) by improving their market access, lowering production costs, and enhancing financial stability. Through collective selling, farmers can obtain better prices, minimize dependence on intermediaries, and boost their earnings. The plantation of social forestry species and agroforestry species will significantly benefit their communities.

3.4 Ecosystem Baseline

3.4.1 Initial Ecological Conditions

Odisha's land area of 155710 sq. km has a mix of 37.3% for forest, 35.8% for cultivation, 8.3% for non-agricultural use, 5.4% of barren and un-culturable land and balance 13.2% is left for a variety of other uses (GOO, 2011-12). Quarrying, mining, intensive cultivation, excessive irrigation, water logging, salinity and inappropriate use of fertilisers and pesticides have been the major causes of land degradation in the state. The estimated extent of land degradation in the state varies from 24% to 37% of total land area (SWCD, 1995; NBSS &LUP and CSWCR &TI, 2007; and MORD & DOS, 2010)[13]. The annual rainfall in the state ranges between 1,200 mm to 1,600 mm and the annual temperature varies from 25°C to 28°C. The State is drained by a number of important rivers, which includes Mahanadi, Brahmani and Baitarni. Some of the commonly found tree species: Inside the reserve forest area - *Shorea robusta, Lannea grandis, Buchanania latifolia, Terminalia tomentosa, Cleistanthus collinus. Trees outside forests - Mangifera indica, Shorea robusta , Madhuca latifolia, Azadirachta indica, Anacardium occidentale, Cocos nucifera, Tectona grandis, Moringa species. Major NTFP Species - Shorea robusta, Madhuca indica, Buchanania Lanzan, Schleichera oleosa, Semecarpus anacardium*[14].

The districts selected for the initial phase of the project is as:

Gajapati – Covering an area of 3850 sq km, Gajapati District lies between 18°.6' to 19°.39' North Latitude and 83°.48' to 84°.08' East Longitude. Climatic condition in the Gajapati District varies between 16 degree to 40 degree Celsius and the normal rainfall received is 1403.30 mm. The soil and climate is suitable for plantation of crops and there is a great potential of horticulture development in the District. More than 60 percent of lands are situated in hilly terrain and high lands. Those are mainly suitable for horticulture. Other cultivable land are coming under medium lands (20 percent) and low

[13]https://www.academia.edu/download/62409433/Development_Challenges_and_Prospects_Odisha_Centurio n_Journal_12_Feb_201720200319-87334-qpqw0d.pdf
[14] isfr-2019-vol-ii-odisha.pdf (fsi.nic.in)

lands (15 percent) category[15]. The flora include Sal, Piasal, Dharua, Mahula, Haldu, Sidha, Kendu, Harida, Amla, Karanja, Arjun etc. and fauna comprise of Elephant, Leopard, Sambar, Barking deer, spotted deer, wild boar, Porcupine, Peacock, Pheasants, Parrots, Eagles, Golden Orioles Cuckoos, etc[16]. The district has light textured brown forest soil, which is highly acidic in nature. The main soil types are clay and sandy loam. There is no large irrigation project in Gajapati district. The only medium irrigation project is Harabhangi. However, the Harabhangi dam/reservoir collects and stores the rain water from the catchment area of Gajapati district[17].

Ganjam – Ganjam District is on 19.4 to 20.17 degree North Latitude and 84.7 to 85.12 degree East Longitude. It covers an area of 8070.60 sq km. The district is braodly divided into two divisions, the Coastal plain area in the east and hill and table lands in the west. The eastern ghats run along the western side of the District. The climate of Ganjam is characterized by an equable temperature round the year, particularly in the coastal regions. The District's cold season from December to February is followed by hot season from March to May. The District experiences normal annual rainfall of 1444 mms. Agriculture is a traditional occupation and the way of living of the inhabitants of the Ganjam District. The District is well known for its fertile soil and agricultural productivity. A large variety of crops are grown here like Paddy, Ground nut, Sugar cane, Oil seeds, Ragi, Mung, Biri etc. Because of the agro climatic condition Ganjam is included as the agricultural District[18] . Ganjam soil consists of Sandy Loam, Loam Costal alluvium and Saline soil in few patches in costal plains in eastern parts. Where as in North Eastern ghats have brown and forest soils with loamy, clay loam type of soils[19].

Kalahandi – Kalahandi District covering a geographical area of 7920 sq km lies in between 19.175489◌°° to 20.454517◌°° North Latitude and 82.617767◌°° to 83.794874◌°° East Longitude. The climate of the Kalahandi District is of extreme type. It is dry except during monsoon. The maximum temperature of the District is 45+ degree Celsius, whereas the minimum temperature recorded is 4 degree Celsius. The District experiences the average annual rainfall as 1378.20 mm. Crops like paddy and cotton are grown. Forest based products like Mahua, Kendu-Leaf, Wood, Timber and Bamboos also contribute to local economy largely[20]. Flora of the district includes Sal, Bija, Bamboo and some medicinal plants etc. and fauna includes Elephants, Leopard, Gaur, Sambhar, Barking Deer, Indian Wolf, Malbar Giant Squirrel, Pangolin, Peacock, Hornbill, Red Jungle Fowl, Mugger , Crocodile, Monitor Lizard etc. The Tel, Indravati and Jonk, which form tributaries of large rivers like the Mahanadi and Godavari, may be mentioned among the principal rivers of Kalahandi. The soil of Kalahandi district is an admixture of Red, Black and Sandy loan. The district has five different types of soil broadly classified as (i) Red Laterite (ii) Black clay (iii) Sandy Loan (iv) Clay and (v) Red Sandy loan[21].

Kandhamal - The Kandhamal district covering a geographical area of 7654 sq kms lies between 19 degree 34' to 20 degree 36' north latitude and 83 degree 34' to 84 degree 34' east longitude.

[15] https://gajapati.nic.in/about-district/
[16] https://gajapati.nic.in/places ofinterest/#:~:text=The%20flora%20include%20Sal%2C%20Piasal,%2C%20Golden%20Orioles%20Cuckoos%2C%2 0etc.
[17] https://gopabandhuacademy.gov.in/sites/default/files/CHAPTER-WISECZBY/Gajapati%20Chapterwise/Gajapati_Chapter_4.pdf
[18] https://ganjam.nic.in/about-district/
[19] https://ganjam.nic.in/agriculture/#:~:text=Soil%20Structure%3A,soil%20types%20of%20Ganjam%20district.
[20] https://kalahandi.nic.in/about-district/
[21] https://magazines.odisha.gov.in/orissareview/jan2006/engpdf/Land_use_%20patter_of_kalahandi%20dist.pdf

Kandhamal experiences sub tropical hot and dry climate in summer. Dry and cold climate in winter. The maximum temperature recorded in the District is 45.5 degree C and minimum temperature is 2.0 degree C. The average annual rainfall recorded is 1522.95 mm. Physiographically, the entire district lies in high altitude zone with inter spreading inaccessible terrain of hilly ranges and narrow valley tracts, which guides the socio–economic conditions of people and development of the district. The soil in the District is mostly Red– laterite group, having organic matters contents. As such, the water holding capacity is very low. The big chunk of land consists of red–laterite sandy loam soils being exposed to constant soil erosion and run off devoid of humus contents render in fertile and turn into barren wastelands. The important crops grown in the District during Kharif season is Paddy, Maize and Niger. In irrigated areas, crops like Potato, Vegetable and Mustard are grown[22]. The soil in the District is mostly Red– laterite group, having organic matters contents. As such, the water holding capacity is very low. The PH value of the soil varies 5.3 to 6.5, which is acidic in nature[23].The most important rivers of the district are the Bagh, the Salki, the Rushikulya and the Loharkhandi. All of them originate from hills and fall into big rivers like Mahanadi and Tel after flowing through the wilderness. The forests of Kandhamals subdivision are broadly classified as (1) northern Tropical moist deciduous forests (moist Sal) and (2) northern Tropical moist deciduous forest (dry Sal). The commonly seen wild animals in Kandhamal jungle are elephants, bisons, tigers, leopards, deer and wild pigs. Moreover, carnivorous animals like fox, jackals, hyena and wolves are also seen. Bears are seen in all parts of forest. Besides this, wild dogs (Cuon alpines), monkeys, barking deer, hares, Nilgai and chital are found in the jungles of Kandhamal[24].

3.4.2 Expected Ecosystem Change

In the absence of project activity, the ecological conditions in the project regions, are expected to deteriorate significantly. Continuation of shifting cultivation, widely by tribal communities in Odisha, leads to extensive deforestation, resulting in the loss of biodiversity and disruption of ecological balance. The practice accelerates soil erosion and degradation, diminishing soil fertility and reducing agricultural productivity. Additionally, shifting cultivation involves burning vegetation, which releases substantial greenhouse gases, exacerbating climate change. The removal of vegetation also disrupts local water cycles, depleting water resources necessary for agriculture and household use. This environmental degradation increases the region's vulnerability to climate change impacts, such as floods and droughts, due to the lack of protective vegetation cover[25]. Transitioning to sustainable practices through the project interventions, project aims to mitigate these adverse effects, restoring biodiversity, improving soil health, enhancing water resources, and reducing greenhouse gas emissions, thereby fostering a more resilient and sustainable ecosystem.

Deforestation Due to Shifting Cultivation

Shifting cultivation, widely practiced by tribal communities in Odisha is a traditional agricultural method involves clearing forested land for farming, followed by abandonment after soil fertility declines. The continuous cycle of land clearing contributes to large-scale deforestation, reducing

[22] https://kandhamal.nic.in/about-district/

[23] https://kandhamal.nic.in/about-district/#:~:text=The%20soil%20in%20the%20District,which%20is%20acidic%20in%20nature

[24] https://gopabandhuacademy.gov.in/sites/default/files/CHAPTER-WISE-CZBY/Kandhamal/Kandhamal_Chapter_1.pdf

forest cover and disrupting the ecological balance. The loss of trees and vegetation leads to habitat destruction, threatening local wildlife and causing a significant decline in biodiversity[26].

Soil Erosion and Degradation

One of the major consequences of shifting cultivation is rapid soil erosion and degradation. The removal of trees and vegetation exposes the soil to wind and water erosion, stripping away essential nutrients. Over time, this process leads to declining soil fertility, making the land unproductive for agriculture. Poor soil health negatively impacts crop yields, threatening food security and the livelihoods of local communities dependent on farming[27].

Disruption of Water Cycles and Resource Depletion

Forests play an important role in maintaining the local water cycle by regulating rainfall patterns, groundwater recharge, and surface water availability. The removal of vegetation due to deforestation disrupts these natural processes, leading to reduced water retention in the soil. As a result, water sources such as rivers, streams, and wells begin to dry up, creating water scarcity for both agriculture and household use. The depletion of water resources further compounds the challenges faced by rural communities.

Theory of Change

3.5 Project Logic

Table 3.5 Project Logic

Aim The project aims to provide income opportunities to local communities, improve ecosystem health by restoring barren or fallow lands through carbon sequestration, enhance soil fertility and water availability. This will be achieved by planting fruit-bearing tree species on farmers' land through agro-forestry, native tree species on community lands through social-forestry, and by developing soil and moisture conservation works in the plantation areas.		
	Description	**Assumptions/Risks**
Outcomes		
Carbon Benefit	The project aims to sequester atmospheric carbon and contribute to broader climate change mitigation efforts. The agro-forestry and social forestry plantations play a crucial role in carbon sequestration, offering significant benefits for climate change mitigation by reducing greenhouse gas concentrations, these plantations contribute to a more stable and favourable environment for crops and ecosystems. These initiatives specifically target fallow or barren lands, transforming them into carbon reservoirs that actively absorb and retain carbon dioxide. The planted trees	Assumptions: These initiatives contribute for climate action by carbon sequestration, soil improvement, and water resource management. Risk: The project may face challenges such as sapling mortality due to poor quality or inadequate care, pest attacks. The weather conditions could also affect tree growth and damage plantations.

[26] https://www.researchgate.net/publication/288180254_Ecological_problems_due_to_shifting_cultivation
[27] https://magazines.odisha.gov.in/orissareview/jan2005/englishPdf/Sustainable_soil.pdf

	not only regulate micro-climates, but also contribute to topsoil conservation, reducing erosion and water resource management.	Assumptions: Replanting of saplings may be delayed due to weather conditions or limited resources. Risk: Participants drop off
Livelihood Benefit	The cultivation of the tree species offers substantial livelihood benefits, particularly for tribal communities as it provides an additional income source from the NTFP, thereby contributing to improved economic conditions. Beyond economic gains, this produce also plays a crucial role in enhancingfood security by providing a sustainable source of nutritious food for local communities. The plantations create employment opportunities for the local people through natural resource management and also enhances their knowledge and skill development. Furthermore, these plantations and the soil & moisture conservation works contribute to improved soil fertility and water retention, positively impacting agricultural productivity for local farmers.	Assumption: Stronger interest from the local communities to involve in the plantations so that additional income can be generated from the NTFP and revenue from carbon so that itwill help them in improving their livelihood.
Ecosystem Benefit	Agroforestry and social forestry initiatives improves resilience of the ecosystems. The incorporation of a variety of native tree species in the plantations promotes biodiversity by creating habitats for diverse plant, animal, and microbial communities, creating natural ecosystems. These initiatives enrich soil health through the addition of organic matter, improved nutrient cycling, and increased microbial activity, benefiting both forest ecosystems and adjacent agricultural lands. It emerge as holistic approaches that not only enhance soil and water management but also foster biodiversity, community resilience, and the overall health of ecosystems.	Assumption: This initiative is expected to promote native diversity and create an environment similar to the indigenous ecological conditions.
Outputs and activities		
Output 1	Approximately 2528 hectares of farmland will be utilized for planting fruit-bearing species, such as Mango, Cashew, Litchi, and Jackfruit. Farmers can either consume or sell these produce, thereby enhancing their food security and generating additional income, thus improving their livelihoods.	Risks: Lack of irrigation, pest attacks, and grazing in these plantations contribute to mortality of young saplings. Assumptions: The use of organic pesticides and fertilizers, regular watering during dry periods, and

		trench construction to prevent cattle grazing will enhance tree survival and growth.
Activity 1.1	For the new plantation- Pre-plantation activities including land preparation, soil-moisture conservation, fencing, pit digging, composting and termite treatment etc	Risk: There might be risk of not completing these activities on time/ before the planting season. This will be mitigated by proper planning with timeline and keeping track of the progress and taking corrective actions. Landless farmers will also be involved in the pre- plantation activities along with the project participants
Activity 1.2	Planting activities including sourcing of saplings from Nursery, planting of saplings	Risk: Mortality of young saplings due to lack of water, nutrition, pest attack. This will be minimized through adoption of improved package of practice including use of organic manure and pesticides, regular watering by the community in the absence of rain from well/pond/river, digging of cattle proof trench all around to curb grazing.
Activity 1.3	Tree monitoring and maintenance activities for new as well as existing plantations including weeding, application of manure, growth monitoring etc.	Assumptions: Since the plantations are done on the private lands of farmers, there are minimum risks of low maintenance as they have ownership of the program. Proper fencing will further reduce the risk of destruction of saplings by animals.
Activity 1.4	Engage communities through regular meetings, provide hands-on training sessions for Community Resource Persons (CRPs) and farmers on agroforestry and social forestry techniques, and organize field visits with practical demonstrations of best practices. A Community Resource Person (CRP) is a local representative who facilitates project implementation by acting as a link between the community and project stakeholders. They raise awareness, provide training, and assist with project monitoring and data collection. CRPs support farmers or beneficiaries in adopting best practices and help resolve local issues related to project implementation.	Risk: There might be risk of not completing these activities on time, or the quality of implementation which will be mitigated by regular monitoring.
Output 2	Approximately 1033 hectares of the community lands will include include	Ownership of the community land.

	plantation of native species, such as Pongamia pinnata (Karanja), Azadirachta indica (Neemba), Phyllanthus emblica (Amla),Dalbergia sisso (Shishu), Cassia tora (Chakunda), Neolamarckia cadamba (Kadamba), Anacardium excelsum (Wild Cashew), Syzygium cumini (Jamukuli), Tamarindus indica (Tentuli), Madhuca longifolia (Mahua), Terminalia chebula (Harda), Terminalia bellirica (Baheda), Melia Azaderach (Mahalimba), Pterocarpus marsupium (Piasal), Bombax ceiba (Simli), Albizzia Lebbeck (Siris), Syzgium Cumini (Jamkoli), Azardirachta Indica(Nimba), Tamarindus Indica (Tentuli) Simarouba glauca (Simarua), Dendrocalamus Strictus (Bamboo). These species will contribute to sequestration of greenhouse gases in order to generate the revenue from the selling of carbon credits which will be beneficial for the local communities.	Mitigation: Letter of undertaking or Resolution willbe collected for their voluntary participation in the project by Gram Panchayat/Village Council/ VDC. Assumptions: VDC is tasked with identifying and mapping community lands within the designated project area serving as a key intermediary between local communities and project development partners
Activity 2.1	For the new plantation- Pre-plantation activities including land preparation, soil-moisture conservation, fencing, pit digging, composting and termite treatment etc	There might be risk of not completing these activities on time/ before the planting season. This will be mitigated by proper planning with timeline and keeping track of the progress and taking corrective actions. Landless farmers will also be involved in the pre-plantation activities on community lands.
Activity 2.2	Planting activities including sourcing of saplings from Nursery, planting of saplings	Risk: Mortality of young saplings due to lack of water, nutrition, pest attack. This will be minimized through adoption of improved package of practice including use of organic manure and pesticides, regular watering by the community in the absence of rain from well/pond/river, digging of cattle proof trench all around to curb grazing.
Activity 2.3	Tree maintenance activities for new as well as existing plantations including weeding, application of manure, growth monitoring etc.	Assumptions: Since the plantations are done on the private lands of farmers, there are minimum risks of low maintenance as they have ownership of the program. Proper fencing will further reduce the risk of destruction of saplings by animals.
Output 3	Soil and moisture conservation works like stone bunds and contour trenches will be	Risk- Maintenance of Water Conservation structures

	carried out in the plantation areas to reduce soil erosion, improve soil fertility, enhance water infiltration, moisture retention thereby increasing agricultural productivity through sustainable land management practices benefitting the local communities.	Mitigation: Continuous monitoring of establishment of Water conservation Structures.
Activity 3.1	Identification of areas and the construction of water conservation structures.	Risks: Ongoing maintenance may be neglected, leading to the deterioration of structures and reduced effectiveness over time. Best management practices will be followed.
Activity 3.2	The community plan will be integrated into the Gram Panchayat Development Plan (GPDP) to align with local governance priorities and access government schemes. This will help leverage financial and technical support from various rural development programs	Delays in MGNREGA payments could affect the project, but regular follow-ups and timely submission of attendance records will help keep activities on track.
Output 4	Involvement of the local communities in the project thereby enhancing their knowledge, skill development, and increased responsibility towards the ecosystem. Involvement of women in the project through SHG's majorly and driving the implementation of the project driving women empowerment.	Assumptions: Interest of local communities in active participation in the project. Risks: Cultural traditions or family opposition may restrict women's involvement.
Activity 4.1	Organize community meetings and workshops to involve local people in planning and decision-making processes related to the project.	Assumption: Enhanced community participation
Activity 4.2	Train SHGs in the development and management of nurseries, including the propagation of native and fruit-bearing tree species.	Assumption: Lack of technical knowledge

Technical Specification

Detailed technical specification is added in the Annex 7.

3.6 Project Activities

Table 3.6 Project Activity Summary

Project Intervention	Project Activities	Detailed Explanation	Inputs
Restoration of Private and Community Lands	Identification of suitable private and community	VDC will be formed at each village/ hamlet included in the project. VDC will be responsible for the	Formation of VDCs

	lands for project intervention (Activity 1.1; 2.1)	identification of suitable private and community lands. The criteria for the selection of land includes: 1. Land should not be cleared of native ecosystem from last 10 years[28]. 2. Clear land ownership 3. Existing green cover should be less than 10% of the total area of land parcel. For the construction of water conservation structures, VDC along with the community member will identify the area by using village resource map and physical visit.	Resource map of the village Technical support from Gram Vikas
	Establishment of nurseries by SHGs (Activity 1.1; 2.1, 4.2)	SHGs will be responsible for the identification of suitable land parcel for the establishment of nurseries. Training of SHG members on development and management of nursery by Gram Vikas team.	Technical support from Gram Vikas. Land area suitable for nursery development Standard Operating Procedure for nursery development.
	Plantation of trees (Activity 1.2; 2.2)	Pre-plantation activities like land cleaning, pit digging, composting[29] and plantation of saplings.	Timeline Technical Guidance from Gram Vikas
	Maintenance of Plantations (Activity 1.3; 2.3)	Regular tree maintenance, including watering, weeding, mulching, composting, treating pests as needed, staking, trimming, and thinning, will be carried out to guarantee low mortality and healthy development.	Orientation of project participants on maintenance activities Monitoring of the maintenance
	Tree Growth monitoring (Activity 1.3)	Monitoring and documenting data related to tree growth involves measuring, recording, storing, and aggregating various parameters. Besides tracking tree growth	Verifying methods used to collect field data;

[28] All the land parcels included has been checked by the GIS team for all the three criteria mentioned. If there is a dense cover present inside the boundary of the land parcel, the kml has been adjusted to make sure it includes only the area of intervention.
If the baseline trees are scattered throughout the parcel, each tree has been geotagged and will be excluded to calculate the benefits of the project.

[29] Implementation of compost will take place only one time per year. The GHG emissions from the pre-plantation activity is less than 5% of the total project removals, hence can be conservatively ignored.

		details like Diameter at Breast Height (DBH) and height, additional factors such as sprouting progress, pest infestations, tree mortality, fencing status, irrigation needs, and the availability of facilities are also monitored. The timely application of compost and the level of community involvement in the care and maintenance of the trees are considered as they significantly impact tree growth. This comprehensive data collection helps ensure effective growth monitoring and management.	Verifying data entry and analysis techniques; and Data maintenance and archiving. Especially this point is important, given the scale and duration of the project.
	Community Engagement (Activity 4.1 and 1.4)	Regular community meetings and workshops will be organized to ensure active participation of local people in project planning and decision-making. These forums will engage Village Development Committees (VDCs), Self-Help Groups (SHGs), to identify community priorities, suitable land parcels, and preferred species for plantation. Workshops will also focus on building local capacity through training on plantation techniques, soil and moisture conservation, and sustainable land management practices.	Planning and invitation Minutes of meeting Community Feedback and Technical Inputs
Improved Land Management	Identification of areas and the construction of water conservation structures. (Activity 3.1)	After the formation of VDC, the VDC will conduct an assessment with the help of Gram Vikas team and identify the areas where these water conservation structures are required to be built. After identification , these structures have been built by the help of community members. For these, they are compensated as per the wage decided by the VDC.	Formation of BDCs Identification of areas of concerns Construction of water conservation structure

Plantation Plan

Considering the long-standing connection between local communities and plantations, the selection of species for plantation activities was based on their role in supporting livelihoods, adaptability to

regional climatic challenges, and their native origin. Additionally, preference was given to species that produce commercially valuable fruits with demand in both local and distant markets.

All selected species are well-suited to the designated districts, with farmers making their choices based on personal preferences while considering these key factors. The variation in species selection is influenced by field conditions, ensuring plant diversity that meets multiple needs while also enhancing the area's overall biodiversity.

Focusing on the strategic plantation of diverse native tree species such as Mango, Litchi, Cashew Jackfruit and Amla along with forest species under agroforestry. Plantation of fruit-bearing tree and social forestry species plays a crucial role in enhancing livelihoods sustainably by providing economic stability, improving soil health, increasing biodiversity, and supporting climate resilience. Additionally, this approach helps in carbon sequestration, reducing soil erosion, and promoting efficient water management, making it an essential strategy for both environmental conservation and rural development.

The various activities that will be taken up under the project with timeline are as follows:

1. Plantation in Private lands: Maintenance of existing plantation and taking up new areas under plantation of Mango, Litchi, Cashew Jackfruit and Amla will continue in different regions of Orissa expanding the coverage of the project.

2. Plantation in Community lands: Undertaking social-forestry plantations on community lands to provide benefits like establishment of carbon sink by increasing the green cover, regulation in micro-climate and improvement in soil and water resources. Species such as Kadam, Sishu, Simarua, Jamun, Karanj.

3. Water conservation structures: Improved Land Management by construction of soil and moisture conservation structures such as stone bunds and contour trenches for soil stabilization, sustainable agriculture, and landslide management

4. Maintenance and support: Continuously providing maintenance and support to the existing and new plantations, including regular monitoring, watering, and pest control, to ensure the healthy growth and survival of the trees.

5. Monitoring and evaluation: Regular monitoring and evaluation of the project's progress-both physical and financial, including the growth and survival rates of the planted saplings, the socio-economic impact on the communities, and the biodiversity outcomes.

6. Stakeholder engagement: Continued engagement with stakeholders, including local communities, government agencies, and other relevant entities. Conducting stakeholder meetings, consultations, and capacity building workshops to ensure participation, collaboration, and shared ownership of the project.

A detailed financial plan including full costing of the activities listed above including plantation activities, capacity building, benefit sharing commitments and also monitoring and verification activities is done for the project. During the periodic monitoring of the project, both physical and financial monitoring is taken up with verification of evidences for all the expenditures made and physical targets claimed to be achieved.

	Activities	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
	Planning and Preparation												
	Area identification and selection												

1	FPIC initiation at villages												
	Awareness meetings												
	Farmer and stakeholder engagement												
2	**Pre-Implementation activities**												
	Land Verification and mapping												
	Irrigation setup												
	Machinery and equipment procurement												
	Farmer registration and signing of carbon agreement												
	Training and capacity building												
3	**Nursery establishment**												
	Land preparation for nursery establishment												
	Seed Sourcing and Propagation												
	Sapling Care and Management												
4	**Plantation Phase**												
	Land preparation												
	Pit Digging												
	Sapling Transport and Distribution												
	Application of Fencing												
	Planting of saplings at selected site/ plots												
5	**Maintenance and Monitoring**												
	Application of biofertilizer												
	Replace any damaged or dead saplings to maintain target coverage												
	Progress Monitoring and Reporting												
	Progress report												

Nursery Overview:

To facilitate nursery development, Self-Help Groups (SHGs) comprising women from tribal communities are established. These SHGs take charge of nursery management for plantation activities. As part of the project, we plan to procure saplings from these SHGs to support plantation efforts. This approach not only strengthens afforestation initiatives but also empowers tribal communities and women by creating more stable financial opportunities.

The below process is followed for procuring the saplings from the nursery:

1. **Site selection**: SHG's in collaboration and technical support from Gram viaks, has jointly undertaken the site selection process ensuring that the nursery development are carried out effectively and is also suitable to our designated plantation site.
2. **Preparing the infrastructure and facilities for pre plantation activity:** SHG's with local communities of Khond and Saora tribe have participated in pre and post plantation activities,

including land preparation, soil-moisture conservation, fencing, pit digging, composting and termite treatment, pit digging, planting, and maintenance

3. **Production of sapling**: Self-Help Groups (SHGs) have been instrumental in collecting seeds from community forests. These seeds are then used to establish and develop nurseries.
4. **Scheduled Cleaning:** Inspecting the nursery periodically by assigning trained personnel or SHG members to carry out cleaning and weeding tasks efficiently.
5. **Quality check of the sapling**: Self-Help Groups (SHGs) oversee the nurturing of saplings and conduct regular inspections to monitor their growth, health, and resilience against pests and diseases.
6. **Skill enhancement of SHG's and other local community through training programs:** Gram Vikas is equipping SHGs with updated skills in nursery management and development, emphasizing the cultivation of native and fruit-bearing tree species.
7. **Procurement or Sourcing of Sapling from nursery**: Saplings are directly purchased from SHG's to provide them direct monetary fund. Additionally, forestry department and horticulture department support will also provide plant saplings, which adds extra inputs to the farmers.

3.7 Additionality

Table 3.7 Additionality Assessment Summary

Project Intervention	Main Barriers	Activities to Overcome Barriers
Restoration - Undertaking agroforestry plantations by planting fruit-bearing species to improve the livelihood of the local communities.	The main barriers for the local communities to implement the agroforestry practices are lack of financial resources to support the plantation activities. The income generated from the farming is used for meeting their daily needs. Limited market opportunities causing poor access due to the remoteness of the area and value chain constraints are some of the other barriers faced by the local people.	Different partnerships will be explored to secure fundings for agroforestry and social forestry initiatives for future instances of the project development. FPGs will form better market linkages between the producers and the potential buyers.
Restoration - Undertaking social-forestry plantations to provide benefits like income opportunities, soil conservation & improvement, micro-climate regulation, water resource management to the neighbouring communities.	The targeted communities lack the expertise and knowledge to carry out the medium/large scale plantation projects. The lack of awareness on the benefits that can be generated from the social forestry plantations usually lead to resistance amongst the community members. Unpredictable climate patterns, including natural disasters like cyclones and	A comprehensive land treatment plan has been devised for the entire project intervention region. To ensure the appropriate treatment of the land in alignment with the geophysical conditions, technical specialists and additional support are provided. Additionally, the project guarantees capacity-building initiatives within the community, fostering a

	landslides, affect the success of tree planting.	sustainable foundation for its long-term viability.
Improved Land Management - Undertaking soil and moisture conservation work such as stone bunds and contour trenches for sustainable agriculture and environmentalmanagement.	The lack of skills and technical expertise to build the soil and moisture conservation works is a major barrier amongst the targeted communities. The limited access to financial support becomes difficult to implement these activities as it requires a large amount of funds. As these communities reside in the remote areas, they don't have awareness on the benefits that can be generated by the sustainable land management practices.	Capacity building programs will be conducted by the GramVikas team to the local communities contributing to skill development.

Please refer to Annex 7 for detailed additionality assessment using PM001.

3.8 Carbon Benefits

Table 3.8a Expected Carbon Benefits Summary

Project Intervention	**Baseline Emissions (t CO_2e/ha)**	**Project Emissions (t CO_2e/ha)**	**Leakage Emissions (t CO_2e/ha)**	**Carbon Benefit (t CO_2e/ha)**
Restoration of Private and Community lands	0	0	0	2,460,438

Table 3.8b Plan Vivo Certificate Potential

Project Intervention	**Carbon Benefit (t CO_2e/ha)**	**Project Area (ha)**	**Total Carbon Benefit (over 30-year project period) (t CO_2e)**	**20% Risk Buffer (t CO_2e/ha)**	**Potential PVCs (t CO_2e)**
Restoration of Private and Community lands	18.43	3561	2,460,438	5.02	1,968,351
TOTAL	**18.43**	**3561**	2,460,438	**5.02**	1,968,351

The project will contribute 10% of the credits generated into the achievement reserve. Please refer to Annex 7 for the detailed assumptions and carbon calculations.

Risk Management

3.9 Environmental and Social Safeguards

3.9.1 Exclusion List

The project does not include any activity as listed in the Plan Vivo Exclusion List. The complete exclusion list is provided in Annex 8.

3.9.2 Environmental and Social Screening

Table 3.9.2 Environmental and Social Risks

Risk Area	Potential Risks	Likelihood (1-5)	Magnitude (1-5)	Significance (low, moderate, severe, high)
Vulnerable Groups	The project includes participants from PVTG's present inside the project region boundary. The communities are vulnerable to livelihood shocks. The project will improve their socio-economic status and enable them to manage their resources better.	2	3	Moderate
Gender Equality	The VDC's promotes to have 1:1 (male:female) gender ratio, and the SHG's comprises of women only. Women are actively involved in the project activities leading to their empowerment and a key participant in the decision-making process.	2	2	Low
Human Rights	There are no project activities that could prevent people involved in the project from fulfilling their human rights.	1	4	Low
Community, Health, Safety & Security	The initiative is intentionally crafted to always safeguard the well-being and security of the community. This assurance is embedded in every project intervention. Representatives of FPG and VDC will supervise field work to proactively avert any unfavourable circumstances. Moreover, comprehensive safety measures will be diligently implemented.	2	2	Low
Labour and Working Conditions	The project has clear employment conditions built into the project's architecture as it complies with government regulations regarding payment terms to men and women. For the project's beneficiaries, there are no anticipated occupational health and safety issues. Since the work is being done on their own farms and community lands, the	2	2	Low

	community views it as a huge benefit to have everyone in the village helping out.			
Resource Efficiency, Pollution, Wastes, Chemicals and GHG emissions	Project activity includes plantation of native horticulture and forestry tree species, development of water conservation structures which doesn't harm environment in any sense and generate no waste.	1	2	Low
Access Restrictions and Livelihoods	As the project activity will be carried out on private land and community lands, there won't be any access limitations. This initiative will contribute to enhancing the community's livelihoods and resources in a manner that is both enduring and environmentally sustainable.	3	2	Moderate
Cultural Heritage	There is no cultural heritage in the project area.	1	2	Low
Indigenous Peoples	The Khond and Saora tribal groups are largely present in the project area. All the benefits generated from the agroforestry and social- forestry plantations will be received by the land owning people for agroforestry and the local communities for social-forestry. The statutory or customary rights of these communities will not be affected by any of the project activity.	3	3	Moderate
Biodiversity and Sustainable Use of Natural Resources	The tree planting of indigenous species enhances the local biodiversity thereby enhancing the native ecosystem. The soil and water conservation works aids in the sustainable use of natural resources by improving soil properties, and water availability.	1	1	Low
Land Tenure Conflicts	There will be no land tenure conflicts as the plantations takes place either in the privately owned or community lands.	2	2	Low
Risk of Not Accounting for Climate Change	Unpredicted cyclonic, drought, fire and landslides may affect the project activities and the project participants are largely dependent onthe climate – sensitive occupation which is farming.	3	2	Moderate
Other – e.g. Cumulative Impacts	There are no any other negative impacts.	1	1	Low
Overall risk assigned to project:				**Moderate**

Please refer to the Annex 9 for the detailed risk assessment.

3.9.3 Environmental and Social Assessment

Environmental and Social Assessment report is enclosed in Annex 10.

The community engagement is there from the beginning of the project and the project has been carefully designed with participatory approach and integrating ideas of the participating communities through FPIC and conducting meetings and expert interviews to ensure that project activities will continue even after the project life. Even before the project implementation begins, each village was consulted at length using Free, Prior and Informed Consent (FPIC) procedures and also through a series of consultations, focused group discussions, participatory rural appraisals (PRAs) and training of the community members. The communities have been clearly appraised about the project design, implementation, monitoring, reporting and verification (MRV), cost, risks and engagement of all stakeholders along with their roles. Engagement was undertaken in English, Hindi and Odia the local languages, to ensure full participation and development of transparent project process.

The Project will follow the FPIC protocols through its entire lifetime and it has, and it will document any lessons learned that can improve future actions. This can better guide the actions of the organization in future projects and diminish future risks and challenges.

The agreement will be made with the Project Participants i.e., the indigenous communities to get their consent to the project. A proper project-level grievance mechanism will be set through which grievances are managed. This will ensure broad community level confidence and support to the project. Project will ensure to disclose any financial or nonfinancial compensation provided to community members as part of the engagement process.

In this Project as important stakeholders local tribals, SHG, FPG and VDC formed will be involved in preparing village-level micro-plans, work schedules, doing community-based review of activities and protecting and maintaining plantations and various conservation structures.

To further strengthen the rights to carbon there will be a signed agreement with the farmers to ensure the same. The community members will be engaged at all levels of the project implementation, from decision making, to monitoring of the project.

An Environmental and Social (E&S) risk and impact assessment was carried out to evaluate the potential risks linked to the project's activities and to ensure compliance with both national and international environmental and social standards. The project is being implemented in the Gajapati, Ganjam, Kalahandi, and Kandhamal districts of Odisha, areas primarily inhabited by tribal communities. The project's key objectives are to promote agroforestry plantations, social forestry plantations, and soil and water conservation, with the goal of enhancing livelihoods of tribal communities and rehabilitating degraded lands.

Methodology

Informant interviews were conducted with various stakeholders, ensuring that communities were thoroughly informed about the project's design, implementation, monitoring, reporting, and verification (MRV) processes. They were also briefed on associated costs, risks, and the roles and responsibilities of all stakeholders. To promote inclusive participation and transparency, these discussions were carried out in English, Hindi, and Odia (the local languages). Given below are the List of stakeholders and different methods used by facilitator to interview and Sample Data Collection sheet used to interview the stakeholders during the E&S assessment.

The assessment thoroughly examined various potential risks associated with the project to ensure that it is socially responsible and environmentally sustainable. These include:

- **Impact on Vulnerable and Indigenous Communities**: The project recognizes the challenges faced by tribal populations, including their limited access to resources and economic opportunities. It focuses on addressing these inequalities by ensuring that the benefits of the project reach these communities effectively.
- **Gender Equality**: Emphasis is placed on ensuring that women are included in all stages of the project, from decision-making processes to financial and economic activities. This includes empowering women through access to resources and leadership opportunities.
- **Community Health, Safety, and Security**: The project is committed to ensuring that the activities do not negatively impact the health, safety, or security of local populations. Measures are in place to avoid any harm and to promote a safe environment for community members.
- **Labour and Working Conditions**: The project ensures adherence to fair labour practices, aligning with national labour laws. This includes providing fair wages, safe working conditions, and opportunities for workers' rights to be respected
- **Land Tenure and Access Rights**: The assessment of land tenure and access rights is conducted to prevent conflicts related to land ownership and usage. This helps to clarify ownership and ensure that land-related disputes do not hinder the project's progress.
- **Biodiversity and Natural Resource Management**: The project ensures that agroforestry activities help restore and protect local biodiversity while promoting. It focuses on balancing resource use with caring for the environment sustainability.

The assessment aligned with national environmental regulations and international frameworks, such as the Plan Vivo Standard for E&S Safeguards and the UN Sustainable Development Goals (SDGs). To mitigate identified risks, safeguard plans were developed, focusing on avoiding, minimizing, and addressing potential adverse impacts.

1. **Participatory Rural Appraisal (PRA)**

In the villages, Participatory Rural Appraisal (PRA) was conducted to engage local communities in identifying their needs and resources. The project team worked closely with landowners, women's Self-Help Groups (SHGs), and other stakeholders to understand local land use and challenges. Through discussions and group activities, the team gathered valuable information to prioritize interventions like agroforestry and social forestry plantations and soil and water conservation measures. The process also involved creating community-led maps that categorized land types, such as agricultural fields, grazing areas, and wastelands, which helped in planning sustainable land management practices tailored to the specific needs of each village.

2. Focus Group Discussions (FGD)

The project made a concerted effort to engage vulnerable and marginalized groups in order to understand their specific challenges and needs. Through discussions, important issues such as land tenure disputes, limited access to water, and economic hardships were identified. These insights were essential in shaping the project's safeguard plans, ensuring that the interventions cater to the unique needs of these communities while fostering inclusive and sustainable development.

3. Key Informant Interviews (KIIs)

The project collaborated with local governance structures, including Gram Panchayats, village elders, and community leaders, to align its activities with existing development goals. Through these consultations, the project was able to integrate its efforts with ongoing local initiatives, which helped build community ownership and ensured that the interventions would be sustainable and beneficial in the long run.

4. Risk Significance Criteria

Risks were assessed using a structured approach that evaluated the likelihood (1-5), magnitude (1-5), and overall significance (low, moderate, high, severe). This method allowed the project team to systematically identify and rank risks, ensuring that effective mitigation strategies were developed and implemented accordingly.

5. Sampling Strategy

A representative sample of villages was chosen to reflect the different socio-economic and ecological conditions in the project area. Special focus was given to tribal communities, women-headed households, and landless farmers to make sure their views were included in the assessment and planning.

Based on these methods, the project included mitigation measures, such as community-led grievance mechanisms, financial literacy training for women, and participatory monitoring to track progress.

The project team consisted of local community members and external experts with knowledge in impact assessment, community development, and environmental management. Key members included:

- **Environmental Specialists**: Experts in agroforestry, biodiversity, and resource management.
- **Social Development Practitioners**: Professionals focused on community engagement, gender equality, and improving livelihoods.
- **Local Facilitators**: Representatives from Village Development Committees (VDCs) and Self-Help Groups (SHGs) who helped with community participation.
- **E&S Safeguard Experts**: Professionals experienced in social and environmental risk management.

The team brought local knowledge, an understanding of tribal socio-economic conditions, and familiarity with international standards to develop safeguard plans that are community-driven and ensure the project's long-term sustainability and fair benefits for everyone involved.

Summary of Assessment Findings

The risk assessment conducted across all four districts—Gajapati, Ganjam, Kalahandi, and Kandhamal classified the risk level as low to moderate, indicating minimal negative impacts on communities, the environment, and overall project sustainability.

From the outset, the project interventions were intentionally designed to enhance the resilience of vulnerable tribal communities, especially women, by improving livelihoods, promoting sustainable resource management, and expanding economic opportunities. These communities belong to

marginalized groups with limited livelihood resources, primarily relying on agriculture and forests. However, frequent droughts and reduced rainfall have significantly impacted agricultural productivity. The project addresses these challenges by ensuring the active inclusion of these groups in decision-making and institutional processes, thereby empowering them to better assert their rights and build long-term resilience.

During the assessment, most community members expressed concerns about economic instability and food insecurity. Given their reliance on subsistence agriculture and seasonal employment, livelihood shocks can have serious impacts. To address this, the project introduces diversified livelihood strategies such as agroforestry, social forestry, and active community involvement in various project activities to create alternative sources of income. Special emphasis is placed on empowering women, who are given priority in project participation. Additionally, revenue generated from the sale of carbon credits will further support the socio-economic upliftment of these communities.

For the men in the families, key issues raised included fair wages and working conditions. Many are compelled to migrate to larger cities, leaving their families behind, due to lack of local opportunities. Concerns were also raised about insufficient compensation, job security, and the high cost of education for their children. To respond to these challenges, the project ensures that all workers are paid in line with government wage norms. The first 100 days of employment will be covered under MGNREGA, and the same wage rate will be maintained for continued involvement in project activities, promoting financial stability.

For the village youth, the project has developed an internship program that offers one year of training under expert guidance. This hands-on involvement in project interventions aims to build their skills and enhance future employment opportunities.In terms of gender equality, the project actively promotes women's empowerment through economic and social opportunities. Human rights are also upheld, as the interventions are designed to improve community well-being without limiting access to resources or infringing on individual rights.

The project ensures the health, safety, and security of the community by embedding safety protocols into all implementation activities, with continuous supervision by community leaders. All labor practices align with government standards, offering fair wages and equal opportunities. Since the work takes place on participants' own farmland, there are no significant occupational hazards.

Environmental sustainability is central to the project's approach. Interventions such as agroforestry, social forestry, and soil and water conservation efforts contribute to enhanced biodiversity without causing pollution, generating waste, or releasing harmful emissions. The project promotes organic practices by using locally available resources like cow dung, avoiding chemical fertilizers and industrial machinery, thereby supporting a nature-based model for landscape restoration.

Project activities are conducted entirely on privately owned land, so there are no access restrictions or displacement issues. Land ownership and leasing arrangements are clearly defined, minimizing the risk of tenure-related conflicts. The project area does not include any sites of cultural or historical significance. Indigenous communities' rights are fully protected, and carbon benefits, including co-benefits, are directly shared with the participating tribal households.

Although the region occasionally experiences climate challenges such as erratic rainfall and drought, these are addressed through climate-resilient practices that improve soil moisture retention and promote water conservation, thereby reducing vulnerability and strengthening long-term sustainability. Overall, the project and its associated activities are thoughtfully structured to promote social inclusion, environmental sustainability, and economic development. It ensures

equitable participation of all community members, particularly vulnerable groups, while safeguarding natural ecosystems. The project poses no significant threats to local communities or the environment, and instead aims to enhance livelihoods, strengthen resilience, and support long-term ecological and social well-being.

3.9.4 Environmental and Social Management Plan

Table 3.9.4 Environmental and Social Risk and Impact Mitigation Measures

Risk/Impact	Mitigation Measures	Project Activity
Low participation of community in meetings/ planning processes	The project will conduct multiple stakeholder engagements in the project area to increase the community participation. Additionally, Gram Vikas will act as a catalyst in mobilising community. Gram Vikas is working in the project area for more 25 years and community understands the process of work hence the risk of low participation from the community is minimal.	**Activity 4.1**- Organize community meetings and workshops to involve local people in planning and decision-making processes related to the project.
Exclusion of landless families into the carbon project, depriving them of income earning opportunity.	The non-participant farmers and landless farmers will also be included in the project by their involvement in pre and post plantation activities and construction of water conservation activities. They will receive their daily wage decided by VDC .	**Activity 1.1 and 2.1** For the new plantation- Pre-plantation activities including land preparation, soil-moisture conservation, fencing, pit digging, composting and termite treatment etc
Delay in implementation or quality of implementation not being good	A comprehensive monitoring and implementation plan is in place for periodic monitoring and implementation of the project activity.	**Activity 1.4** Engage communities through regular meetings, provide hands-on training sessions for Community Resource Persons (CRPs) and farmers on agroforestry and social forestry techniques, and organize field visits with practical demonstrations of best practices.
There might be risk of not completing these activities on time/ before the planting season.	A comprehensive monitoring and implementation plan is in place for periodic monitoring and implementation of the project activity. Corrective measures will be taken as required.	**Activity 2.1** The pre-planting activities will be carried out under the supervision and continuous monitoring of the implementation partners, in accordance with the comprehensive monitoring and implementation plan.
Mortality of young saplings due to lack of water, nutrition, pest attack and grazing.	This issue will be mitigated by implementing an enhanced package of practices, which includes the use of organic manure and pesticides, regular watering by the community	**Activity 1.2. and 2.3** Planting activities including sourcing of saplings from Nursery, planting of saplings

	during dry periods using water from wells, ponds, or rivers, and the construction of cattle-proof trenches around the area to prevent grazing.	Tree maintenance activities for new as well as existing plantations including weeding, application of manure, growth monitoring etc.
Low maintenance of the plantations	As the plantation are done on private and community lands, there are negligible risk of maintenance as they have their responsibilities defined in the carbon rights agreement. Additionally, they will receive support from Gram Vikas and FCF India on the maintenance of plantations. This maintenance work will be strictly monitored by Gram Vikas team.	**Activity 1.3 and 2.3** Tree maintenance activities for new as well as existing plantations including weeding, application of manure, growth monitoring etc.
Lower chances of risk of delayed payments under MGNREGA in case of leveraging from the Government	Mitigation can be ensured through regular follow-ups and the timely submission of labour records. A designated individual will be assigned specifically to oversee labour details under MGNREGA, ensuring proper documentation and compliance.	**Activity 3.2** The community plan will be integrated into the Gram Panchayat Development Plan (GPDP) to align with local governance priorities and access government schemes. This will help leverage financial and technical support from various rural development programs.
Vulnerable group	The project ensures inclusive participation, with no discrimination based on age, sex, religion, caste, or creed. Governance structures such as community-based institutions and Village Development Committees include members from these vulnerable groups, ensuring their voices are represented in project decision-making. The interventions includes plantation-based agroforestry, social forestry, and soil and water conservation which are designed to improve livelihoods, rehabilitate degraded lands, and provide sustained economic benefits. Tribal women and youth are specifically empowered to access rights and entitlements. Smallholder farmers are included directly, while landless farmers participate in project activities, generating additional employment opportunities. Overall,	**Activity 4.1 and 1.4**- Organize community meetings and workshops to involve local people in planning and decision-making processes related to the project.

	the project strengthens community resilience, diversifies income sources, and ensures that vulnerable groups are not disproportionately affected but rather benefit from environmental restoration and sustainable development interventions.	
Risk of Restricted Access to Land and Natural Resources	The project does not restrict people's access to land or natural resources. Farmers and the Village Development Committee (VDC) retain legal ownership of their land and rights to any NTFPs generated. Participants transfer only the carbon rights to the project proponent, while 60% of the revenue from carbon credits flows back to them. The project engages communities through Free, Prior, and Informed Consent (FPIC) processes, including VDC trainings, ensuring transparency, participation, and grievance redressal. Alternative livelihood opportunities provided by the project further reduce dependence on natural resources, supporting sustainable rehabilitation. Consequently, there is no negative impact on livelihoods or access due to project activities.	**Activity 4.1**- Organize community meetings and workshops to involve local people in planning and decision-making processes related to the project.
Indigenous Peoples and Free, Prior, and Informed Consent (FPIC) Risks	The project area includes indigenous tribal communities, primarily the Khond and Saora tribes. The project actively engages these communities to improve livelihoods and create job opportunities. There are no negative impacts on indigenous peoples. They have been consulted through community meetings, stakeholder workshops, and direct engagement, ensuring their concerns are incorporated into project design. The FPIC process is fully implemented, with transparent communication and participatory decision-making, enabling informed choices about project participation.	**Activity 4.1**- Organize community meetings and workshops to involve local people in planning and decision-making processes related to the project.
Land tenure conflicts	Project activities will be implemented on private farmer lands and community lands, ensuring no land	**Activity 1.4, 4.1 and 4.2**

	tenure or use-right conflicts. Land ownership will be verified during the FPIC process, and VDCs will approve the inclusion of community lands. Participants will transfer carbon rights to the project while retaining legal ownership of their land and any NTFPs generated.	

3.9.5 Native Species

Table 3.9.5: Non-Native Species Overview

Project Intervention	Non-Native Species Planted/ Introduced	Justification	Risk Assessment and Management
Plantation of trees	NA	NA	NA

The species selected for the plantation activity on private and community lands are native to the project areas and suggested by the community itself, hence there is no environmental risk or threat.

3.10 Achievement of Carbon Benefits

The project will claim rPVCs, fPVCs, vPVCs and the portion of Carbon benefits that will be held as insurance against non- achievement of carbon benefits is 10%.

3.11 Reversal of Carbon Benefits

Risks and threats have been analysed using the provided Plan Vivo tool, and the project risks fall into the low category, with a score range of 10%-20%. Conservatively, to comply with the requirements of the latest version of the PV Carbon Standard (v.5) we have allocated a 20% risk buffer to account for potential reversal of carbon benefits.

Table 3.11 Risk of Reversals

Risk Factor	Impact	Likelihood	Mitigation Measures*	Score
Social				
Land tenure and/or rights to climate benefits are disputed	**2- Moderate** There is a moderate risk of land tenure disputes on community land, primarily due to unclear or overlapping boundaries. Such disputes, or the potential dropout of farmers from the project, or the land disputes may affect the carbon rights and the equitable distribution of benefits generated	**1- Low** The ownership of the land parcels included is clear and there are no disputes related to the ownership in the project parcels. The private lands are legally owned by farmers and Village development committee has legal rights of community lands.	**Activity 1.4** Engage communities through regular meetings, provide hands-on training sessions for Community Resource Persons (CRPs) and farmers on agroforestry and social forestry techniques, and organize field visits with practical demonstrations of best practices. For private lands, the ownership of the land parcels can be	**2**

	through the project. .		physically verified through land documents issued by state government. For community lands, resolution passed by the village development committee is available and can be physically verified.	
Political or social instability	**2-Moderate** There is a moderate likelihood of policy changes related to land use and property rights, which could significantly affect community lands. Additionally, social instability may arise from boundary overlaps, land disputes among farmers.	**1- Low** The project interventions have been designed to benefit the entire community. Farmers who have opted not to take part in the project activity and the landless farmers can participate in pre and post plantation activities and construction of water conservation structures. This participation will not follow any discrimination based on age, sex, religion, or creed.	**Activity 4.1** The project brings benefits to both participating and non-participating communities, hence the incidence of fractions is low .	**2**
Community support for the project is not maintained	**3- High** Lack of support can lead to conflicts between the project developers and local communities, resulting in resistance or sabotage of project activities	**1- Low** Gram Vikas is working in the project area since so long and conducts regular meetings to discuss and resolve issues.	**Activity 1.4** Engage communities through regular meetings, provide hands-on training sessions for Community Resource Persons (CRPs) and farmers on agroforestry and social forestry techniques, and organize field visits with practical demonstrations of best practices. A Grievance redressal mechanism is in place	**3**

			to address communities concerns promptly and fairly.	
Economic				
Insufficient finance secured to support project activities	**2-Moderate** It could be difficult to provide farmers with the right incentives and rewards without enough money. The absence of funding may make farmers less motivated and less likely to participate in the study. s	**1- Low** There is little likelihood that a lack of funding will affect the project's capacity to fairly compensate and encourage farmers. Even yet, there is enough climate financing available to cover the project's initial few instances. Continued efforts to draw in more funding are still essential.	**Output 2** The project has partially acquired climate financing and has started on-the-ground implementation. In order to guarantee a consistent supply of funds, the project developer is also contacting a number of financing sources, such as government grants, the commercial sector, and foreign benefactors.	**2**
Alternative land uses become more attractive to the local community	**3- High** Some farmers might opt out of the project because the income from another land-use commodity becomes attractive than growing trees. Alternative land uses may attract the local community if they provide higher or quicker financial returns compared to tree planting. Farmers may prefer other options due to shorter income cycles, market demand, or lower maintenance requirements.	**1- Low** For the past decade, the project area has mostly remained barren because there haven't been enough resources to make use of the property. Farmers find planting fruit-bearing trees to be a desirable alternative, and they have been informed of the benefits to the environment in order to guarantee the longevity of the tree cover.	**Activity 1.1** Fruit and other resource-bearing tree planting is one of the project's planned interventions. Tree planting becomes an attractive choice for farmers because of the carbon payments and long-term financial benefits. Farmers' involvement in the initiative will be encouraged by the revenue that they get from selling fruits.	**3**
External parties carry out activities	**3-High**	**1-Low**	**Activity-1.4**	**3**

that reverse climate benefits	External parties may engage in activities like deforestation or land conversion.	The project land parcels includes privately owned and community lands who have clear ownership. Hence the risk is Low.	Engage communities through regular meetings, provide hands-on training sessions for Community Resource Persons (CRPs) and farmers on agroforestry and social forestry techniques, and organize field visits with practical demonstrations of best practices. Ownership of private land parcels can be physically verified through land documents issued by the state government. For community lands, verification can be done through resolutions passed by the Village Development Committee (VDC), which are available for physical inspection.	
Environmental				
Fire	**3-High** There are chances of loss of carbon due to fire outbreak as fire is a major risk in project region.	**1- Low** The project includes private lands and community lands which will be maintained by community itself. In case of fire outbreaks, fire management techniques are in place to ensure minimum damage.	**Activity 2.3** The project involves plantation of tree species on fallow lands, hence the risk of fire is negligible. Additionally, the fire incident in the project area has reported normal.[30,31,32,33]	**3**

[30] Link
[31] Link
[32] Link
[33] Link

Pest and disease attacks	**2-Moderate** Infestations can stunt the growth of trees and reduce the overall yield of fruits, or other tree products, directly affecting the economic returns of the plantation.	**1- Low** The risk of pests and diseases will be minimised by the adoption of proper silvicultural practices.	**Activity 2.3** As part of maintenance, the interventions include application of vermicompost, anti-termite and anti-fungal treatment to reduce the risk of pest and diseases.	**2**
Extreme weather or geological events	**2- Moderate** Mortality of trees due to drought.	**1- Low** The risk of drought will be minimised by including the farmers who have irrigation facilities.	**Output-3** The project involves development of soil moisture conservation structures in order to combat the drought situation.	**2**
Administrative				
Capacity of the project coordinator to support the project is not maintained	**1- Low** Ineffective coordination, communication with stakeholders (including local communities, investors, and regulatory bodies) can suffer, leading to misunderstandings and reduced support.	**1- Low** The project coordinator will make sure that effective channels of communication are established with all parties involved and that they receive timely updates on project status.	The project coordinator is working with these communities since so long. For detailed information about the entities involved in the project, please refer to section 2.2 of the PDD.	1
Technical capacity to implement project activities is not maintained	**1- Low** Project activities fail to deliver expected climate benefits. Project activities fail to deliver expected livelihood benefits	**1- Low** The project coordinator and developer has sectoral experts related to interventions of the project. FCF India along with Gram Vikas will ensure technical guidance is given to local communities for the implementation of project activities.	The project activities included in the project has been decided after consultation with communities to represent community participation in decision making and ensure transparency through the crediting period. Please refer to section 2.2 of the PDD for the technical capacity to implement project activities.	**1**

*Cross reference activities from Section 3.5 (e.g. Activity 1.1.1)

3.12 Leakage

Table 3.12 Leakage Risk Mitigation

Project Intervention	Leakage Risk	Mitigation Measures*
Restoration of private and community lands	Since there is no displacement of agricultural production or grazing within the project boundary due to project activities, leakage emissions are deemed to be zero for the project's entire duration. During the initial phase of the project community consultations and land surveys were conducted to understand grazing patterns and the community's dependence on trees for fuel and food. Using Focus Group Discussions (FGDs) and Participatory Rural Appraisal (PRA) techniques, villagers, local leaders, and stakeholders shared their perspectives on land use, livestock grazing, and natural resource dependency. These interactions confirmed that grazing does not take place within the project area. Furthermore, PRA tools such as resource mapping, historical land-use analysis, and seasonal calendars provided additional verification that the baseline trees were neither used for fuelwood collection nor for fruit harvesting.	To ensure zero leakage emissions, the project will implement community-led planning that accounts for the non-displacement of agriculture and grazing within the project boundary. This approach will include detailed plantation and land treatment plans, ensuring that local livelihoods and land use remain unaffected. As per Activities 1.1, 1.2, 2.1 and 2.2. For the detailed activities, refer section 3.6.

*Cross reference activities from Section 3.5 (e.g. Activity 1.1.1)

The leakage for the project has been calculated using the tool PU004 V1.0[34]. The steps mentioned in the tool have been followed to estimate the leakage from the project activities. Considering a conservative approach in assessing the leakage from the project, option 1 of the tool (section 5) has been considered to estimate the potential leakage from the project activities.

1. The leakage estimation using the AR-TOOL15[35] (section 6) under the following conditions is considered insignificant or accounted as zero:

Conditions	Justifications/ Explanation
Animals are displaced to existing grazing land, and the total number of animals in the receiving grazing land (displaced and existing) does not exceed the carrying capacity of the grazing land	No animal are displaced to any of the existing grazing land: hence the carrying capacity of the grazing land is not exceeded. The livestock of the beneficiaries are stall fed or on the land allotted by the village development committee which is separate from the project lands.
Animals are displaced to existing non-grazing grassland, and the total number of animals	No animals are displaced to any existing non-grazing land: hence, the carrying capacity of the

[34] https://www.planvivo.org/Handlers/Download.ashx?IDMF=8acbfa5d-bb81-430c-964a-8e802bea0ce6 – Section 5

[35] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-15-v2.0.pdf - Section 6

displaced does not exceed the carrying capacity of the receiving grassland	receiving grazing land is not exceeded. Primarily the livestocks are stall fed.
Animals are displaced to cropland that has been abandoned within the last five years	No animals are displaced to any of the cropland within the last 5 years.
Animals are displaced to forested lands, and no clearance of trees, or decrease in crown cover of trees and shrubs, occurs due to the displaced animals	No animals are displaced to any of the forested lands, and no clearance of trees or decrease in crown cover of trees and shrubs occurred. The project area boundary does not consist of any forested area nor the land parcels are nearby any forested areas, resulting in no clearance of trees or decrease in the crown cover of trees or shrubs.
Animals are displaced to zero-grazing system	No animals are displaced to any zero-grazing system.

Calculation of carbon pool leakage emissions from displacement of agricultural activity

$$LE_{CP,a,y} = \sum_{t=1}^{y} LE_{AGRIC,t}$$

Where,

$LE_{CP,a,y}$ = Net GHG emissions due to carbon pool leakage from project area a up to year y (tCO2e)

$LE_{AGRIC,t}$ = Leakage emission due to the displacement of agricultural activities in year t (tCO2e from AR-TOOL15 v2.0)

There are no such cases within the project boundary from which the pre-project agricultural activities are to be displaced outside the project boundary, hence leakage emission resulting from displacement of the activities is considered as zero.

1. Leakage estimation using PT002 v2.0[36] to estimate leakage from displacement of deforestation and degradation (see Section 5.1.2)

As per the tool PT002 v2.0, expected leakage emissions are estimated with a conservative estimate of the proportion of carbon benefits that could be lost through leakage using Equation 10.

$$E_{LK,VP} = L. (E_{BS,VP} – E_{PS,VP})$$

Where,

$E_{LK,VP}$ = Leakage emissions expected to result from displacement of deforestation and degradation during verification period VP (tCO2e)

$E_{BS,VP}$ = Baseline scenario emissions from deforestation and forest degradation expected during verification period VP (tCO2e)

[36] https://www.planvivo.org/Handlers/Download.ashx?IDMF=6cd0134e-d874-4c2a-9259-6272fb1e9413 – Section 5.8

$E_{PS,VP}$ = Expected project scenario emissions from deforestation and forest degradation expected during verification period VP (tCO2e)

L = Expected emissions from deforestation and forest degradation that result from displacement of activities from the project area as a result of project activities, expressed as a proportion of carbon benefits that are expected to be lost as a result of leakage

The project activity includes afforestation and reforestation activities that will be implemented on private and community lands, hence the Leakage emissions due to the above equation for the displacement of deforestation and degradation is insignificant and can be considered as zero.

Calculation of expected leakage emissions from displacement of deforestation and forest degradation.

$$LE_{CP,a,y} = \sum_{VP} E_{LK,VP}$$

Where,

$LE_{CP,a,y}$ = Net GHG emissions due to carbon pool leakage from project area a up to year y (tCO2e)

$E_{LK,VP}$ = Leakage emissions expected to result from displacement of deforestation and degradation during verification period VP (tCO2e; from PT002 v2.0)

Calculation of actual leakage emissions from displacement of deforestation and forest degradation

$$LE_{CP,a,y} = \sum_{VP} AE_{LK,VP}$$

Where,

$LE_{CP,a,y}$ = Net GHG emissions due to carbon pool leakage from project area a up to year y (tCO2e)

$AE_{LK,VP}$ = Maximum potential leakage emissions that could have occurred as a result of displacement of deforestation and degradation during verification period VP (tCO2e; from PT002 v2.0)

There are no such cases within the project boundary from which the pre-project agricultural activities are to be displaced outside the project boundary, hence leakage emission resulting from displacement of the activities is considered as zero.

2. Leakage estimation calculation using PU003 v1.0 to estimate any increase in GHG emissions from emission sources outside the project area that results from project activities

The module is applicable to all Plan Vivo project interventions including the following intervention types:

a. Agroforestry and Social forestry
b. Afforestation and reforestation

The above two project intervention type falls under the current project activities. The net GHG emissions have been calculated using this tool and no leakages are associated in any of GHG emitting sources considered under the project.

Hence, the leakage emissions from the project interventions area considered as zero.

3.13 Double Counting

The Project Coordinator and Project Applicant will prevent double counting of GHG emission reductions or sequestration. They will adhere to applicable guidelines and provide necessary evidence

to Plan Vivo, ensuring that the emissions reductions or sequestration from the project are not utilized in emissions trading programs or for meeting compliance with national or subnational regulatory limits. Additionally, there is a written commitment from the coordinating agency affirming this.

Table 3.13 GHG Emission Reduction and Removal Projects and Programmes in the Project Region

Project, Programme or Initiative	Scope	Carbon Credit Generation	Risk Mitigation
NA	NA	NA	NA

Currently, there are no other carbon projects within the project boundary, eliminating the concern of double counting carbon benefits. If new carbon projects are developed in the same area in the future, steps will be taken to prevent any overlapping benefits. The implementing partner will provide a declaration confirming that there are no overlapping claims by the farmers with any other carbon project.

Agreements

3.14 Land Management Plans

Land Management Plan: A Participatory Source shed Approach

The land management plan follows a participatory, source shed-based approach, involving farmers, Self-Help Groups (SHGs), Village Development Committees (VDCs), and Gram Vikas staff. It focuses on eco-restoration, groundwater recharge, and optimizing land use, prioritizing the revival of key water sources identified by the community. Planning begins with community consultations and land assessments to evaluate land use, soil erosion, and vegetation. Using Focus Group Discussions (FGDs) and Participatory Rural Appraisal (PRA) techniques, communities identify priority areas for intervention. Plans align with Source shed Development (CSSD) principles to ensure groundwater sustainability and improved land productivity. After review and VDC approval, implementation is closely monitored with continuous training and support.

Key interventions include watershed-based development, tree-based land use, and sustainable plantations. Measures like slope protection, soil moisture conservation, and water harvesting enhance land productivity and recharge. Social forestry in recharge areas and agroforestry in command areas promote sustainable farming and soil conservation. Community-run nurseries supply saplings for afforestation, ensuring continuity of previous efforts. Governance is led by the VDC, supported by trained youth (Jala Bandhus) providing technical expertise. Implementation follows a structured approach, prioritizing catchment treatments first. GIS and Remote Sensing aid in land planning, with Land Use and Land Cover (LULC) maps guiding interventions. By integrating community-driven planning and sourceshed restoration, this plan ensures long-term water security, land productivity, and ecological sustainability.

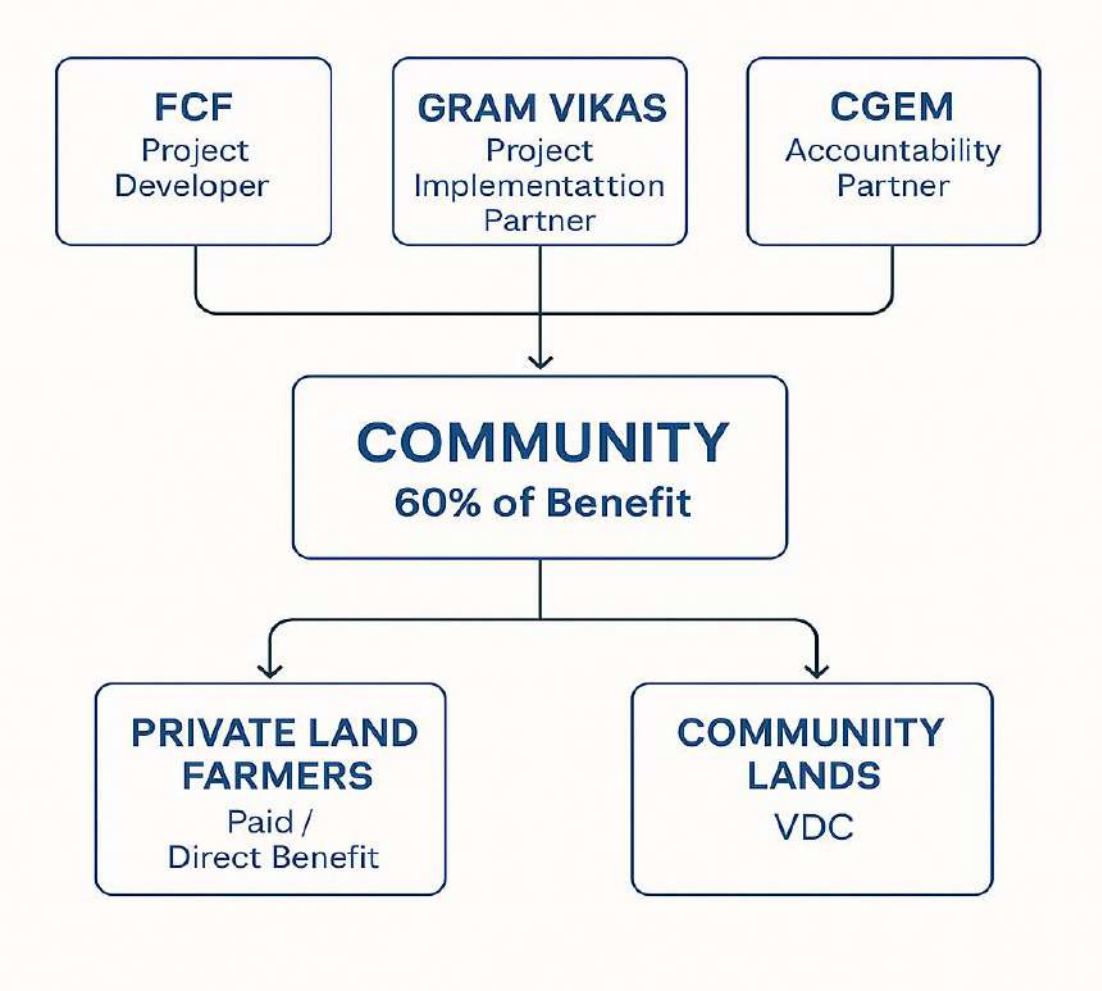
A detailed land management plan has been developed and added in Annex 11.

3.15 Crediting Period

The crediting period of the project is 30 years and carbon benefits are estimated for over the period of 30 years.

3.16 Benefit Sharing Mechanism

The process of developing the agreed benefit sharing mechanism for the project was inclusive and participatory, ensuring that all stakeholders, especially the project participants, had a voice in the decision-making process.



At the core of the model is the community, which receives 60% of the PVC-income generated by the project. These benefits are distributed through two key pathways: to private land farmers, who receive direct payments or support for their participation (such as planting on their own land), and to community lands, which are managed by Village Development Committees (VDCs) to ensure collective benefits. The project is supported by three main institutional partners: FCF, the Project Developer, who designs and oversees the project framework; Gram Vikas, the Implementation Partner, responsible for on-ground execution and community engagement; and CGEM, the Accountability Partner, which ensures transparency and protects community interests. This collaborative structure ensures that carbon revenue and project benefits are equitably distributed while promoting sustainability, local ownership, and effective long-term land stewardship.

Initially VISP and Jalabandhu's has organised the meeting with the community to discuss the project's goal, resources available and fair benefit sharing mechanism. Based on the inputs received VISP, Jalabadhu, Thematic Manager and VDC formulated a project plan. Once the plan is finalised and approved at each stakeholder level, budget allocation of the project is determined and a robust financial model has been developed. The budget is then distributed accordingly to support the implementation of the project activities.

In the financial model of the project, minimum of 60% of the income from the sale of PVC's is allocated for the community. To ensure that a minimum of 60% of the income directly benefits project participants, following measures are in place:

- **Transparent Accounting:** Regular audits and transparent accounting practices are implemented to track the allocation and distribution of funds.
- **Utilisation of funds:** The VDC and Gram Vikas has the responsibility to ensure that funds are utilized appropriately and that the beneficiaries receive their share.
- **Direct Transfer:** Funds will be directly transferred to the bank accounts of the project participants to minimize any intermediary deductions

Project participants will receive their benefits in the following manner:

- Annual Payments: Benefits from the sale of Plan Vivo Certificates will be disbursed annually.
- Bank Transfers: Payments will be made directly to the bank accounts of the participants to ensure timely and secure transfers.

Funds will be disbursed according to a predetermined schedule aligned with the annual sale of PVCs. Additionally, regular monitoring and evaluation will be conducted by Gram Vikas staff and VDCs to ensure compliance and assess the impacts of the benefits.

3.17 Grievance Mechanism

A grievance redressal mechanism has been established, ensuring a systematic resolution process for any identified grievances. Depending on the severity and nature of the issue, a hierarchical system is in place, involving VDC's, field staff and Project Manager. If anyone has any grievances or inputs from the community, they can inform the Village Development Committees (VDCs). The VDCs will then relay the information to Jalabandhu, who will, in turn, communicate it to the Thematic Manager of Gram Vikas (Please note that the Thematic Manager is the senior level manager who anchors planning, monitoring and implementation of thematic work in Gram Vikas. As part of this role, they are responsible for program budget management, donor project deliverables, and quality control of thematic work on field. They report to the Executive Director on a regular basis). Subsequently, Gram Vikas will further discuss the matter with FCF India, GVCDF and C-GEM. Following thorough discussion, a general meeting will be organized with all the community members to address the potential ways of resolving the grievance or input. Upon mutual consent, the VDC will pass a resolution accordingly. By involving key stakeholders at various tiers of leadership, the organization demonstrates its commitment to addressing concerns comprehensively and promoting a culture of accountability and continuous improvement within the project framework.

Other means of receiving and resolving grievances:

- VISP and Jalabandhu's play a crucial role in maintaining regular contact with beneficiaries at the village level. They are responsible for addressing concerns within their capacity and escalating more complex issues to field executives.
- **Block Level Meetings:** These meetings occur twice a month, providing a forum for beneficiaries to raise issues and for the project team to address them collectively and transparently. Unresolved issues from the Block level are escalated to the District level.
- **District Level Meetings:** Held once a month, these meetings serve as a higher-level forum for resolving issues that remain unresolved at the Block level. If necessary, unresolved issues may be escalated to higher levels within the organization.

- The project participants have access to the contact details of VISP and Jalabandhu at village level.
- The contact details for grievance redressal and project-related inquiries were provided during the Input and Grievance Mechanism discussions in the Local Stakeholder Consultations.

Particulars	Method Chosen	Justification
Continuous Input	Telephone or email	The input and grievance expression could be reflected via telephone, email or writing on grievance book. All the contact information would be announced to stakeholders.
Telephone Access	Contact Person: Phone No:	Mr. Anurag, Gram Vikas Phone Number: +91 9404802267 Mr. Benstin Genith, Gram Vikas Phone Number: +91 8903535461
Internet/Email Access	Contact Person: Email:	Sachin Rohilla, FCF India Email: www.srohilla@fcfindia.in Anurag, Gram Vikas Email: www.Anurag@gramvikas.org

Figure 1 Contact Details of the Grievance Mechanism

A complaint is considered admissible if it:

- Relates to the carbon project.
- Is submitted by individuals or communities covered under the carbon project.
- Alleges that the individuals or communities have been or are likely to be negatively affected by the project.

To facilitate effective grievance handling, complaints should include:

- The name of the individual(s) submitting the complaint.
- If a representative is submitting on behalf of others, the name, signature, contact details, and written proof of authority from the affected individual(s).

Anonymous complaints are also accepted, provided they relate to the carbon project and are found to be genuine.

For grievances that cannot be resolved through the standard process, the Gram Vikas Project provides access to an independent arbitrator, C-GEM, ensuring impartiality and fairness. C-GEM, a neutral third party not involved in the day-to-day operations of the project, conducts a mediation process where both the complainant and project representatives can present their cases. After careful consideration, C-GEM makes a binding decision based on the merits of the case, and this decision is communicated to all parties involved.

A grievance resolution mechanism has been established to ensure fair and transparent project implementation. If standard procedures are insufficient, local governing bodies like Gram Panchayats will act as independent mediators, facilitating constructive dialogue and ensuring impartial dispute

resolution. Their involvement enhances community trust, reinforces accountability, and minimizes conflicts, contributing to the project's long-term stability and success.

Grievances will be reported to Plan Vivo as per annual reporting requirements in the form of a Grievance Register, template to be found in the Annual Report template, each year.

3.18 Project Agreements

The Project will adhere to FPIC (Free, Prior, and Informed Consent) process throughout its duration, documenting any lessons learned to enhance future initiatives. This process aims to better guide the organization's actions in upcoming projects and reduce potential risks and challenges.

The agreement will be established with the Project Participants, including indigenous communities, to obtain their consent for the project. A structured project-level grievance mechanism will be implemented to manage any grievances, ensuring broad community confidence and support for the project. The project will disclose any financial or non-financial compensation provided to community members as part of the engagement process.

A copy of the Project Agreement is included in Annex 12.

In this project, women, as key stakeholders, will be organized into Village development committee and Self-Help Groups (SHGs). They will be involved in preparing nurseries, village-level micro-plans, scheduling work, conducting community-based reviews of activities, and protecting and maintaining plantations and various conservation structures. To further solidify carbon rights, a signed agreement will be made with the farmers. Community members will be engaged at all levels of the project, from decision-making to monitoring.

Project agreements were meticulously designed to safeguard participants' land and resource rights, recognizing both customary and legal tenure systems. The 30-year agreement period aligns with the project's timeline, the growth cycle of planted trees, and the carbon crediting period. This long-term commitment ensures lasting benefits, regular monitoring, and ongoing technical and financial support. By promoting both ecological and economic sustainability, the approach aligns with sustainable carbon finance requirements. To further secure and strengthen the carbon rights of participating farmers, a formal agreement will be signed with each landowner or land user involved in the project. These agreements are designed with utmost care to ensure that the community members' land ownership, user rights, and access to resources are fully protected.

To reflect this commitment, the agreements incorporate well-defined clauses that uphold community sovereignty over their land and resources. These clauses ensure that all project interventions—such as agroforestry and social forestry plantation and moisture conservation practices will be implemented only with the consent and active participation of the community. Furthermore, the agreements emphasize that these interventions will be complementary to existing land-use practices and not disrupt traditional livelihoods.

The agreement period has been thoughtfully aligned with the project's overall duration, ensuring that community members have ample time to actively participate in and benefit from the project's interventions. The agreements are not only participatory in nature but also they can be reviewed and adjusted periodically to better reflect the evolving needs and aspirations of the participating communities. Since agroforestry plantations require sustained commitment and patience to realize full ecological and economic outcomes, the agreement duration allows households to witness tangible improvements such as increased productivity, soil health, and income generation, while still offering the flexibility to accommodate any contextual or livelihood changes over time.

In addition to aligning with the biological timelines of tree growth and the carbon crediting cycle, the 30-year agreement period also strengthens community ownership and encourages sustainable resource management practices. By engaging participants over a multi-decade timeframe, the project fosters a deeper sense of responsibility, allowing individuals and community institutions to take a proactive role in protecting and nurturing the restored landscapes. The extended period also allows for the creation and reinforcement of community-based monitoring mechanisms, such as biodiversity registers, participatory reviews, and social audits. Ultimately, the extended commitment period ensures that the positive impacts of the project are not only sustained but can also evolve and expand to benefit future generations.

4 Monitoring and Reporting

Indicators

4.1 Progress Indicators

Table 4.1 Progress Indicators

Output/Activity	Indicator	Means of Verification
Output 1 2528 hectares of farmland will be utilized for planting fruit-bearing species Farmers can either consume or sell this produce, thereby enhancing their food security and generating additional income, thus improving their livelihoods	Number of farmers, SHGs and VDCs involved in the project. Number of Households involved engage in tree planting activity	Signed agreement by farmers and VDCs. These agreements are established at the time of forming community institutions to document their objectives and the members who are part of the institution.
Activity 1.1 Pre-plantation activities	Area under project Number of pits dug	Photos, payment sheets, VDC resolution and carbon rights agreement
Activity 1.2 Plantation of agroforestry on private lands	Area under agroforestry plantation Number of agroforestry species saplings planted	Signed tree distribution list Photographs
Activity 1.3 Maintenance and monitoring of plantation	Area under maintenance	Signed beneficiary list, field verification, photographs
Activity 1.4 Engage communities through regular meetings, provide hands-on training sessions for Community Resource Persons (CRPs) and farmers on agroforestry and social forestry techniques, and organize field visits with practical demonstrations of best practices	Number of capacity building programs held Number of participants attending the capacity building programs Number of Practical Field visits	Training Module, Training Report, Photos Registration list with signatures of participants

Output 2 1033 hectares of the community lands will include plantation of native species These species will contribute to sequestration of green house gases in order to generate the revenue from the selling of carbon credits which will be beneficial for the local communities.	Number of households in the village engaged in tree planting activity	Signed list of project participants
Activity 2.1 For the new plantation- Pre-plantation activities including land preparation, soil-moisture conservation, fencing, pit digging, composting and termite treatment etc	Number of Pits dug Hectares of land treated with soil-moisture conservation measures Number of moisture conservation structures constructed	Photos, carbon waiver agreements, payment sheet The payment sheet includes detailed records of labor payments for the specified activities, with compensation provided partly through project funding and partly under the MGNREGS scheme.
Activity 2.2 Planting activities including sourcing of saplings from Nursery, planting of saplings	Number of trees planted Tree species planted Area in hectare in existing plantation	Letters of agreement from the government
Activity 2.3 Tree maintenance activities for new as well as existing plantations including weeding, application of manure, growth monitoring etc.	Hectares of land where maintenance activities done	Signed beneficiary list Field verification This will be done by FCF India on an annual basis.
Output 3 Soil and moisture conservation works like stone bunds and contour trenches will be carried out in the plantation areas to reduce soil erosion, improve soil fertility, enhance water infiltration, moisture retention thereby increasing agricultural productivity through sustainable land management practices benefitting the local communities	Number of households participated in moisture conservation activities.	Signed list of project participants
Activity 3.1	Number of structures constructed	Photographs, Payment sheets, field verification

Identification of areas and the construction of water conservation structures		
Activity 3.2 The community plan will be integrated into the Gram Panchayat Development Plan (GPDP) to align with local governance priorities and access government schemes. This will help leverage financial and technical support from various rural development programs	Number of community plans formally included in the GPDP.	Letters of agreement from the government
Output 4 Involvement of the local communities in the project thereby enhancing their knowledge, skill development, and increased responsibility towards the ecosystem. Involvement of women in the project through SHG's majorly and driving the implementation of the project driving women empowerment	Community participation	Attendance sheets, photographs
Activity 4.1 Organize community meetings and workshops to involve local people in planning and decision-making processes related to the project	Number of Consultations conducted Number of Workshops organized	Attendance sheets Feedback forms Invitation letters Photographs
Activity 4.2 Train SHGs in the development and management of nurseries, including the propagation of native and fruit-bearing tree species.	Number of women participated	Payment slips, photographs

4.2 Carbon Indicators

Project Intervention	**Carbon Indicator**	**Means of Verification**
Restoration of barren uplands of vulnerable communities in West Bengal and Jharkhand	$\Delta CTREE\_BSL,t$ Change in carbon stock in tree biomass under the baseline scenario within the project area in year t	Assumed to be Zero, see Section 3.2
	$\Delta CTREE\_PROJ,t$ Change in carbon stock in tree biomass	To be Calculated with AR-TOOL14 Equation 1. As

	under the project scenario within the project area in year t	difference between $CTREE,t1$ and $CTREE,t2$
	$CTREE,t1$ and $CTREE,t2$ Carbon stock in trees in the tree biomass estimation stratum at the start (t1) and end (t2) of the monitoring period	To be Calculated with AR-TOOL14 Equation 12, based on B$TREE,t1$ and B$TREE,t2$ from measurement of sample plots with stratified random sampling to determine (see Annex 7 for detailed sampling and monitoring plan).
	B$TREE,t1$ and B$TREE,t2$. Tree biomass in the tree biomass estimation strata; t d.m	To be Calculated with AR-TOOL14 Equation 13, based on A and b$TREE$.
	A Total area of the tree biomass estimation stratum; ha	To be Calculated as sum of Ai for all biomass strata.
	b$TREE$ Mean tree biomass per hectare in the tree biomass estimation strata; t d.m. ha-1	Calculated with AR-TOOL14 Equation 14, based onwi and b$TREE$,i for each biomass stratum.
	Ai Area of a stratum i	To be Measured using methods described for the stratification in Annex 7.
	b$TREE$,i Mean tree biomass per hectare in stratum i; t d.m. ha-1	To be Calculated with AR-TOOL14 Equation 16, based on b$TREE$,p,i and ni
	b$TREE$,p,i Tree biomass per hectare in plot p of stratum i; t d.m. ha-1	To be Calculated with AR-TOOL14 Annex 1 Equation 1, based on B$TREE$,p,i and APLOT,i From fixed area plot measurements described in Annex 7.
	ni Number of sample plots in stratum i.	From fixed area plot measurements described in Annex 7.
	B$TREE$,p,i Tree biomass in sample plot p of stratum i; t d.m.	To be calculated with AR-TOOL14 Annex 1 Equation 2, based on B$TREE$,j,p,i
	B$TREE$,j,p,i Biomass of trees of species j in sample plot p of stratum i; t d.m.	To be calculated with AR-TOOL14 Annex 1 Equation 3, based on B$TREE$,l,j,p,i

	B$TREE$,l,j,p,i Biomass of tree l of species j in sample plot p of stratum i; t d.m.	To be calculated with AR-TOOL14 Annex 1 Equation 4, based on fj (x1,l, x2,l, x3,l,…) and Rj
	fj (x1,l, x2,l, x3,l,…) Above-ground biomass of the tree returned by the allometric equation for species j relating the measurements of tree l to the above-ground biomass of the tree; t d.m.	To be calculated for each tree measured using allometric equations in Annex 7.
	Rj Root-shoot ratio for tree species j; dimensionless	Refer Annex 7 for root-shoot ratios applied.

The project followed a robust method to calculate the carbon benefits generated through its activities. Tree growth data sets for each species were identified based on secondary literature and field measurements. The calculation steps were as follows:

1. Identification of Tree Growth Data Sets: Tree growth data sets for each species were identified using secondary literature and field measurements.
2. Calculation of Volume: The volume for each species was calculated using species and area-specific volumetric equations.
3. Calculation of Above Ground Biomass: The above-ground biomass was calculated by multiplying the volume by wood density and biomass expansion factors.
4. Calculation of Below Ground Biomass: The below-ground biomass was calculated using appropriate factors for each species.
5. Calculation of Total Biomass: The total biomass was calculated by summing the above-ground and below-ground biomass.
6. Calculation of Carbon Stock: The total biomass was multiplied by the global default value of 0.47 to calculate the carbon stock.
7. Calculation of CO2 Equivalent: The carbon stock was multiplied by the global default value of 3.67 to calculate the CO2 equivalent.

This detailed process was followed for each species to accurately calculate the carbon credits from the project. By adhering to these steps, the project ensures that the carbon benefits are precisely quantified, contributing to its overall impact on climate change mitigation. Additionally, an excel sheet has been prepared for the ex-ante calculations of the credits that can be generated from the project activities is in place and can be provided if required.

Table 4.2

Data/ Parameter	Project Area
Data Unit	Ha
Description	The area considered for plantation
Source of data	Survey databases of each polygon that is part of the Project and is under the control of the Project participants.

Description of measurement methods and procedures to be applied	Field measurement: the area shall be delineated either on the ground, using GPS or from geo-referenced remote sensing data.
Frequency of monitoring/ recording	At the beginning of site preparation, in final establishment of the Project and each time a verification is conducted.
Value Applied	3561 ha
Monitoring Equipment	GPS equipment (precision 1- 5 m) and Remote Sensing data.
QA/QC procedures to be applied	Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied
Purpose of data	Calculation of Project emissions
Calculation method	Physical Measurement

Data/ Parameter	Volume (m3)
Data Unit	Stem Volumes of tees of species
Description	In sample plot stratum at time t, calculated using volume equations
Source of data	Volume equations of each species were taken from India State of Forest Report, 2021 and Volume Equations for Forests of India, Nepal and Bhutan (1996).
Description of measurement methods and procedures to be applied	FSI regional volume equations will be applied for the volume estimations. For other tree species, common volume equation from the neighbouring forest region is considered for calculating stem volume.
Frequency of monitoring/ recording	Measured at each verification event
Value Applied	To be calculated. Please refer to Annex 7 for the Volumetric Equation used for each species
Monitoring Equipment	N/A
QA/QC procedures to be applied	Standard operating procedures are made to ensure the correct and validating data collection for each of the monitoring parameters.
Purpose of data	Calculation of actual project emissions
Calculation method	Every tree has defined equations to calculate volume

Data/ Parameter	Above ground biomass
Data Unit	Tonnes per hectare
Description	Above ground biomass will be calculated in the field during verification
Source of data	ER sheet
Description of measurement methods and procedures to be applied	Field measurement: Biophysical parameters like DBH and height of each tree species shall be measured on the ground using measuring tape and clinometer. Subsequently, volumetric equations of each species will be applied using DBH and height

	parameters to estimate the volume of each tree. Then, volume of each tree will be multiplied with other parameters like wood density and biomass expansion factor to estimate above ground biomass. For species with allometric equations, above ground biomass will be directly calculated using DBH and height. Additionally, high resolution remotely sensed datasets will be utilised to retrieve canopy cover/ density and will be statistically correlated with on-ground measured DBH and height to generate extrapolated above ground biomass spatial layers for entire project area.
Frequency of monitoring/ recording	Annually
Value Applied	Ex-post
Monitoring Equipment	Clinometer, measuring tape, GPS
QA/QC procedures to be applied	Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied
Purpose of data	Calculation of Project emissions
Calculation method	Physical Measurement

Data/ Parameter	Below Ground Biomass
Data Unit	Tonnes per hectare
Description	The root-shoot ratio used to determine the proportion of Below ground biomass in relation to the aboveground biomass.
Source of data	AR-Tool 14
Description of measurement methods and procedures to be applied	Above ground biomass will be multiplied with Root to shoot ratio to obtain below ground biomass. Root to shoot ratio will be considered as 0.25 as per CDM AR Tool 14
Frequency of monitoring/ recording	At each verification period
Value Applied	Ex-post
Monitoring Equipment	N/A
QA/QC procedures to be applied	Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied
Purpose of data	Calculation of Project emissions
Calculation method	Physical Measurement

Data/ Parameter	Number of plots
Data Unit	Dimensionless
Description	Number of plots to be established in the project area
Source of data	Estimation

Description of measurement methods and procedures to be applied	The number of plots will be estimated as per the planted area using AR Methodological Tool "Calculation of the number of sample plots for measurements within A/R CDM project activities, (Version 02.1.0)"
Frequency of monitoring/ recording	At each verification period
Value Applied	Ex-post
Monitoring Equipment	Not applicable
QA/QC procedures to be applied	Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied

Data/ Parameter	Plot location
Data Unit	Degree Decimal/ Degree Minute Second
Description	Locating the sample plot in the planted area
Source of data	Physical calculation
Description of measurement methods and procedures to be applied	Measurement using GPS
Frequency of monitoring/ recording	At each verification period
Value Applied	Ex-post
Monitoring Equipment	GPS
QA/QC procedures to be applied	Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied
Purpose of data	Calculation of Project emissions
Calculation method	Physical Measurement

Data/ Parameter	Diameter at Breast Height (Dbh)
Data Unit	Cm
Description	Measure diameter at breast height (137cm)
Source of data	Physical calculation
Description of measurement methods and procedures to be applied	Measurement using measuring tape
Frequency of monitoring/ recording	At each verification period
Value Applied	Ex-post
Monitoring Equipment	At each verification period
QA/QC procedures to be applied	Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied
Purpose of data	Calculation of Project emissions
Calculation method	Physical Measurement

Data/ Parameter	Height of the tree
Data Unit	m

Description	Measure the height of the tree
Source of data	Physical Calculation
Description of measurement methods and procedures to be applied	Measurement using clinometer/ altimeter
Frequency of monitoring/ recording	At each verification period
Value Applied	Ex-post
Monitoring Equipment	Clinometer/ altimeter
QA/QC procedures to be applied	Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied
Purpose of data	Calculation of Project emissions
Calculation method	Physical Measurement

Data/ Parameter	Buffer
Data Unit	tco2eq
Description	Buffer of annual GHG emissions as per the NPRR tool
Source of data	Physical Calculation
Description of measurement methods and procedures to be applied	According to the risk tool
Frequency of monitoring/ recording	At each verification period
Value Applied	Ex-post
Monitoring Equipment	N/A
QA/QC procedures to be applied	According to risk tool
Purpose of data	Calculation of buffer PVCs
Calculation method	Physical Measurement

Data/ Parameter	PVC
Data Unit	tCO2eq
Description	PVC are calculated as per the annual GHG benefit after buffer calculation
Source of data	Physical Calculation
Description of measurement methods and procedures to be applied	Field Measurement
Frequency of monitoring/ recording	Annually
Value Applied	Ex-post
Monitoring Equipment	NA
QA/QC procedures to be applied	Quality control/quality assurance (QA/QC) procedures prescribed under national forest inventory are applied. In the absence of these, QA/QC procedures from published handbooks, or from the IPCC GPG LULUCF 2003, are applied
Purpose of data	Calculation of PVCs
Calculation method	Physical Measurement

Data/ Parameter	Ai
Data Unit	Ha
Description	Area of stratum i

Source of data	As per the data sheet
Description of measurement methods and procedures to be applied	-
Frequency of monitoring/ recording	Annually
Value Applied	-
Monitoring Equipment	NA
QA/QC procedures to be applied	NA
Purpose of data	Calculation of baseline and project emissions
Calculation method	Calculation of actual net GHG removals by sinks

The project developer has considered long term average in ex ante calculation for the species that are planned for selective harvesting. The excel sheet for the ex-ante calculation can be submitted if required.

For the ex-ante calculations, the project developer has used modelled values based on secondary literature. Please refer to Annex 7

For the initial instance, project developer is conducting baseline survey for each farmer that has taken part in the project.

For deriving the bio-physical plots where measurements/ sample will be collected, the project developer has planned for monitoring of the project as a whole and defined the tasks to be undertaken and technical requirements therein as per the details below:

1. **Defining Sampling intensity and sample plots based on random stratified sample.**

The number of sample plots will be determined using Random Stratified Sampling, ensuring a representative distribution across different strata. Accordingly, the estimated percentage derived from this sampling method will be systematically incorporated into the analysis. The technical requirement here is the knowledge for correct identification and stratification of sample plots to make it a representative sample of the different categories of land parcels. The sample should be spread across all blocks and districts, should include all models of plantation, plots with and without irrigation facilities, plots having different slopes, located at different distances from the community etc.

2. **Collecting data from planting sites effectively.**

This requires orientation of the team who would be involved in the data collection process on the various parameters and tools for data collection. The team is conversant with using Google Sheet as well as the Kobo tool for data collection. The various parameters of monitoring include % of existing woody biomass in the planting sites, spacing of plants, species and number of plants in the main field as well as on the boundaries, status of fencing, application of compost and termite treatment, irrigation requirements, rate of survival, community involvement in care and maintenance etc.

3. **Management practices for Ensuring good survival rate.**

The additional parameters for management practices included in monitoring apart from the plantation details like status of fencing, application of compost and termite treatment, irrigation requirements, disease/ pest infestation, community involvement in care and maintenance etc. will be done to take corrective action wherever required for ensuring a 100% survival. Gap plantation to replace losses if any, will be taken up to ensure 0% mortality.

4. **Measuring tree growth details (DBH and Height).**

The team of Gram Vikas involved in the monitoring processes will be trained on measuring tree growth details (GBH and Height) by FCF to become skilled for carbon monitoring. The team will undertake all carbon project monitoring surveys in the project area to ensure consistency in the measurements. The team will do periodic physical checks in the field and ensure all quality control measures are being followed.

5. Establishment of project boundaries using GIS.

The team will collect KML files of all the land parcels that will help in verifying the project boundaries, check for the presence of more than 10% woody biomass in the plots and also monitor the plantations. The team has been oriented to capture these data with utmost accuracy.

Measuring, recording, storing and aggregating data

The Gram Vikas team will have a monitoring calendar for capturing and recording the data against the monitoring parameters as provided in the table below:

S. No	Parameters to be monitored
1	Name of the Farmer
2	Village
3	Block
4	District and State
5	Geo-coordinates and KML of the plantation Site
6	% of existing woody biomass present in the plots if any
7	Date of Plantation
8	Species diversity and number in main field and boundary
9	Tree growth details- DBH and Height
10	Health of Plants- sprouting progress, pest/ disease infestation
11	Survival Rate of plants
12	Spacing of plants
13	Fencing status
14	Irrigation requirements and facilities available
15	Application of compost and termite treatment
16	Involvement of community in the care and maintenance work and benefit sharing mechanism

The data against these parameters will be measured, recorded and verified by the GVCDF team. Using the monitoring calendar, the team will ensure that detailed records are maintained for each farmer, including the date of planting, distribution of saplings, and follow-up actions taken. This data is critical for tracking the progress of individual farmers and the overall success of the project.

The calendar will play a role in issue resolution by ensuring that problems are identified, documented, and addressed promptly.

The monitoring calendar will be an essential tool for effective project management and ensures that plantation activities are carried out systematically and in accordance with project goals and standards. It will help maintain transparency, accountability, and data-driven decision-making throughout the project duration.

Initially, it will be maintained in an excel sheet and later a robust Management Information System (MIS) will be developed for capturing and reporting the monitoring parameters.

In addition, the project baseline including KML files and other pertinent socio-economic information related to the project will be digitally stored and managed through the open-source data collection application known as Kobo Toolbox. This platform allows for the efficient storage and retrieval of data, The accessibility of this data will be facilitated through the application, streamlining project monitoring and management.

Commissioning studies to enhance the knowledge of the social, economic, institutional and cultural framework; food security strategies and perceptions of the communities.

- **Responsibilities and competencies of the personnel that will be carrying out monitoring activities**

GVCDF has established a standard monitoring process for all project activities. It has planned for training programmes to sensitize all stakeholders involved in the project and also the skilled personnel in the project placed in different project areas. The team will undertake all carbon project monitoring surveys in the project area to ensure consistency in the measurements.

The senior team from GVCDF will do periodic physical checks along with FCF India in the field and ensure all quality control measures will be followed. In addition, the senior team of GVCDF as well as independent team will do the cross-check of collected data by visiting surveyed plot.

The skilled personnel of GVCDF and Gram Vikas who will carry out the survey and data collection will be given training on the following topics:

• How to collect data from plantation sites effectively.

• How to ensure a good survival rate.

• Measuring tree growth (DBH and height).

• Tree identification.

• Establishment of project boundary using tracking systems

Sampling approaches used, sample sizes, sample site locations, stratification, frequency of measurement and QA/QC procedures.

Establishment of project boundary using tracking systems.

All land parcels subject to plantations under this project activity are delineated using GPS tracking function and for this, extensive training is conducted. Each planting plot, and the tracks are downloaded and recorded as Google Earth kml file, as shapefile and an Excel file. This allows for further processing of the tracks via GIS applications.

Stratification and sampling framework

The ex-ante stratification of the project will be done on the year of planting. The sampling framework adopted will be as follows:

The number of samples and sample size will be calculated using "Calculation of the number of sample plots for measurements within A/R CDM project activities (Version 02.1.0)[37]". The number of required plots will be calculated using the following equation:

$$n = \frac{N * t_{VAL}^{\ 2} * \left(\sum_i w_i * s_i \right)^2}{N * E^2 + t_{VAL}^{\ 2} * \sum_i w_i * s_i^{\ 2}}$$

Where:

n = Number of sample plots required for estimation of biomass stocks within the project Boundary; dimensionless

N= Total number of possible sample plots within the project boundary (i.e. the sampling space or the population); dimensionless

T_{val}= Two-sided Student's t-value, at infinite degrees of freedom, for the required confidence level; dimensionless

w_I= Relative weight of the area of stratum I (i.e. the area of the stratum I divided by the project area); dimensionless

s_i= Estimated standard deviation of biomass stock in stratum i; t d.m. (or t d.m. ha-1)

E= Acceptable margin of error (i.e., one-half the confidence interval) in the estimation of biomass stock within the project boundary; t d.m. (or t d.m. ha-1), i.e., in the units used for s_i

I= 1, 2, 3, biomass stock estimation strata within the project boundary

The number of plots allocated to each stratum will be calculated as follows:

$$n_i = n * \frac{w_i * s_i}{\sum_i w_i * s_i}$$

Where:

n_i= Number of sample plots allocated to stratum i; dimensionless

n= Number of sample plots required for estimation of biomass stocks within the project boundary; dimensionless

w_i= Relative weight of the area of stratum i(i.e. the area of the stratum I divided by the project area); dimensionless

S_i= Estimated standard deviation of biomass stock in stratum i; t d.m. (or t d.m. ha-1)

I= 1, 2, 3, . biomass stock estimation strata within the project boundary

[37] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-03-v2.1.0.pdf

The sampling plot area to 20 m x 20 m plots of 0.04 ha (400 m2) will be laid out calculated as per the CDM afforestation field manual.

The QA/QC measures for monitoring and collection of field data will be as follows:

(1) Collection of field data promptly.

(2) Independent random checking of data by an independent expert

(3) Entering the data in a computer system followed by analysis and storing the same in cloud storage.

Description of steps

(1) Collection of field data promptly- A team consisting of people belonging to the project area will be formed. The team will be carrying out field monitoring. Before that, they will undergo training in data collection, data entry and data analysis. Specific duties will be assigned to each team member.

(2) Independent random checking of data by an independent expert- The independent expert will do random checks from sampling plots. In case of any error reported, they will be collected and recorded.

(3) Entering the data in the computer system followed by analysis and archiving the same- Data management will be done in electronic and paper format. Data entering will cover all the parameters for the calculation of GHG removals, carbon stock changes and records of project participants. GIS shapefiles and maps will be stored electronically in the local hard drive and cloud network.

Sampling design

• Type of Plots- For monitoring the project over the project period, permanent sample plots will be established and managed just like the rest of the project area.

• Number of plots- The number of plots will be calculated using the aforementioned formulae

• Location of sampling plots- The locations of sampling plots will be randomly distributed to avoid any project developer biases and it will represent all strata. The geographical locations (geo coordinates), ID numbers of the stratum will be recorded and archived.

• Monitoring frequency- Permanent sample plots will be monitored annually to measure the parameters required for assessing change in carbon stock accumulation.

• Measuring and estimating carbon stock change- Using the parameters measured from the permanent sample plots carbon stocks in aboveground biomass and belowground biomass will be estimated.

• Stratification and sample size- Sample plots of 0.04 ha (400 m2) with 20 m x 20 m will be established randomly in each stratum based on the year of plantation. The ex-ante stratification will be according to the year of planting.

4.3 Livelihood Indicators

Livelihood Indicator	Means of Verification
% increase in income of households as a result of project interventions	Income of 10% sample households will be taken at the start of the project and then every five years.
Increased access to high value horticulture and agriculture produces	Records of production data during harvest

4.4 Ecosystem Indicators

Ecosystem Indicator	Means of Verification
Tree Species richness in number	A biodiversity register will be maintained at the community level to record flora and fauna species richness in number. Community will maintain a register that will help in monitoring the written biodiversity indicators. The results of monitoring will be shared every 5 year
Tree cover in %	
Fauna Species Richness in number. Fauna includes animals, birds and insects which will start coming in or frequent the project areas as a result of plantation. Richness includes diversity in species as well as numbers.	

Monitoring

4.5 Monitoring Plan

The project has designed a robust monitoring plan to ensure that project activities are implemented as planned, and they effectively contribute to the project's goal. The plan will track indicators, assess outcomes, and identify any corrections required.

Monitoring Methodology

- Gram Vikas will conduct regular field surveys to monitor the health and survival rates of agroforestry and social forestry plantations.
- Kobo toolbox, a open source data collection application will be used for geotagging, mapping, and monitoring the extent of plantation areas and soil-moisture conservation structures.
- Biodiversity assessment will be conducted at every 10 years of the project crediting period to identify flora and fauna diversity.
- The involvement of the community in project activities will be monitored through records of participation in training, workshops, and meetings.

Progress Monitoring

Indicator	Frequency of Assessment	Entity responsible for collecting and monitoring data
Number of farmers and VDCs involved in the project.	Annual	Gram Vikas and GVCDF team is responsible for the collecting and monitoring data. Field verification will be done by FCF India for a 10% random stratified sample on an annual basis.
Area under project Number of pits dug	Annual	
Area under agroforestry plantation Number of agroforestry species planted	Annual	
Area under maintenance	Annual	
Number of capacity building programs held	Annual	
Number of participants attending the capacity building programs	Annual	
Number of Practical Field visits	Annual	
Number of households in the village engaged in tree planting activity	Annual	
Number of Pits dug	Annual	
Hectares of land treated with soil-moisture conservation measures	Annual	

Number of moisture conservation structures constructed	Annual	
Number of social forestry trees planted	Annual	
Area in hectare in existing plantation	Annual	
Number of structures constructed	Annual	
Number of community plans formally included in the GPDP.	Annual	
Number of women participated	Annual	
Number of Nurseries established	Annual	

Carbon Monitoring

Carbon Indicator	**Means of Verification**	**Frequency of Assessment**	**Entity responsible for collecting and monitoring data**
Project Area (Ha)	The area designated for plantation will be clearly defined on the ground using GPS or geo-referenced remote sensing data. This delineation will encompass all polygons included in the project. Data collection will occur during each monitoring phase of the project.	Annual	Gram Vikas and FCF India
Number of Sample Plots	Number of sample plots will be calculated based on sampling approach.	At every verification	FCF India
Height of Tree (H)	The height of each tree within the sample plot will be measured using a clinometer, altimeter, or rangefinder. This data will be collected during each verification period.	At every verification	FCF India and Gram Vikas
Girth at breast height (GBH)	The Girth at Breast Height (GBH) of each tree within the sample plot will be measured using a measuring tape and recorded in centimeters. This measurement will be taken during each verification period.	At every verification	FCF India and Gram Vikas

Livelihood Monitoring

Livelihood Indicator	Means of Verification	Frequency of Assessment	Entity responsible for collecting and monitoring data
% increase in income of households as a result of project interventions	Income of 10% sample households will be taken at the start of the project and then every five years.	Every 10 years	FCF India and Gram Vikas
Increased access to high value horticulture and agriculture produces	Records of production data during harvest	Every 10 years	FCF India and Gram Vikas

A holistic approach will be adopted for data collection, utilizing both quantitative and qualitative methods as outlined below:

- Household Surveys: Structured or semi-structured questionnaires will be used to gather data on household income, expenditure, and asset ownership.
- Focus Group Discussions (FGDs): Conducted to capture community insights, experiences, and to better understand local challenges.
- Key Informant Interviews (KIIs): Discussions with key stakeholders such as community leaders, government representatives, and subject matter experts to gain in-depth perspectives.
- Participatory Tools: Techniques such as Participatory Rural Appraisal (PRA), including resource mapping, seasonal calendars, and problem tree analysis, will be employed to ensure community involvement.
- Direct Observation: On-ground observation of livelihood practices and environmental conditions will also be carried out to complement other data sources.

Key aspects of livelihoods monitoring will focus on the following:

- Inclusivity: Ensuring active participation and representation of vulnerable groups such as women, youth, and marginalized communities.
- Ethical Standards: Securing informed consent from participants and maintaining strict confidentiality of all collected data.
- Flexibility: Designing a monitoring framework that can adapt to changing local conditions and emerging needs.

Robust livelihood monitoring will help strengthen program impact and boost community resilience by offering timely, relevant, and actionable insights.

Ecosystem Monitoring

Ecosystem Indicator	Means of Verification	Frequency of Assessment	Entity responsible for collecting and monitoring data
Tree Species richness in number	A biodiversity register will be maintained at the community level to record	Every 10 years	FCF India and Gram Vikas
Tree cover in %			

Fauna Species Richness in number. Fauna includes animals, birds and insects which will start coming in or frequent the project areas as a result of plantation. Richness includes diversity in species as well as numbers.	flora and fauna species richness in number.		

A Rapid Biodiversity Assessment (RBA) was conducted at the project sites to prepare a baseline of the existing biodiversity of the plantation sites under the restoration program. Details available in Annex 13.

Individual responsible for monitoring

Name of Professional	Years of Experience/ Area of expertise Educational qualification	Responsibilities in project
Executive Director	Expertise in policy making, natural resource management, alternate energy disaster management, community institutions and organisational development with more than 26 years of experience	Ensures Planning of risk deduction strategies, implementing of sustainable resource strategies, promoting long-term sustainability practices
Thematic Manager	Expertise in civil engineering, data management, hydrogeology, natural resource management with more than 6 years of experience	Responsible of Program budget management, donor project deliverables, and quality control of thematic work on field
Junior Manager	More than 2 years of experience in Hydrogeology and natural resource management	Handling of Water Resource assessment, Hydrological Modelling, sustainable resource management
Thematic Coordinators	Skilled in spring shed/ watershed, water conservation, community mobilisation and plantation activity with more than 20 years of experience	Supervising spring shed/watershed management, planning and execution of plantation activities, capacity building of the local communities
Field Experts	Expertise in spring shed/ watershed, water conservation, community mobilisation and plantation activity	Responsible for planning of project activities with the communities, technical skill building and providers of the Jalabandhus. They also manages Springshed/ watershed and plantation activities and their linkages with carbon and livelihoods.
Technical Team	Technical skill building team	Planning of project activities with communities technical skill building, and Local service

		providers and also the management of Springshed/watershed and plantation activities
Administrative Team	Collaboration team	Complying with government laws and policies, collaborating with community institutions, and coordinating with government departments
Social Functions Team	Institution Building team	Establishing community institutions to support the development of rural communities and the sustainable management of natural resources.

4.6 Progress Monitoring

Activity	**Activity Indicator (measure annually)**	**Target**	**Achievement**			**Space for results and mitigating actions**
			Full Target Achievement	**Partial Target Achievement**	**Missed Target**	
Soil and moisture conservation	Number of households participated in moisture conservation activities. Number of structures constructed Number of community plans formally included in the GPDP.		>50%	>30%	<30%	The % here indicates the % achievement of the annual target for each indicator. The annual targets will be broken down into monthly targets and will be monitored by the GV and GVCDF team on a monthly basis.
Capacity Building	Number of capacity building		>50%	>30%	<30%	

Activity	Activity Indicator (measure annually)	Target	Achievement			Space for results and mitigating actions
			Full Target Achievement	Partial Target Achievement	Missed Target	
	programs held Number of participants attending the capacity building programs Number of practical field visits					
Agroforestry (Pre-plantation and Plantation activities)	Number of households in the village engaged in tree planting activity Number of agroforestry species saplings planted Number of social forestry species saplings planted Number of pits dug Area of existing plantation		>50%	>30%	<30%	

Activity	Activity Indicator (measure annually)	Target	Achievement			Space for results and mitigating actions
			Full Target Achievement	Partial Target Achievement	Missed Target	
Maintenance of Plantation	Hectares of land where maintenance activities done including watering, weeding and mulching, composting, pest treatment as and when required, staking, pruning and thinning.		>50%	>30%	<30%	
Project Sustainability	Number of nurseries established by SHGs Number of workshops done		>40%	>20%	<20%	
Livelihood	Percentage of total work in convergence with the government		>50%	>30%	<30%	

4.7 Carbon Monitoring

The carbon indicators will be monitored every year and based on the emission calculations, issuance will be done and reported in the Annual report. Verification will be taken up once in 5 years and any change in the credits will be adjusted within the crediting period.

4.8 Livelihood and Ecosystem Monitoring

Activity	Activity Indicator (measure annually)		5 year Targets			Space for results and mitigating actions
		Target	Full Target Achievement	Partial Target Achievement	Missed Target	
Improvement in Income	The percentage increase in household income resulting from project interventions The increase in income will be measured against a new income baseline every 5 years.	15%	>30%	>10%	<10%	Value addition strategies for products will be considered if household income shows less than a 10% increase after five years.
Increased access to agroforestry produce	Increased access to agroforestry produce from the project intervention	25%	>30%	>10%	<10%	Improved availability and utilization of fruits, fuelwood, fodder, and timber by participating households

Ecosystem Monitoring

Activity	Activity Indicator (measure annually)		Annual Targets			Space for results and mitigating actions
		Target	Full Target Achievement	Partial Target Achievement	Missed Target	
Tree Cover The other two indicators included in the ecosystem indicator section 4.4- Tree Species richness and fauna species richness are not included here as they are more of qualitative	Number of trees planted	-	-	-	-	

parameters and will be monitored as part of Biodiversity monitoring.						

The Gram Vikas team, in collaboration with the community, will be responsible for monitoring ecosystem indicators. A variety of methods will be employed to assess tree cover and the richness of flora and fauna species. Community members will maintain a biodiversity register to systematically record observations and data.

For data collection, community-led approaches such as direct observation and sampling will be utilized, including:

- **Visual Surveys:** Members will walk through project areas, noting visible plant and animal species, particularly those that are large or easily recognizable.
- **Photographic Documentation:** Smartphones will be used to capture images of species for later identification and analysis.
- **Quadrat Sampling:** Defined square or rectangular plots will be used to evaluate species abundance and diversity.

To monitor specific bird and mammal populations, the community will apply methods such as:

- **Point Counts:** For assessing bird populations.
- **Acoustic Monitoring:** For species identified by vocalizations.
- **Direct Observation:** For spotting mammals and tracking behavior.

These surveys will be conducted multiple times across seasons and various times of day to account for differences in species activity patterns and seasonal changes, such as plant flowering or animal migration.

Training and capacity building will be provided by the GV and GVCDF team to community monitors on:

- **Species Identification and Data Collection:** Including the use of mobile apps and GPS for real-time data logging and geotagging, and tools for analyzing species images.
- **Record Maintenance:** Proper use of the biodiversity register for consistent data entry.
- **Standardizing Methods:** Ensuring uniform sampling techniques (e.g., consistent quadrat sizes and observation durations).
- **Conservation Awareness:** Promoting environmentally responsible monitoring practices that protect habitats and species.

Additionally, **Gram Vikas and GVCDF** will incorporate traditional and indigenous knowledge by:

- **Interviewing elders and local residents.**
- **Documenting species of cultural or spiritual importance.**

Through these inclusive and participatory methods, the community will play an active role in biodiversity conservation while deepening their ecological knowledge

In this project, the plan to share livelihood and ecosystem monitoring results with stakeholders involves to ensure transparency, engagement, and continuous improvement at every 5 years.

Monitoring results will be shared with stakeholders through reports, as well as during community meetings and workshops. This report will include data on key indicators such as livelihood improvements, tree growth, biodiversity, and water conservation.

To ensure that the voices of local communities are heard, the project will organize regular feedback sessions where stakeholders, including community members, project staff, and partners, can discuss the findings. These sessions will be an opportunity for stakeholders to provide insights on the causes of any observed trends, share their experiences, and suggest potential adjustments to project activities.

The project will engage community members in the monitoring process. This participatory approach not only builds local capacity but also ensures that the data collected is accurate and reflects the realities on the ground. Community members will be trained to collect monitoring data, fostering a sense of ownership and responsibility towards the project's success.

Based on the monitoring results and stakeholder feedback, the project team will annually review and adjust project activities. This could involve enhancing community engagement strategies, or addressing specific issues such as pest control or water management. This adaptive management approach ensures that the project remains responsive to the needs and challenges identified by the community and other stakeholders.

Any changes to project activities based on monitoring results and feedback will be communicated transparently to all stakeholders. This includes explaining the reasons for changes, how they address identified issues, and what outcomes are expected.

Reporting

4.9 Annual Report

The Annual Reporting cycle will be from April to March of every financial year. The first Annual Report will be shared in first quarter of 2026 and the duration of the report will be from the start date of the project till December 2025. Thereafter, the Annual Report will be shared in March every year and the duration of the report will be from January to December of the preceding year.

4.10 Record Keeping

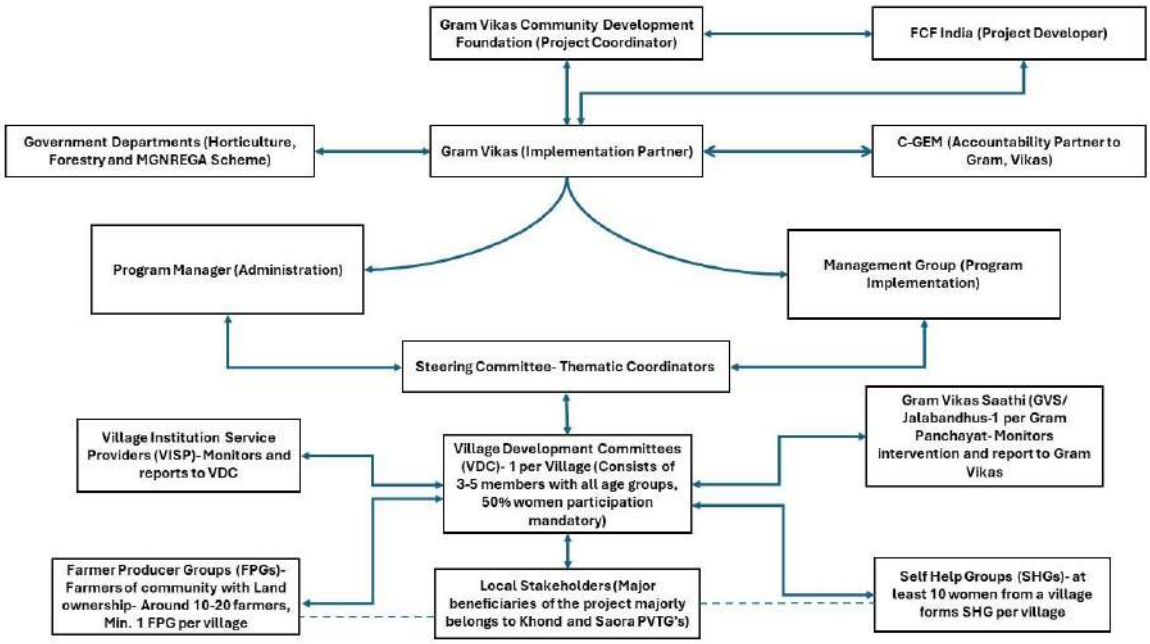
The project agreements, land management plans, monitoring results will be maintained in the hard copy as well as digital mode at the project coordinator level. KML files will be maintained for each land parcel per individual farmer level.

Please refer to Annex 14 where more details about record keeping are included.

5 Governance and Administration

5.1 Governance Structure

Community participation begins with the election of the Village Development Committee (VDC). The VDC then encourages local community members to participate in the project and facilitates the establishment of FPGs, Self-Help Groups (SHGs), and VISPs, comprising community members. Through collaborative discussions with the local communities (local tribes and PVTG's of the project area), the VDC decides on the interventions and measures to be adopted, as well as the selection of tree species for plantation within the project area. Following these deliberations, the VDC formalizes the decisions by passing a resolution. After passing the resolution, Gram Vikas identifies the potential stakeholders to implement the decided interventions. This robust process ensures that community participation is upheld at every stage of the project development.



The Applicant Organisation is Fair Climate Fund India Private Limited (FCF India).

FCF India Pvt Ltd. Is registered as a private limited company as per the regulations of the Government of India.

Long-term objectives of the organisation: As a social enterprise FCF India will work on Carbon projects with various stakeholders to ensure that vulnerable communities have a direct and long term socioeconomic and environmental impact through the sale of carbon credits generated.

Brief history of projects and current projects: Involved in various projects with different stakeholders in varying capacities as an investor, carbon project developer providing technical skills and knowledge in the development of carbon projects across different countries, as well as brokering with private sector to ensure a fair pricing for the carbon so relevant experience of FCF India.

Personnel to be involved in the project:

1) Director: More than 14 years of experience in the field of Climate Change working with national and international organisations on carbon development projects. Projects ranging from clean and renewable energy, Sustainable agriculture, cookstoves etc.

2) Climate Specialist: More than 14 years of experience in the field of Natural resource Management, mitigation and adaptation projects in India and South Asia. Has experience in REDD plus, Sustainable Agriculture, Forestry, cook stoves among other carbon projects.

3) Manager, Nature Based Solutions: more than 6 years of experience working on climate change projects, developing state action plans for climate change, GIS and Carbon project development sector.

4) Technical Associate, Nature Based Solutions: 1.5 years of experience working in different Afforestation and reforestation project, developed micro plan for Van Panchayats, Carbon stock assessment and Carbon project development.

5) Carbon Partnership Consultant: Has more than 20 years of experience with the most prominent NGO's in India working on Sustainable Agriculture practices. Has a grounded understanding of communities and their livelihood especially in the project region. Has a strong understanding of government programs and policies.

FCF India will provide the required technical expertise to the Project Developers on matters relating to preparing the Emission Calculations or any other technical assistance required in the project.

Gram Vikas Community Development Foundation (GVCDF):

Gram Vikas Community Development Foundation is registered under the Companies Act, 2013 (18 of 2013). Government of India. GVCDF was founded in the year 2021. The main objectives of the Company is to advance relief to poor, protection of environment, sanitation, education and other permissible charitable purposed under the auspices of Gram Vikas.

Gram Vikas:

Gram Vikas is an Indian non-governmental organisation based in Odisha, and founded in 1979, by Joe Madiath. Gram Vikas partner with rural communities to enable them to lead a dignified life by building their capabilities, strengthening community institutions, and mobilising resources. Gram Vikas works in the areas of water, livelihoods, sanitation & health, habitat & technology, village institutions, education & youth, disaster response. Gram Vikas is present in 2 states across India i.e., Orissa and Jharkhand[38].

Vision: An equitable and sustainable society where people live in peace with dignity.

Mission: To promote processes which are sustainable, socially inclusive, and gender equitable, to enable critical masses of poor and marginalised rural people and their communities to achieve a dignified quality of life.

Approach: The Movement and Action Network for Transformation of Rural Areas (MANTRA) approach promotes a socially inclusive, gender equitable, self-managed and financially viable model of sustainable and holistic development, where everybody benefits. The principles that guide the approach demonstrate the commitment to such a development process – all or none, financial sustainability, share costs, take responsibility, and equitable participation.

Personnel to be involved in the project with details of relevant skills and experience

[38] https://www.gramvikas.org/

Executive Director: More than 26 years of experience in policy making, natural resource management, alternate energy disaster management, community institutions and organisational development.

Thematic Manager: More than six years of experience in civil engineering, data management, hydrogeology, natural resource management.

Junior Manager: More than two years of experience in Hydrogeology and natural resource management.

Thematic Coordinators: More than 20 years of experience in springshed/ watershed, water conservation, community mobilisation and plantation activity.

Field Experts: More than 4 years of experience in springshed/ watershed, water conservation, community mobilisation and plantation activity.

Technical Functions: Facilitating and planning of project activities with the communities, technical skill building of the community and the Local service providers (Jalabandhus), management of the Springshed/watershed and plantation activities and their linkages with carbon and livelihoods.

Administrative Functions: Adhering to government laws and policies partnering with community institutions, other organisations, funding agencies, and liasoning with Government departments.

Social Functions: Building community institutions for the development of rural communities and natural resources.

Legal Status: Gram Vikas is registered under Societies Registration Act, 1860 with the Registrar of Societies, Odisha.

Centre for Grower-centric Eco-Value Mechanisms –

Centre for Grower-centric Eco-value Mechanisms, known as C-GEM, is the world's first farmer centric non-profit platform incubated under Aga Khan Rural Support Programme (India)'s Climate Change vertical, aiming to accelerate the adoption of agroecology by leveraging ecosystem markets (Carbon, water, biodiversity) for farmers transitioning toward agroecology. C-GEM aims to incentivize farmers to take up agroecological transformations while de-risking and supporting transitioning farmers by providing additional revenue streams to compensate for ecosystem services provided by such transition.

C-GEM onboards, handholds, and negotiates climate market mechanisms for grassroots communities and maintain accountability and transparency in the carbon markets and other climate financing mechanisms for public stakeholders. C-GEM's portfolio includes three high-value projects with nine partners in 4 states, covering 60,000 farmers and 75,000 ha for Natural Farming, Agroforestry, and Social Forestry projects.

C-GEM is actively involved in developing knowledge products for rural communities, CSOs and CSR/ESG professionals to disseminate knowledge and create awareness on pro-community carbon projects.

5.2 Equal Opportunities

The project is dedicated to creating an atmosphere that is fair, inclusive, and community focused. The project has implemented several measures to guarantee equity, prevention of elite capture of benefits and create opportunities for local people.

The project adheres to strict non-discriminatory employment practices, ensuring that all individuals have equal opportunities regardless of gender, caste, ethnicity, or socio-economic background. The individuals from the community will be involved in every stage of the project development. Employment practices like, pit digging, plantation activity, post plantation monitoring and construction of water conservation structures will be created in this project. Wage will be decided by Village development committee after consultation with the community and a resolution will be passed to ensure fair compensation for all. By including members of the community in project implementation, the project supports the local economy and create a sense of ownership within the community.

Engaging the community, especially women, from the design phase is crucial to ensure that:

(1) Participants actively shape project activities and define their own livelihood and ecosystem management goals

(2) There is a clear understanding of the connection between livelihoods, land use, and natural resources, which is essential for designing effective interventions,

(3) The project delivers long-term benefits to the community that extend beyond its duration

(4) Participants enter into project agreements based on the principles of Free, Prior, and Informed Consent (FPIC)

(5) The project generates not only climate benefits but also significant socio-economic impacts.

The Project emphasizes capacity building by offering training programs that equip local residents with skills in sustainable land management practices, and technical areas, with a particular focus on including women. Regular consultations and meetings with local stakeholders ensure that community voices are integral to project planning and implementation. This participatory approach builds trust, aligns the project with local needs.

5.3 Legal and Regulatory Compliance

Table 5.3: Legal and Regulatory Compliance

Policy, Law or Regulation	**Relevance**	**Compliance Measures**
National Agroforestry Policy	The policy promotes integrating trees, hence aligns with the project. Encourage diversification of income source Encourages training and extension services of the local community Enhance soil health, water conservation, increasing biodiversity and carbon sequestration	The project includes plantation of diverse native horticulture and social forestry species. The produce generated from the horticulture species will act as an additional and stable source of income. Multiple training programs and stakeholder meetings will be conducted for the capacity building of local community. Construction of water conservation structures will enhance soil health. Plantation of native trees will increase biodiversity and carbon sequestration.

United Nations Declaration on Rights of Indigenous Peoples (UNDRIP)	The proposed carbon project includes local tribal communities of the project area, hence the said declaration aligns with their universal right of self determination. FPIC allows Indigenous Peoples to provide or withhold/ withdraw consent, at any point, regarding projects impacting their territories. FPIC allows Indigenous Peoples to engage in negotiations to shape the design, implementation, monitoring, and evaluation of projects.	The proposed project has adopted a participatory and transparent approach with local tribal communities. The project will follow Free, Prior and Informed consent (FPIC) principles at every stage of the project development.
The International Labour Organization Convention 169 (ILO 169)	Since the project participants are indigenous and tribal communities, this law is relevant to the project. Some of the main provisions of ILO 169 include: • The right to self-identification and consultation on matters affecting them. • The right to participate in decision-making and development processes. • The right to land, territories and natural resources. The right to education, health, social security and cultural diversity.	The project will and has recognized the self-identification of indigenous and tribal communities. Community members will be actively involved in all stages of the project, from planning and decision making to implementation and monitoring. Regular consultations will be held with these communities to discuss plans, activities and potential impacts. The project will respect the traditional land rights of indigenous and tribal community

5.4 Financial Plan

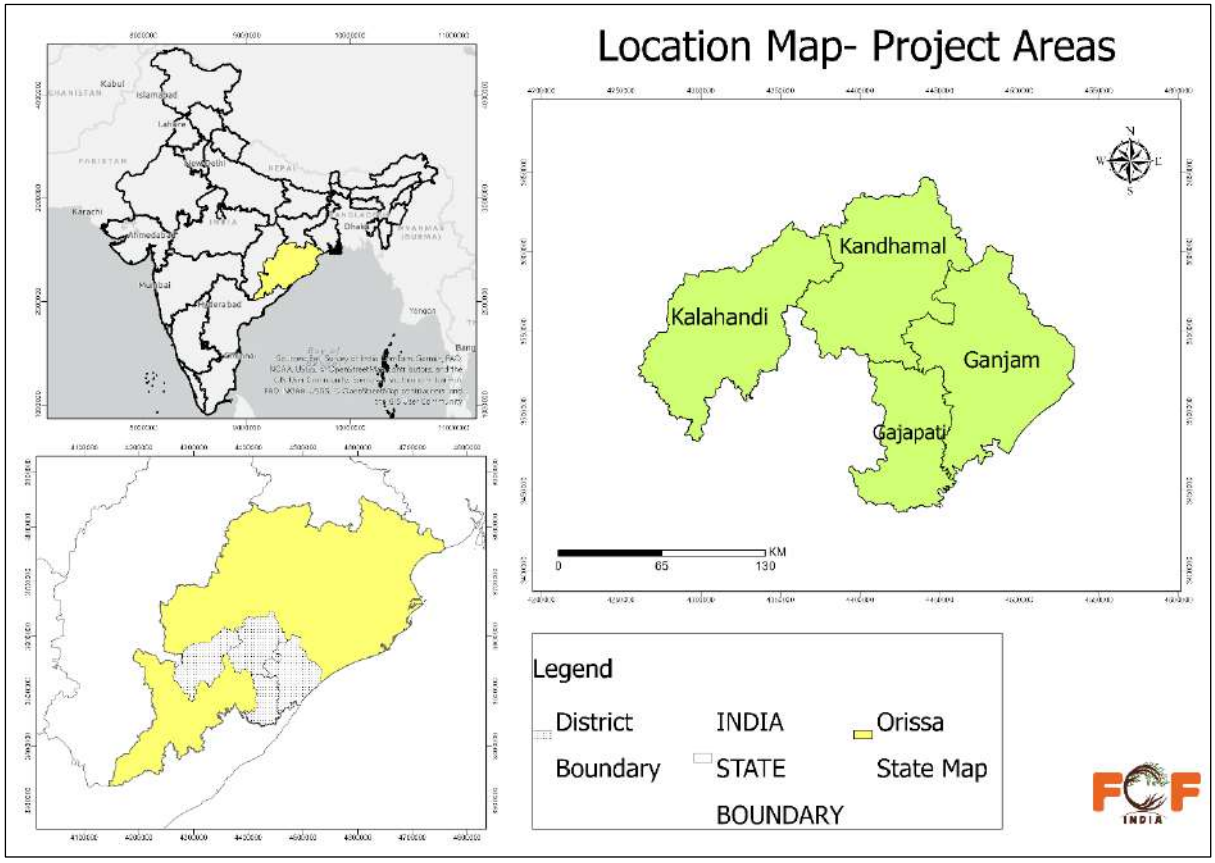
A detailed and realistic financial plan has been developed, and the project is currently in discussions with prospective investors. These investors have demonstrated a favourable interest in the project, are well-informed about the benefit-sharing mechanism associated with Plan Vivo Certificates and have consistently expressed ongoing interest. Financial plan shared as part of Annex 16.

5.5 Financial Management

Majority of the project would be funded through sale of forward contracts on the Plan Vivo Certificates. Some of the budget would be sourced through corporate social responsibility budget of corporates in India who invest in plantation, community building programs, water harvesting structures, and soil conservation. From the total benefits generated through the project interventions, 60% will be returned directly to the farming community. FCF India has responsility for the funds throughout the project lifetime.

Annexes

Annex 1 – Project Boundaries



State	District	Geographical Extent
Odisha	Gajapati	19°11'29.94"N Latitude 84°11'7.45"E Longitude
	Ganjam	19°23'13.64"N Latitude 85° 3'8.41"E Longitude
	Kandhamal	20° 8'3.13"N Latitude 84° 1'0.27"E Longitude
	Kalahandi	19°54'49.60"N Latitude 83° 9'54.23"E Longitude

Annex 2 –Registration Certificate and Partner Agreements

सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF CORPORATE AFFAIRS

Central Registration Centre

Certificate of Incorporation

[Pursuant to sub-section (2) of section 7 and sub-section (1) of section 8 of the Companies Act, 2013 (18 of 2013) and rule 18 of the Companies (Incorporation) Rules, 2014]

I hereby certify that GRAM VIKAS COMMUNITY DEVELOPMENT FOUNDATION is incorporated on this Twelfth day of August Two thousand twenty-one under the Companies Act, 2013 (18 of 2013) and that the company is limited by shares.

The Corporate Identity Number of the company is U85190OR2021NPL037266.

The Permanent Account Number (PAN) of the company is **AAJCG2010J** *

The Tax Deduction and Collection Account Number (TAN) of the company is **BBNG02624G** *

Given under my hand at Manesar this Twelfth day of August Two thousand twenty-one .

DS MINISTRY OF CORPORATE AFFAIRS

Digital Signature Certificate
SHIVARAJ C RANJERI
ASST. REGISTRAR OF COMPANIES
For and on behalf of the Jurisdictional Registrar of Companies
Registrar of Companies
Central Registration Centre

Disclaimer: This certificate only evidences incorporation of the company on the basis of documents and declarations of the applicant(s). This certificate is neither a license nor permission to conduct business or solicit deposits or funds from public. Permission of sector regulator is necessary wherever required. Registration status and other details of the company can be verified on www.mca.gov.in

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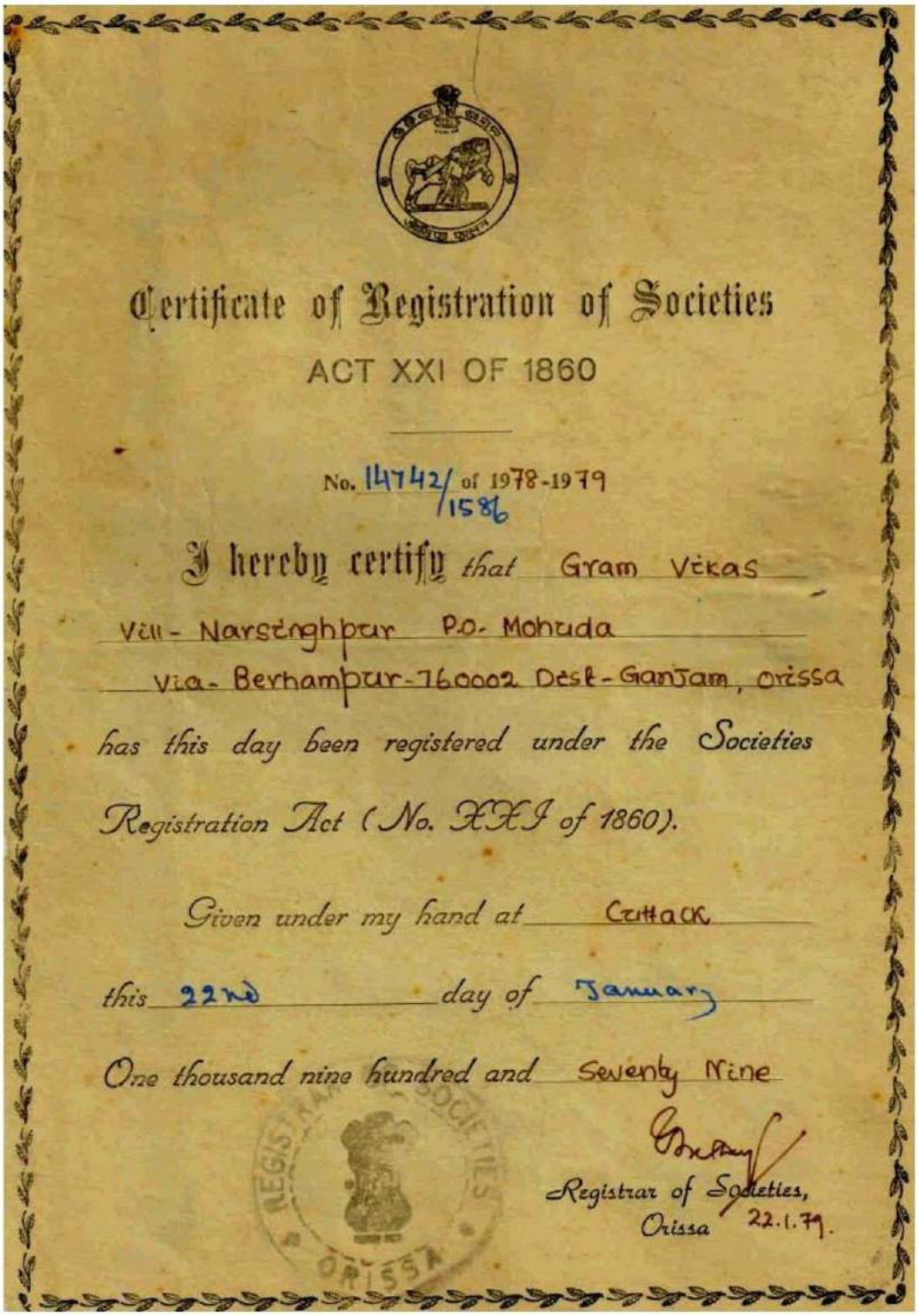
Mailing Address as per record available in Registrar of Companies office:

GRAM VIKAS COMMUNITY DEVELOPMENT FOUNDATION
C/O EXECUTIVE DIRECTOR, GRAM VIKAS,, MOHUDA, OPP.
GANESH TEMPLE, HILLPATNA,, BRAHMAPUR, Ganjam, Orissa, India,
760005

* as issued by the Income Tax Department



Certificate of Registration of Societies

ACT XXI OF 1860

No. 14742/1586 of 1978-1979

I hereby certify that Gram Vikas

Vill - Narsinghpur P.O. Mohuda

Via - Berhampur-760002 Dist - Ganjam, Orissa

has this day been registered under the Societies Registration Act (No. XXI of 1860).

Given under my hand at Cuttack

this 22nd day of January

One thousand nine hundred and Seventy Nine

Registrar of Societies,
Orissa 22.1.79.

REGISTRAR OF SOCIETIES ORISSA

This Agreement is made between:

Fair Climate Fund India Private Limited, a social enterprise, with its registered office at A 601, Kanishka Towers, Sector 34, Faridabad – 121001 (the "Purchaser" as per the carbon emission reduction advisory agreement),

and

Gram Vikas, registered on 22nd January 1979 under Society Registration Act XXI of 1860, Registration No.-14742/1586 and having its registered office at Village- Mohuda, District- Berhampur, Pin- 760 002 (the "Seller" as per the carbon emission reduction advisory agreement),

Together, the "Parties" and individually referred to as the "Party".

The Parties have agreed to the following:

1. Project:

The proposed project falls within the portfolio of Gram Vikas. All the components of the proposed project have already been implemented by Gram Vikas in the past with the Government, International and National Organizations and the Community. There is a good track record and impact from these interventions. To mobilize the carbon finance for these communities to sustain, maintain and scale up the interventions, Gram Vikas would like to initiate the carbon certification process under voluntary carbon market standard in partnership with FCF India. FCF has extensive experience in developing carbon projects in India and channelizing carbon finance for marginalized farmers by selling the certified carbon credits in the international market. Gram Vikas and FCF India will work exclusively for carbon project development, where local implementation work will be managed by Gram Vikas, whereas FCF India will drive the project development work.

2. Contractual Obligations:

Scope of work for (Gram Vikas):

a) Gram Vikas will be managing the on-field program implementation within the communities. Gram Vikas will ensure that project design and implementation are accurate, provide all information and ensure the monitoring plan is established and followed accurately.

b) Gram Vikas will be responsible for taking a NoC from any previous/ current funders if so required

c) Gram Vikas will ensure that all the title deeds of private lands as well as common lands are available prior to project implementation and there is a documented consent to undertake the carbon project

Annex 3 – Initial Project Areas

Project Participants:	Approximately a total of 6000 farmers (private lands) with an average land holding of 0.3 Ha and several community lands will be covered under the project. The project area aims to include 3561 hectares of land in Gajapati, Ganjam, Kalahandi and Kandhamal , districts of Odisha. Project participants will be smallholder farmers largely belonging to Khond and Saora tribes of Odisha and Gram Panchayat/village council that are owners of community lands.
Location:	Country: India State: Odisha District: Gajapati, Ganjam, Kalahandi, Kandhamal
Project Interventions:	The project has begun onboarding the area, and plantation mapping of land parcels is in progress. A diverse mix of agroforestry and social

	forestry species will be planted across private and community land in the future. -Additionally, significant progress has been made in the construction of water conservation structures aimed at enhancing soil moisture retention and mitigating erosion risks. While the enumeration work of these water conservation structures is ongoing, the exact number will be accurately documented and incorporated into the Project Design Document (PDD) stage. From the implementation of this Project, it is estimated that 2,460,438 tons of carbon dioxide emissions will be avoided during the period of 30 years of the project activity. Following is the segregation of the project activity: • Restoration - Undertaking Agroforestry plantations on privately owned land by planting fruit-bearing species to improve the livelihood of the local beneficiaries. • Restoration - Undertaking social-forestry plantations on community lands to provide benefits like establishment of carbon sink by increasing the green cover, regulation in micro-climate and improvement in soil and water resources. • Improved Land Management by construction of soil and moisture conservation structures such as stone bunds and contour trenches for soil stabilization, sustainable agriculture, and landslide management.
Extent of Project Area:	Total proposed project area – 3561 ha District wise distribution: Gajapati – 1567 ha Ganjam – 969 ha Kalahandi – 385 ha Kandhamal – 640 ha
Project Agreement Reference:	Carbon rights agreement will be signed by each and every project participants included in the project.
Start Date:	2021
Whether or not they meet project requirement 2.3.1 and/or 2.3.2	Project participants are residents within the project area and manage land or natural resources within the project area fpr small- scale production on their own.

Annex 4 –Participatory Design

The project is designed to restore barren lands by creating a carbon sink, which will enhance biodiversity. The intervention includes social forestry, agroforestry plantations, and the construction of soil and water conservation structures. These efforts will not only improve environmental sustainability but also create more stable income opportunities for local communities, promoting long-term economic and ecological benefits.

Additionally, FCF India conducted a comprehensive orientation program for the Gram Vikas Team, introducing them to critical topics such as climate change, carbon markets, the various steps involved in carbon projects, and data collection processes. This training provides the team with essential knowledge and practical skills, enabling them to navigate the complexities of environmental initiatives and play a crucial role in achieving the project's long-term sustainability goals.

The project intervention is centred around the leadership of local communities, with a strong emphasis on the role of women. At the village level, women will serve as key drivers of the project.

Women from project villages, particularly those in Self-Help Groups (SHGs), will be responsible for establishing nurseries to meet plantation demands, followed by Farmer Producer Groups (FPGs).

To ensure active community participation in both the planning and implementation phases, these women will receive extensive training at the start of the project. The training will equip them with the necessary skills to manage nurseries, oversee plantation activities, and contribute effectively to the project's success.The process starts with the general body meeting in which all households are invited at village level facilitate the election process of VDC. Each village elects one VDC per habitation. The VDC is structured to have 10-15 members depending on the size of habitation which include 50% women and youth members as well as members from marginalised sections of village, ensuring a balanced and representative composition. The election process for VDC members is participatory and community-driven, where villagers collectively nominate and choose candidates based on mutual agreement. President, Secretary and a Treasurer are mandatory positions for the election process. An individual as a member of VDC can serve for only three years and the members of the VDC will be rotated every year by fair election process. Gram Vikas, as a facilitator in the community development process, actively assists in the election procedures of the VDC. Functioning as a crucial liaison between the Gram Vikas Team and the village people, the VDC plays a central role in facilitating communication. After the formation of VDC, VDC along with the community members identifies the area of issues within the community land and asks Gram Vikas to conduct a survey and suggest the potential ways to address the issue. A variety of Participatory Rural Appraisal (PRA) tools and techniques—such as wealth ranking, social mapping, visioning exercises, livelihood assessments, and watershed planning—will be used to ensure that the planning process is inclusive and reflective of community needs. These approaches are designed to give voice to all segments of the population, particularly marginalized groups, by considering factors such as gender, age, ethnicity, religion, and social status. Special attention will be given to involving women, youth, and elderly individuals from economically disadvantaged households, ensuring their priorities are at the forefront of planning. After these exercises, the Village Development Committee (VDC) will organize a community-wide meeting to present the proposed strategies developed with support from Gram Vikas. This platform will allow community members to review, provide suggestions, and contribute further inputs to refine and adapt the project design to better suit local needs and aspirations.

After mutual consent, VDC passes the resolution for the same incorporating the inputs and suggestions of the community in the project design, following an initial meeting is held between the Gram Vikas Team and the VDC members, during which comprehensive information about the carbon project is provided. The meeting includes discussion on the concepts of a carbon project, benefits to the local community, and requirement of the projects. Subsequently, the VDC conducts a broader meeting with the village residents and explains the project details. Any queries or uncertainties raised by the villagers are then conveyed to the Gram Vikas Team by the VDC, and then the Gram Vikas Team conducts a meeting specifically addressing and resolving these concerns. The Gram Vikas Team and the VDC members organize a meeting with the villagers, presenting the project details and clarifying the doubts. After these positive discussions, the VDC passes a resolution, affirming that Gram Vikas will undertake the proposed project activities within their village and on their respected community lands.

Community consultation has played a crucial role in shaping the overall design of the project. The resolutions passed by the Village Development Committee (VDC) in their local language serve as tangible evidence of the community's feedback and involvement. For Social-Forestry initiatives, VDCs play a pivotal role in identifying community lands, and subsequently plantations are initiated following the community consent and agreement.

Photo: Training of Gram Vikas Team on Data Collection Process by FCF India.

Photo: Engaging Women in Grassroots Decision-Making for Resource maps

Photo: Orientation Workshop of Gram Vikas Team by FCF India.

For Agroforestry plantations, Farmer Producer Groups (FPGs) are constituted, each comprising 8-10 farmers with contiguous land holdings. Following consent from the farmers, carbon agreements are executed with the FPG members. FPG memberships are based on the land ownership. The leadership structure within VDCs, SHGs, and FPGs includes a president, and secretary. Members are elected without discrimination based on gender, age, sex, religion, caste, or creed. It is ensured that at least one office-bearer is woman. Capacity building training is provided to Self-Help Groups (SHGs) to execute nursery management practices by Gram Vikas, fostering the growth of tree saplings in village nurseries. These saplings are later transplanted for the plantations. SHGs actively participate in plantation activities, contributing to both agro-forestry and social-forestry initiatives.

Village Institute Service Providers (VISP), recruited by the VDC, play a vital role in assisting and monitoring plantation activities, providing regular reports to the VDC. Community youth who are interested in community mobilization for village development are identified by field staff and called for an interview. Based on their interest in forestry and groundwater management and willingness to learn and work, they are selected as Jala Bandhus. Usually, there is only 1 Jala Bandhu for a Gram Panchayat of 20-30 villages. However, if the Gram Panchayat area is huge, then we go for 2 Jala Bandhus. Additionally, Jalabandhu undergoes comprehensive one year capacity-building training from Gram Vikas as a service provider to the VDCs and Gram Vikas and subsequently reports progress on plantation activities to Gram Vikas. This collaborative structure ensures effective communication, informed decision making, and successful implementation of the proposed projects.

Photo : Selection Meeting of VDC representatives

Jalabandhu supports the SHG/FPG/VDC in the implementation of the plantation and construction of water conservation structures under the guidance of water source sustainability (WSS) thematic coordinator. Jalabandhu is responsible for monitoring and implementation of activities in the village that coordinates with VISP and Gram Vikas.

Thematic Manager is the senior level manager who anchors planning, monitoring and implementation of thematic work in Gram Vikas. As part of this role, they are responsible for program budget management, donor project deliverables, and quality control of thematic work on field. They report to the Water-thematic Management Group on a regular basis, which in turn report to Executive Director and Governing Board. Thematic coordinators of the Gram Vikas team play a key role in the project by constantly interacting with the VDCs, Jalabandhu, Line departments and other relevant stakeholders. They reach out to relevant stakeholders such as FPGs and monitor activities through both VDC and Jalabandhu. The outputs of the project are shared by the VDC, while the Jalabandhu verifies the output on the ground and reports to the thematic coordinator. For each Field Coordinating Office (FCO) of Gram Vikas, around 3-29 Gram Panchayats are included. There are approximately 5-6 thematic coordinators for each FCO designated for various themes such as livelihood, village institutions, water, sanitation and health etc. For this project, mostly thematic coordinators from the water source sustainability team will be involved, and he/she will take care of the activities of that respective

Sample Outcomes from the Participatory Rural Appraisal tools for Project Planning and Land Management followed in the project activities.

Participatory Rural Appraisal (PRA) tools used in Kantiamba and Badatamanadu villages proved valuable in engaging the community in project activities. The process ensured inclusive participation, involving all sections of the community—women, youth, and marginalized groups—in planning exercises such as social mapping, wealth ranking, and visioning. These tools helped capture diverse perspectives and supported needs-based planning. Community members, along with Village

Development Committees (VDCs), identified key problem areas—such as degraded lands, water scarcity, and suitable locations for nurseries based on their lived experiences, prior to conducting surveys and developing plans.

The community placed strong emphasis on addressing water-related challenges and the need for fencing to protect future plantations, which will be crucial for the long-term maintenance and survival of the planted trees. The selection of species for the project site was carried out through participatory discussions, with a clear preference for indigenous species. Community members, drawing on their local ecological knowledge, helped identify suitable species such as *Madhuca longifolia*, *Mangifera indica*, and *Shorea robusta* as most appropriate for the site conditions.

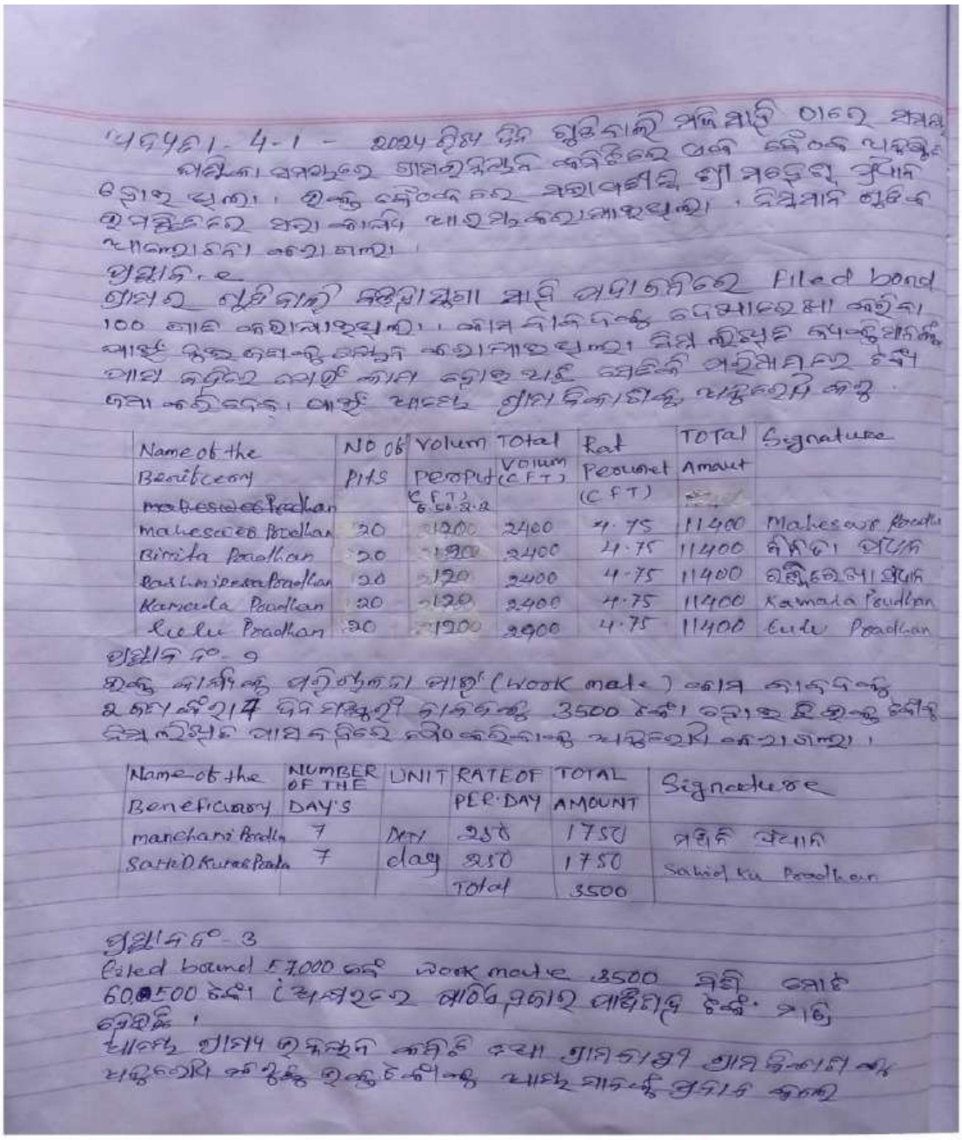
Following the PRA exercises, Self-Help Groups (SHGs) and Farmer Producer Groups (FPGs) were trained and given responsibility for nursery development and plantation management. The PRA process also helped foster an environment of open dialogue, encouraging community members to voice concerns, share ideas, and propose improvements before any decisions were finalized. This participatory and transparent approach enhanced community ownership and strengthened the foundation for successful project implementation.

With the support of Gram Vikas and the Village Development Committees (VDCs), community members used resource maps to identify areas suitable for social forestry and agroforestry interventions. This mapping exercise was instrumental in locating barren, underutilized, and erosion-prone lands in need of restoration. Resource map helped Jalabandhus plan water-related interventions by identifying drainage lines, water collection points, and areas prone to waterlogging or runoff. Overall, PRA platforms—especially village meetings—were effective in engaging the community through a simple, inclusive, and participatory planning process.

Figure 2 Discussion of Gram Vikas staff with the community members

Figure 3 Resource Map

Figure 4 Resource Map



Filed bond

Name of the Beneficiary	NO of Pits	Volum per pit (CFT) 6.50.2.2	Total Volum (CFT)	Rat Per unet (CFT)	TOTAL Amaut	Signature
Mahesware Pradhan	20	1200	2400	4.75	11400	Mahesware Pradhan
Birita Pradhan	20	1200	2400	4.75	11400	[illegible]
Rashmirekha Pradhan	20	120	2400	4.75	11400	[illegible]
Kamala Pradhan	20	120	2400	4.75	11400	Kamala Pradhan
Lulu Pradhan	20	1200	2900	4.75	11400	Lulu Pradhan

(Work mate)

Name of the Beneficiary	NUMBER OF THE DAY'S	UNIT	RATE OF PER DAY	TOTAL AMOUNT	Signature
Manchari Pradhan	7	Day	250	1750	[illegible]
Sahid Kumar Pradhan	7	day	250	1750	Sahid Ku Pradhan
			Total	3500	

Filed bound 57,000 … Work mate 3500 … 60,500

Scanned with OKEN Scanner

Photo: Sample copy of resolution passed by VDC

Photo: Member of VDC discussing project with Community member

Photo: Member of VDC discussing project with Community member

Photo: Identification of problem areas by Resource map

Photo: Community gathering for the preparation of Resource maps

Photo: Meeting for Input and Grievances by FPG and VDC

Photo: Nursery Establishment by SHG Members

Photo : Meeting for Input and Grievances by FPG and VDC

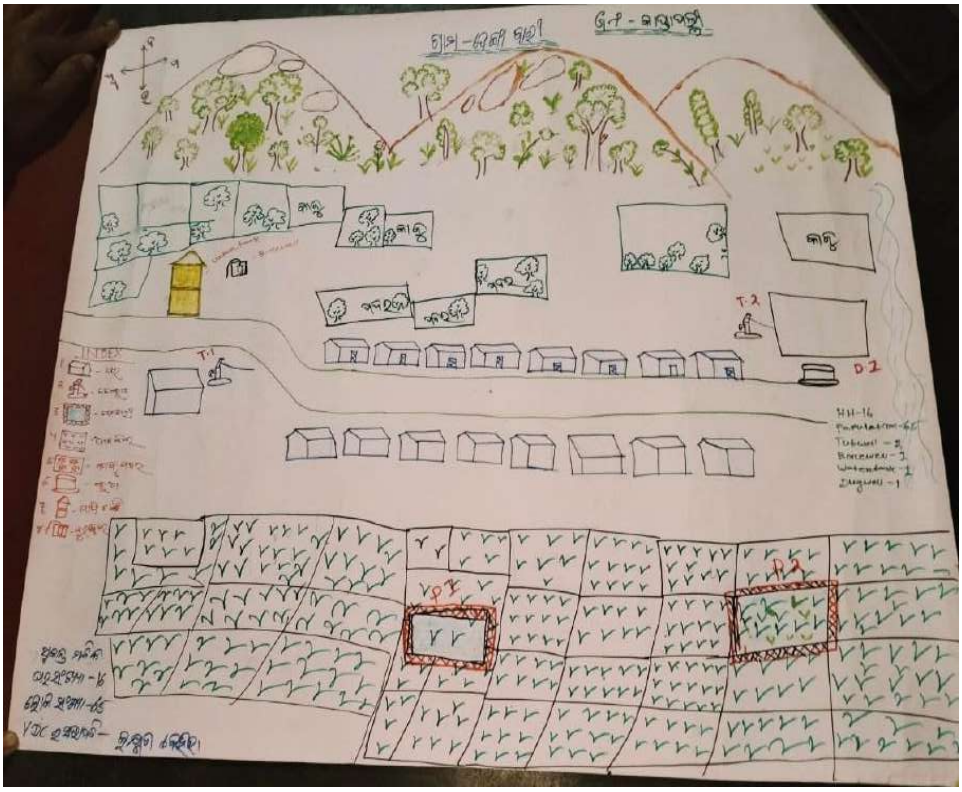


Photo: Resource map prepared by Community participating in project activities

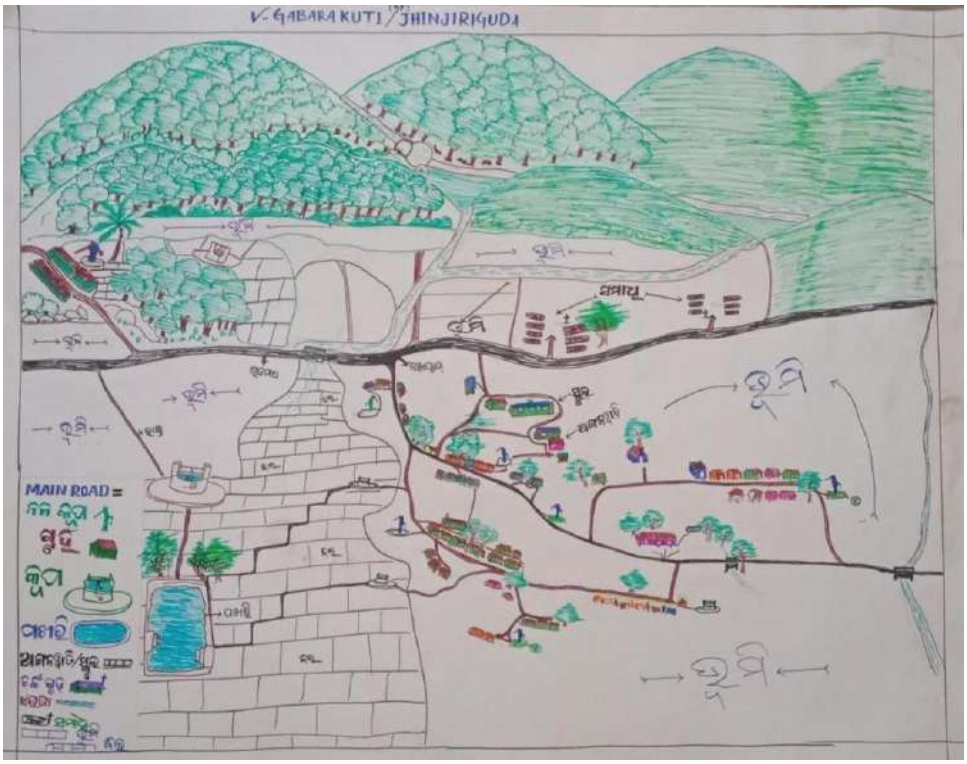


Photo: Resource map prepared by Community in guidance in guidance under VDC members

Annex 5 – Initial FPIC

An FPIC meeting was organized in Kantabhanji village, Kalahandi district, to inform local farmers about the carbon project, a collaboration between FCF India and Gram Vikas. The meeting aimed to ensure community participation, transparency, environmental protection, social justice, and land rights. Farmers were briefed on the project's objectives, selection criteria, and expected benefits. Discussions were open, inclusive, and documented to ensure transparency.

Key concerns included the project's long-term sustainability, availability of resources like seeds and water, understanding carbon credits, and the need for training in sustainable practices. Farmers also raised questions about water availability, soil health, and biodiversity restoration.

The meeting concluded with a commitment to address these concerns through ongoing engagement, training programs, and transparent communication. The FPIC process has reinforced the importance of community involvement in afforestation and carbon credit initiatives, ensuring long-term benefits for both farmers and the environment.

Outcomes after FPIC meeting:

1.**Community Awareness and Engagement:** After concluding the meeting farmers were confident regarding the project intervention with a clear understanding of the carbon project, its objectives, and potential benefits, ensuring informed decision-making.

2. **Consensus and Consent:** The community was given the space to deliberate independently, leading to a collective agreement to participate in the project. Community members expressed overall support

for the project, appreciating the inclusive approach. Some participants provided suggestions for better implementation, such as improved communication channels and additional capacity-building sessions.

3. **Identification of Key Concerns:** The meeting was helpful in highlighting major community concerns, including long-term sustainability, resource availability, clarity on carbon credits, and training needs. Participants emphasized the need for ongoing engagement, regular updates, and hands-on training to enhance their participation and understanding.

4. **Commitment to Address Concerns:** Assessment team has assured that all the concerns raised by participants during the meeting would be integrated into the project implementation plan through ongoing engagement and support with a suggestion of establishing a structured feedback mechanism, such as regular meetings or a grievance redressal system, to track progress and maintain transparency.

5. **Structured Follow-Up Mechanism:** For future regular follow-ups, capacity-building sessions, and transparent communication plans were made in incoordination with community to ensure continued participation in the project activities and benefit-sharing.

6. **Strengthened Collaboration:** The FPIC meeting strengthened the collaboration between communities, Gram Vikas, and FCF India, laying the groundwork for a successful afforestation and carbon credit initiative. FPIC was proved beneficial for the communities, providing valuable insights into technical guidance that will enhance their participation in project activities.

Sample Attendance sheet, photographs and feedback forms is attached below

Registration/ Attendance sheet forms of FPIC at Kalahandi, Orissa

"ପ୍ରାରମ୍ଭିକ, ପୂର୍ବ ଏବଂ ସୂଚନାଯୋଗ୍ୟ ପରାମର୍ଶର ମତାମତ ଫର୍ମ - ସମୁଦାୟମାନଙ୍କୁ ସଶକ୍ତ କରିବା, ବେଶିଡି ଏବଂ ସାମୁଦାୟିକ ଭୂମିକୁ ସମୃଦ୍ଧ କରିବା"

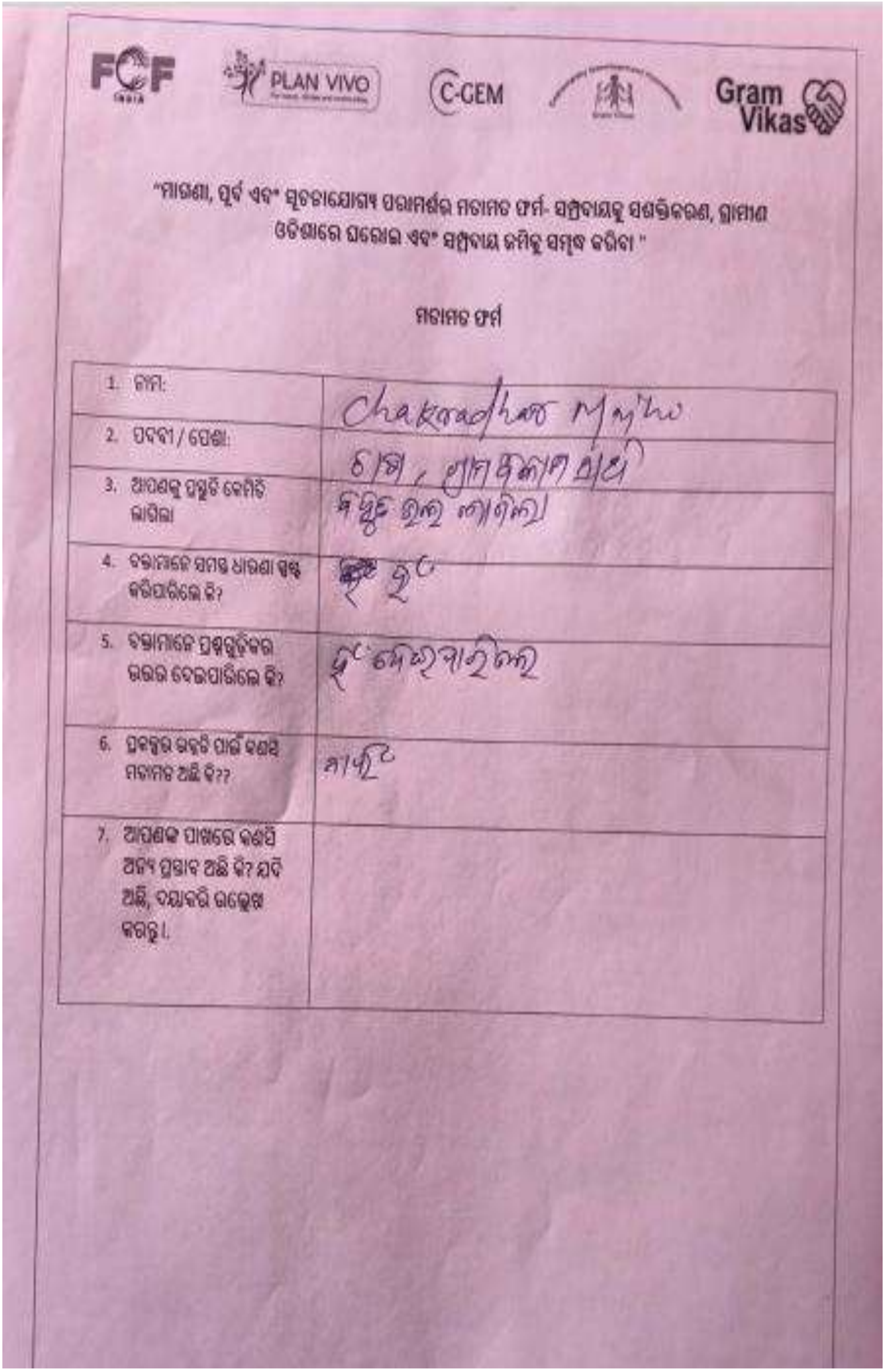
ତାରିଖ ଏବଂ ସ୍ଥାନ: 19/01/2025, Kantabanji

ହାଜରା ପତ୍ର

କ୍ରମିକ	ଭାଗୀଦାରଙ୍କ ନାମ	ପଦବୀ / ପେଶା	ଗାଁ	ଗ୍ରାମ ପଞ୍ଚାୟତ /ବ୍ଲକ	ଜିଲ୍ଲା	ସହି
1	Ada Majhi	farmer	Kantabanji	Thuamul	Kalahandi	
2	Kandra Majhi	"	"	"	"	
3	Luna Majhi	"	"	"	"	
4	Ratan Majhi	"	"	"	"	
5	Pingar majhi	"	"	"	"	
6	Manichandra majhi	"	"	"	"	
7	Dambhu majhi	"	"	"	"	
8	Phularam majhi	"	"	"	"	

କ୍ରମିକ	ଭାଗୀଦାରଙ୍କ ନାମ	ପଦବୀ / ପେଶା	ଗାଁ	ଗ୍ରାମ ପଞ୍ଚାୟତ /ବ୍ଲକ	ଜିଲ୍ଲା	ସହି
9	Kneti Pinchandra majhi	"	Kantabanji	Thuamul	Kalahandi	Krushna chandra Majhi
10	Phularam majhi	"	"	"	"	
11	Parshu ram majhi	"	"	"	"	
12	Ramchandra Majhi	"	"	"	"	Ramchadra majhi
13						

Sample Feedback Form of Participants FPIC at Kalahandi district, Orissa



FCF INDIA | PLAN VIVO | C-GEM | Gram Vikas

"ମାଗଣା, ପୂର୍ବ ଏବଂ ସୂଚନାଯୋଗ୍ୟ ପରାମର୍ଶର ମତାମତ ଫର୍ମ- ସମ୍ପ୍ରଦାୟକୁ ସଶକ୍ତିକରଣ, ଗ୍ରାମୀଣ ଓଡିଶାରେ ଘରୋଇ ଏବଂ ସମ୍ପ୍ରଦାୟ ଜମିକୁ ସମୃଦ୍ଧ କରିବା "

ମତାମତ ଫର୍ମ

1. ନାମ:	Chakradhar Majhi
2. ପଦବୀ / ପେଶା:	[illegible]
3. ଆପଣଙ୍କୁ ପ୍ରସ୍ତୁତି କେମିତି ଲାଗିଲା	ବହୁତ ଭଲ ଲାଗିଲା
4. ବକ୍ତାମାନେ ସମସ୍ତ ଧାରଣା ସ୍ପଷ୍ଟ କରିପାରିଲେ କି?	ହଁ
5. ବକ୍ତାମାନେ ପ୍ରଶ୍ନଗୁଡ଼ିକର ଉତ୍ତର ଦେଇପାରିଲେ କି?	ହଁ ଦେଇପାରିଲେ
6. ପ୍ରକଳ୍ପର ଉନ୍ନତି ପାଇଁ କଣସି ମତାମତ ଅଛି କି??	ନାହିଁ
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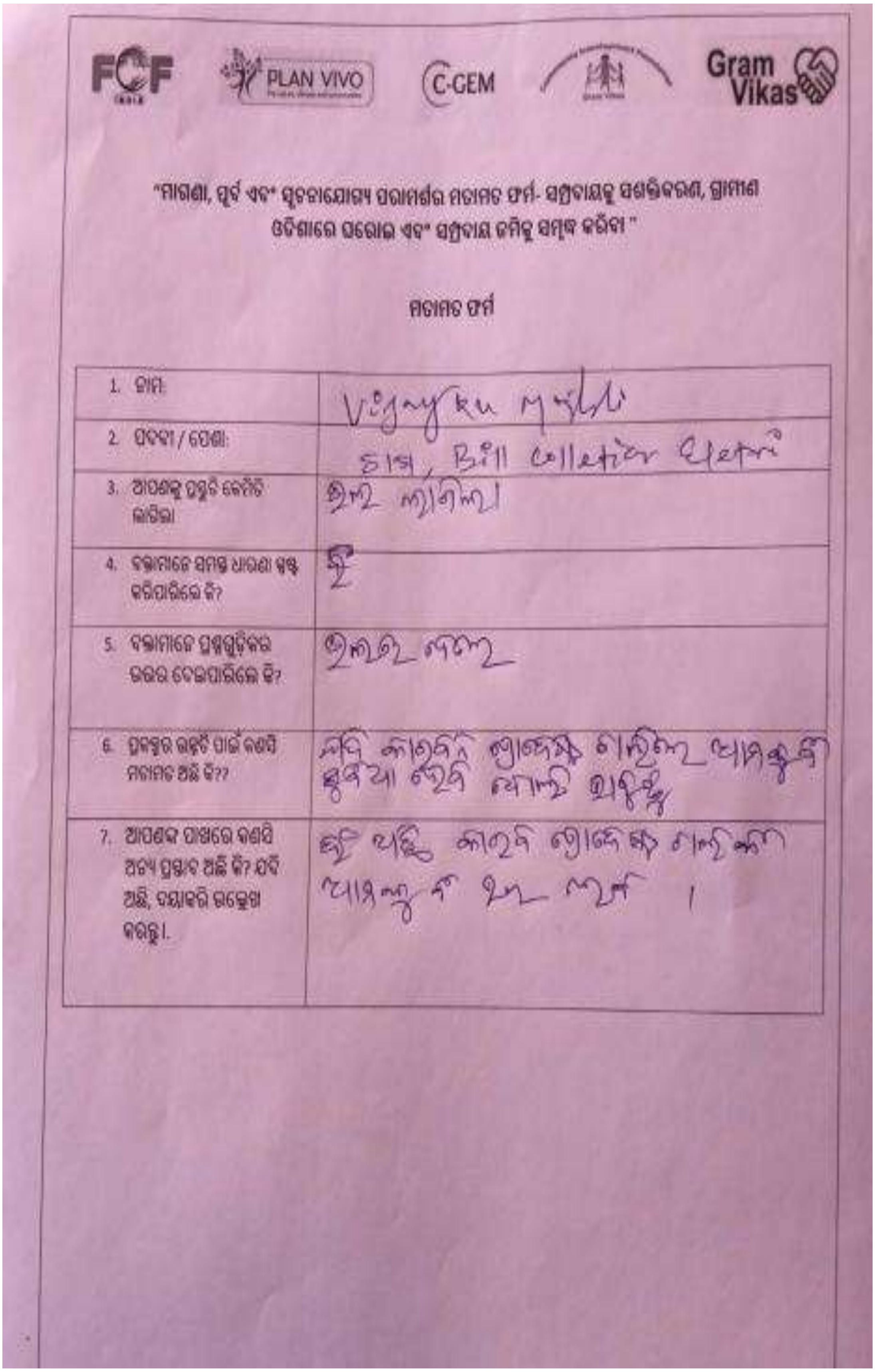

FCF PLAN VIVO C-GEM Gram Vikas

"ମାଗଣା, ପୂର୍ବ ଏବଂ ସୂଚନାଯୋଗ୍ୟ ପରାମର୍ଶର ମତାମତ ଫର୍ମ- ସମ୍ପ୍ରଦାୟକୁ ସଶକ୍ତିକରଣ, ଗ୍ରାମୀଣ ଓଡିଶାରେ ଘରୋଇ ଏବଂ ସମ୍ପ୍ରଦାୟ ଜମିକୁ ସମୃଦ୍ଧ କରିବା "

ମତାମତ ଫର୍ମ

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Feedback summary from the FPIC organized in Kalahandi district-

The feedback form was filled out by Chakradhar Majhi, a male participant from Kalahandi district. He emphasized that the FPIC process was highly useful and empowering. He emphasized on the meeting led to increased participation of women, youth from various tribal groups. As a result, the community has developed greater trust in the project interventions."

"According to the participant, the project's intervention in the area will be highly beneficial for the local environment by enhancing biodiversity and helping to address past issues of water scarcity. He also noted that the internship program will provide valuable knowledge to local youth, which could improve their future job prospects. Additionally, the participant highlighted the involvement of women in project activities, such as establishing nurseries and selling saplings for the plantation, which is creating employment opportunities and a stable source of income.

He emphasized the importance of clear communication about the benefits of the project and called for honest communication between project developers, government agencies, and the local community to build mutual understanding and trust.

Pictures from the FPIC meeting organised in Kalahandi district, Orissa

Annex 6 – Carbon Calculations Spreadsheet

To estimate the baseline emissions, the module PU001, "Estimation of Baseline and Project GHG removals by Carbon pools in Plan Vivo projects, Version 1.0 was used.

The baseline net GHG removals by sinks shall be calculated according to the PV Climate methodology-Agriculture and Forestry Carbon Benefit Assessment Methodology version 1.0, as follows:

$BR_{a,y} = BR_{WB,a,y} + BR_{NB,a,y} + BR_{BG,a,y} + BR_{LI,a,y} + BR_{DW,a,y} + BR_{SO,a,y} + BR_{WP,a,y}$ **Equation 1:** Calculation of baseline removals by carbon pools

Where:

$BR_{a,y}$ = Net GHG removals under the baseline scenario for project area a up to year y (tco_2e)

$BR_{WB,a,y}$ = Net GHG removals in aboveground woody biomass under the baseline scenario for project area a upto year y (tco_2e)

$BR_{NB,a,y}$ = Net GHG removals in aboveground non-woody biomass under the baseline scenario for project area a upto year y (tco_2e)

$BR_{BG,a,y}$ = Net GHG removals in belowground biomass under the baseline scenario for project area a upto year y (tco_2e)

$BR_{LI,a,y}$ = Net GHG removals in Litter under the baseline scenario for project area a upto year y (tco_2e)

$BR_{DW,a,y}$ = Net GHG removals in dead wood under the baseline scenario for project area a upto year y (tco_2e)

$BR_{SO,a,y}$ = Net GHG removals in soil organic carbon under the baseline scenario for project area a upto year y (tco_2e)

$BR_{WP,a,y}$ = Net GHG removals in wood products under the baseline scenario for project area a upto year y (tco_2e)

$BR_{a,y}$ is accounted as zero, and baseline conditions are mentioned below:

▪ The Baseline trees are neither harvested, nor cleared, nor removed throughout the crediting period of the Project activity;

▪ 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;
▪ The Baseline trees are 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. Baseline trees are inventorised through geo tagging and the carbon stock generated won't be included in the estimation of project removals.

$BR_{WB,a,y}$, $BR_{NB,a,y}$ and $BR_{BG,a,y}$ are conservatively assumed to be zero in the baseline scenario, due to the fact that changes in carbon stock of above and below ground biomass of non-tree vegetation of the degraded land in baseline scenario is not possible.

Also $BR_{LI,a,y}$ and $BR_{DW,a,y}$ are assumed to be zero due to the fact that the baseline scenario was degraded pasture, where fire was often used, which did not allow accumulation of dead wood and litter.

$BR_{SO,a,y}$ and $BR_{WP,a,y}$ are assumed to be zero due to the fact that the baseline scenario was degraded pasture and no vegetation was present, which had a adverse effect on the Soil Organic Carbon. As in the baseline no vegetation was present, GHG removals by wood products under the baseline scenario was zero.

That is why the estimated baseline emissions or removals are considered insignificant and hence accounted as zero. $BR_{a,y} = 0$

Year	Expected GHG benefit from the project
1	-
2	-
3	5,633
4	7,265
5	17,161
6	26,176
7	33,991
8	46,339
9	56,683
10	54,069
11	61,554
12	69,809
13	78,013
14	85,208
15	93,474
16	100,611
17	105,269
18	115,804
19	125,300
20	132,781
21	137,363
22	143,262
23	139,909

24	132,873
25	127,095
26	118,579
27	107,672
28	110,252
29	112,854
30	115,439
Total tCo2e	**2,460,438**
Average tCo2e	**82,015**
Average per year hectare tCO2e	**23.03**
Average per year per hectare tC	**6.28**

Annex 7 – Technical Specifications

Project Intervention:	Empowering Communities, Enriching Private and Community Lands in Rural Odisha
Version:	
Date Approved:	
Methodology:	The Plan Vivo methodology PM001, Agriculture and Forestry Carbon Benefit Assessment Methodology, V1.0 is being used to quantify the emission reduction.
Modules/Tools:	• Estimation of carbon stocks and change in carbon stocks of trees and shrubs in PV Climate project activities, AR-Tool 14 A/R Methodological tool "Combined tool to identify the baseline scenario and demonstrate additionality in PV Climate project activities, Version 01"
Certificate Type(s):	fPVC, rPVC and vPVC

Applicability conditions

For the justification of applicability conditions, section 4.1 of the methodology PM001, "Agriculture and Forestry Benefit Assessment Methodology" was used.

Applicability Conditions	Justification
The land subject to the project activity does not fall in wetland.	As per the IPCC GPG LULUCF 2003, wetlands are defined as lands that are covered or saturated by water for all or part of the year (e.g., peatland) and that does not fall into the forest land, crop land, grass land or settlements categories including reservoirs, natural rivers

	and lakes. The land parcel included in the project are privately owned and degraded community land and does not lie under wetlands.
Project interventions should take place on forest land, cropland or grassland.	The projects includes privately owned fallow lands and degraded community lands in the project area.
Project activities must not include flood irrigation, drainage, or other activities that affect the ground water table.	The project does not include flood irrigation, drainage, or other activities that affect the ground water table. Additionally, the project had constructed soil moisture conservation structures such as stone bunds and contour trenches to enhance the soil moisture of the project area.
Projects applying this methodology must comply with the applicability conditions of any modules and tools applied.	The project complies to all the applicability conditions of any modules and tools applied.
This module is applicable to Plan Vivo project interventions that result in net-removal of GHGs from the atmosphere. This includes any of the following intervention types: ● Afforestation and reforestation; ● Forest restoration; ● Agroforestry and farm forestry; and ● Changes to cultivation practices	The project activity includes plantation of different tree species in the land parcels of local community members. The intervention comes under the category of Agroforestry and Farm forestry
The project activity does not lead to alteration of hydrology of the project area	The project includes plantation of trees, hence the applicability condition is not applicable
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	The project involves tree plantation on the lands of local community members, thereby fulfilling the required applicability conditions.

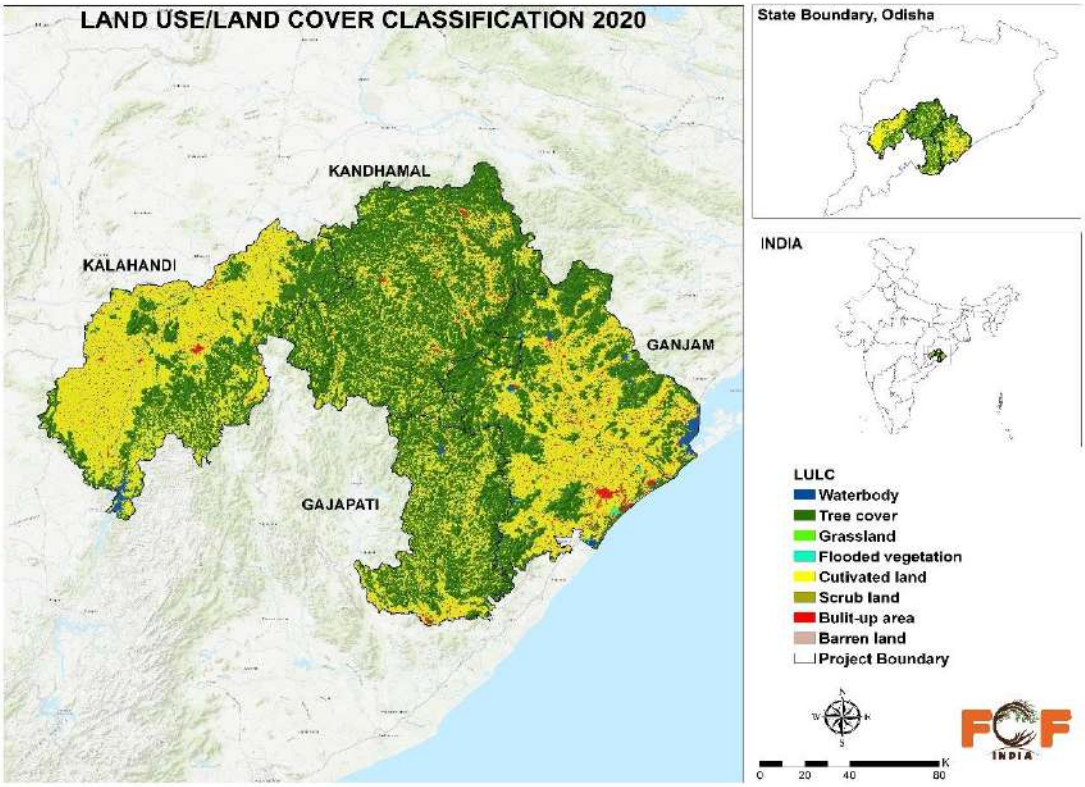
Baseline Scenario

The project area is located in Odisha, where the landowners primarily belong to vulnerable tribal communities, particularly the Khond and Saora tribes, who will actively participate in the initiative. The intervention focuses on private and community lands that have largely remained barren, with community lands, in particular, being subjected to slash-and-burn agricultural practices, leading to continuous degradation. Over 75% of the state's farmers are small and marginal, typically holding less than 2 hectares of land. Paddy cultivation is predominant, covering nearly 50% of the total cropped area, underscoring its significance in food security and livelihoods. The Khond and Saora communities rely heavily on agriculture and forest-based resources such as Kendu leaves, Sal seeds, bamboo, and turmeric for their sustenance.

Forests play a vital role in the socio-economic structure of the region, contributing to revenue, employment, housing, fuel, fodder, timber, food, medicinal plants, fertilizers, and other Non-Timber Forest Products (NTFPs). The proposed project districts are primarily inhabited by tribal communities, with most households owning small landholdings, usually no larger than 1 hectare, and facing limited access to water resources. High levels of unemployment and underemployment contribute to widespread poverty and food insecurity, making sustainable livelihood opportunities scarce. Due to

the unpredictability of agricultural yields, tribal communities depend significantly on minor forest products (MFPs) for food security and traditional medicine.

Without afforestation efforts and water conservation measures, degraded lands affected by historical slash-and-burn practices will continue to deteriorate. The absence of restoration activities will result in poor soil quality, increased erosion, and further land degradation over time. Additionally, the lack of water conservation structures will exacerbate water scarcity, prolonging fallow periods and making cultivation increasingly difficult. Neglecting these degraded lands heightens the risks of soil infertility, biodiversity loss, and vulnerability to environmental hazards such as cyclones. Implementing afforestation and water conservation measures is essential to breaking this cycle of degradation, enhancing ecological resilience, and promoting sustainable land use.



Livelihood Baseline- Socioeconomic Status of Participants

Odisha is an agrarian state where more than 83% of the population depends on agriculture, with a significant reliance on rainfed farming systems. The state is home to sixty-two tribal communities, many of whom practice traditional agricultural methods. Agriculture in Odisha is predominantly monsoon-dependent, making it highly vulnerable to climatic fluctuations. Over 75% of the farmers in the state are small and marginal, holding less than 2 hectares of land on average. Paddy cultivation dominates, covering about 50% of the cropped area, underscoring its critical role in food security and rural livelihoods. In addition to paddy, farmers cultivate a variety of crops, including maize, pulses, oilseeds, vegetables, spices, sugarcane, and tobacco, with cash crops such as cashew nuts further contributing to agricultural diversity.

The Khond and Saora tribal communities, who largely depend on agriculture and forest-based resources such as Kendu leaves, Sal seeds, bamboo, and turmeric, have been severely impacted by limited irrigation facilities and prolonged drought conditions. These challenges have led to a decline

in both the quantity and quality of forest resources, significantly affecting their livelihoods and income. Additionally, their traditional way of life is under increasing threat due to depleting forest resources and the encroachment of mainstream cultures into their regions.

Shifting cultivation is widely practiced in Odisha, with approximately 1.60 million hectares of land under this system and around 2 million families engaged in it. However, this practice has led to severe environmental degradation, causing the loss of rare tree species, shrubs, medicinal plants, and minor forest products. The adverse effects of shifting cultivation are particularly evident in several districts of Odisha, where deforestation and soil erosion continue to pose significant ecological challenges.

The continuous growth of the population has placed immense pressure on agricultural land, leading to the fragmentation of holdings into smaller, less productive units, which further hampers agricultural efficiency. The combination of dwindling water resources, fragmented landholdings, and an increasing population has resulted in serious socio-economic challenges, threatening the long-term agricultural stability and livelihoods of rural communities. The primary causes of food insecurity in many villages include landlessness, small and marginal landholdings, and inadequate irrigation facilities.

A large proportion of households in Odisha rely on forest-based activities such as collecting and processing forest produce, which they sell in local markets (known as *haat* in Odia) or through intermediaries. On average, forest-based activities provide 9.45 man-days of direct paid employment per household annually, generating an income of ₹1,842.75 per household. While Non-Timber Forest Products (NTFPs) do not offer year-round livelihood support, they serve as a crucial seasonal income source for tribal communities. A significant number of individuals engaged in NTFP collection belong to the 20-40 age group, reflecting their active participation in both household responsibilities and forest-based economic activities from an early age.

Agriculture remains the primary income source for rural households, contributing an average annual income of ₹14,356 per household, accounting for 37% of total earnings. The NTFP sector follows closely, providing ₹12,374 per household annually, contributing 32% to household income. Farm labor serves as an additional income source, generating an average of ₹6,478 per household per year, making up 17% of total earnings. Other minor income sources supplement the remaining percentage, highlighting the diverse livelihood strategies adopted by rural communities to sustain themselves.

To address food insecurity and economic instability, several NGOs in Odisha, particularly in Kalahandi, have been promoting the formation of self-help groups (SHGs). These groups encourage villagers to contribute fixed amounts of money or food grains each month, enabling the establishment of local ‘cash banks’ and ‘grain banks.’ *Antodaya*, an NGO operating in the Thuamul Rampur block, has played a significant role in mobilizing tribal women into SHGs, successfully organizing over 900 women into small (5–6 members) and large (10–15 members) groups within three years. These initiatives have helped strengthen financial security and empower women in tribal communities.

Odisha’s agricultural and forest-based livelihoods face increasing challenges due to environmental degradation, resource depletion, and socio-economic constraints. While agriculture continues to be the primary source of income, NTFPs and farm labor play crucial roles in supplementing household earnings. However, without sustainable interventions such as afforestation, improved irrigation facilities, and economic empowerment initiatives like SHGs, the long-term well-being of rural and tribal communities remains uncertain. Addressing these challenges through conservation efforts, livelihood diversification, and community-driven development is essential for ensuring sustainable growth in Odisha’s tribal-dominated regions. The livelihoods of tribal communities are anticipated to experience positive changes, marked by greater economic resilience, enhanced market access, and a

stronger commitment to environmental conservation. The integrated approach of cultivating fruit-bearing trees on private lands alongside social forestry initiatives on community lands establishes a sustainable model that not only boosts the economic well-being of local residents but also nurtures a balanced and cooperative relationship between the community and its natural surroundings.

Ecosystem Baseline – Ecological Conditions

Odisha can be physiographically divided into four distinct regions: the Northern Plateau, Eastern Ghats, Central Tableland, and Coastal Plains. The state experiences a tropical monsoon climate, characterized by high temperatures, humidity, moderate to heavy rainfall, and short, mild winters. Summer temperatures can reach up to 45°C, while winter temperatures can drop to a minimum of 5°C. The annual temperature ranges between 25°C and 28°C, and the state receives annual rainfall between 1,200 mm and 1,600 mm.

Several major rivers drain the state, including the Mahanadi, Brahmani, and Baitarni. Odisha's forest cover spans 51,618.51 sq km, accounting for 33.15% of its total geographical area. Based on forest canopy density, the state has 6,969.71 sq km under Very Dense Forest (VDF), 21,551.93 sq km under Moderately Dense Forest (MDF), and 23,096.87 sq km under Open Forest (OF) [39].

Despite degradation in both extent and density, Odisha's forests can be classified into five broad types based on the Champion and Seth classification: Orissa Semi-Evergreen Forests, Tropical Moist Deciduous Forests, Tropical Dry Deciduous Forests, Central Indian Hill Forests, Littoral and Tidal Swamp Forests

The dominant tree species in the top storey of semi-evergreen forests include *Artocarpus lacucha*, *Mangifera indica*, *Protium serratum*, *Magnolia champaca*, *Diospyros malabarica*, *Celtis tetandra*, *Bridelia retusa*, *Dillenia pentagyna*, *Ficus racemosa*, *Ficus nervosa*, and *Firmiana colorata*. Additionally, species such as *Terminalia elliptica*, *Pterocarpus marsupium*, *Schleichera oleosa*, *Careya arborea*, *Dalbergia latifolia*, and *Ougeinia oogeinensis* are also prevalent in these forests[40].

The forests of Odisha, though unevenly distributed, play a vital role in supporting rural livelihoods, ensuring food security, and preserving ecological balance. The state is known for its rich tribal heritage, abundant mineral resources, and extensive forest cover. Odisha is home to 64 Scheduled Tribes and 13 Particularly Vulnerable Tribal Groups (PVTGs), with the Khond and Saora communities being key participants in the project area.

PVTGs, the most at-risk among tribal groups, face multiple socio-economic challenges. They are characterized by a pre-agricultural way of life, dependence on hunting and gathering, slow or stagnant population growth, geographical isolation, and low literacy rates.

Despite the state's rich natural resources, indigenous communities encounter issues such as over-exploitation, habitat degradation, overgrazing, and a lack of awareness, all of which threaten biodiversity and economic stability. Large areas of land remain uncultivated, leading to soil erosion and reduced agricultural productivity. The widespread practice of shifting cultivation among tribal communities contributes significantly to deforestation, resulting in biodiversity loss and ecological imbalance. This practice accelerates soil erosion and degradation, depleting soil fertility and lowering agricultural yields. Furthermore, the burning of vegetation during shifting cultivation releases significant amounts of greenhouse gases, exacerbating climate change.

[39] https://fsi.nic.in/isfr19/vol2/isfr-2019-vol-ii-odisha.pdf
[40] https://core.ac.uk/download/pdf/542705213.pdf

Environmental degradation further increases the region's vulnerability to climate change impacts, including floods and droughts, due to the loss of protective vegetation cover. Through targeted interventions, the project aims to address these challenges by promoting sustainable land-use practices, restoring biodiversity, improving soil health, conserving water resources, and reducing greenhouse gas emissions. These efforts will help create a more resilient and sustainable ecosystem. By implementing these strategies, the project seeks to enhance agricultural productivity, strengthen local economies, and ensure long-term socio-economic and environmental benefits for indigenous communities.

Photo: Picture taken from the Baseline of the project area

Additionality

The demonstration and assessment of the project's additionality are conducted according to the "Agriculture and Forestry Carbon Benefit Assessment Methodology V1.0," following the procedures outlined in the "Combined Tool to Identify the Baseline Scenario and Demonstrate Additionality in PLAN VIVO Project Activities" (Version 01).

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

Start date/year of the proposed project is 2021. The projects start date is marked by the completion of land preparation and pre-plantation activities like nursery establishment and pit digging in the project area. Plantation activities are done in monsoon season. Also, an MoU is signed between the project proponents FCF India, Gram Vikas & GVCDF, where the incentive from the planned sale of the PVCs was seriously considered in the decision to proceed the project activity.

The project consists of land namely, private lands owned by the farmers to demonstrate clear ownership land documents were checked for verifying.

STEP 1. Identification of alternative land use scenarios to the proposed PLAN VIVO project activity

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

According to PLAN VIVO methodological tool version 01, "Combined tool to identify the baseline scenario and demonstrate additionality in PLAN VIVO projects activities" alternative land use scenario for the proposed PLAN VIVO project has been meticulously identified.

The alternative land-use scenarios presented in the project documentation are considered credible, as they fulfil the criteria outlined in STEP 1a of the PLAN VIVO tool. These scenarios were identified through field surveys and consultations with local stakeholders, supported by secondary and spatial data. This conclusion was drawn after a thorough analysis of land records and baseline surveys conducted by the project proponent, who has been working closely with farmers in the project area for almost a decade.

The project proponent's vast experience and thorough knowledge of the local environment have been key to effectively assessing the existing land use scenarios. These scenarios are deemed feasible, as they carefully consider a range of sectoral factors, such as the historical land use patterns and agricultural practices that are prevalent in the area. This comprehensive understanding ensures that the proposed land use plans are realistic and aligned with the region's specific needs and conditions.

Furthermore, stakeholder input and feedback were carefully considered when developing alternative land use scenarios. As section 3.1 of the PD mentions, baseline scenario depends on the land type in the project area boundary. The additionality assessment for the private lands have been done and explained in the below sections.

The alternate land use case scenarios for private lands owned by the beneficiaries, in the project are as follows:

<u>Scenario 1: Continuation of pre-project land use:</u>

1.1 Subsistence low-output agriculture

Odisha, an agrarian state, has more than 83% of its population dependent on agriculture, with a significant reliance on rainfed farming systems. Agriculture in Odisha is largely monsoon-dependent. Over 75% of the state's farmers are small and marginal, holding less than 2 hectares of land on average. Paddy cultivation dominates, covering about 50% of the cropped area, highlighting its critical role in the state's food security and livelihood. The diverse cropping pattern also includes maize, pulses, oilseeds, vegetables, spices, sugarcane, and tobacco, complemented by the cultivation of cash crops like cashew nuts.

The introduction of chemical nutrients has led to a dramatic rise in the use of chemical fertilizers. Cultivated crops have induced abiotic stresses, such as reduced soil fertility, which are exacerbated by the heavy reliance on agrochemicals. The insufficient use of organic fertilizers and farmyard manure (FYM), coupled with unscientific cropping practices, has further contributed to soil fertility decline. Agrochemicals have numerous negative ecological impacts, with persistent residues in the soil being a significant consequence of chemical fertilizer application. Primary challenges to agricultural progress in the state encompass to agricultural development, including small and fragmented landholdings, a resurgence of pest infestations, poor marketing infrastructure, vulnerability to natural calamities such

as droughts, floods, and hailstorms, inadequate irrigation facilities, intense population pressure on land, and issues related to farmer suicides[41]. Consequently, in many settlements, rainwater is stored in natural or artificial ponds, making rainwater collection the primary source of drinking water due to declining groundwater level.

Irrigation is a significant issue in Kalahandi district, one of the driest areas in Odisha, where frequent droughts have caused a severe decline in the groundwater table. The available surface water resources in the district are insufficient to meet the water demands for crops, particularly during the Rabi season. With only 18.49% of groundwater development, the district is highly vulnerable to droughts due to a critical shortage of irrigation water[42]. The continuous population growth places increasing pressure on agricultural land, resulting in the fragmentation of land into smaller holdings, further hindering agricultural efficiency. The combination of dwindling water resources, fragmented land holdings, and a rising population has led to significant socio-economic challenges, threatening the long-term agricultural stability and livelihoods of the district's rural population.

Kandhamal, located in the North Eastern Ghat climatic zone, is predominantly covered, with hilly ranges and narrow valleys, making access difficult adding erratic weather patterns, with a high incidence of droughts. About 128 thousand hectares of land are available for cultivation, of which about 13 thousand hectares are left fallow, leading soil fertility. Soil erosion is a significant issue in the area[43]. Agricultural production and productivity in the region are significantly low, primarily due to several key factors: the presence of red lateritic soil with poor water retention, inadequate irrigation facilities, and an over-dependence on unreliable rainfall. Farmers, who are predominantly smallholders and economically disadvantaged, face challenges due to minimal access to perennial irrigation. This leads to low overall productivity and limited crop diversification. Additionally, the widespread use of traditional seeds in agriculture contributes to the gradual decline in productivity.

Water is the primary crisis in the region, particularly for agriculture, and is further worsened by soil erosion. The government has made substantial investments in soil and water micro-watersheds in the region. However, many of these structures remain unused or nonfunctional due to a lack of awareness and interest among the farmers[44].

Extended periods of inadequate rainfall have also impacted forested areas, diminished water availability and leading to a decline in tree health and forest density. This has caused higher tree mortality, reduced biodiversity, and intensified soil erosion, further degrading the already fragile soil quality. The loss of forest cover also diminishes the region's ability to act as a carbon sink, exacerbating climate change effects.

[41] Link

[42] https://www.researchgate.net/profile/Balram-Panigrahi/publication/347560976_Assessment_of_Groundwater_Potential_in_the_Kalahandi_District_of_Odisha_India_Using_Remote_Sensing_Geographic_Information_System_and_Analytical_Hierarchy_Process/links/603ce31c4585154e8c6b8611/Assessment-of-Groundwater-Potential-in-the-Kalahandi-District-of-Odisha-India-Using-Remote-Sensing-Geographic-Information-System-and-Analytical-Hierarchy-Process.pdf

[43] Link

[44] https://krishikosh.egranth.ac.in/server/api/core/bitstreams/f2f5f983-f1ec-4390-b9c1-4fc3bb9a1c9d/content

The Khondh and Saora communities, who largely depend on agriculture and forest products like Kendu leaves, Sal seeds, bamboo and turmeric, have been severely affected by limited irrigation facilities and prolonged drought conditions. These challenges have led to a decline in both the quantity and quality of forest resources, significantly impacting their livelihoods and income[45].

1.2 Shifting Cultivation

In India, Odisha leads with the 1.60 million ha area under shifting cultivation and 2.0 million families involved in this practice[46]. Shifting cultivation in Odisha results in significant environmental degradation, leading to the loss of valuable flora and fauna, including rare tree species, shrubs, medicinal plants, and minor forest products. The harmful effects of this practice are particularly visible in districts of Odisha[47].

In Odisha, shifting cultivation is a traditional agricultural practice that, while providing livelihoods to many, also brings about certain environmental and economic challenges. This method of farming can lead to the drying up of springs, affecting water availability in the region. It may also contribute to soil erosion, which can degrade the quality of the land over time. In some cases, valuable timber is lost, and the practice is linked to flooding in the surrounding areas. Furthermore, shifting cultivation can result in the silting of tanks and fields, potentially harming crops and reducing agricultural productivity[48].

Agriculture is the main economic activity in Gajapati, with approximately 80% of the population relying on it directly or indirectly. Of the 62,049 hectares of land holdings, 72% are owned by small and marginal farmers. Due to limited irrigation facilities, agricultural activities largely depend on rainfall[49].

The primary economic activity for the communities/ tribals in Gajapati district has shifted from traditional shifting cultivation to other livelihood practices. This change has occurred because shifting cultivation, once their main mode of subsistence, has become less profitable. The combined effects of deforestation, ecological imbalance, and a declining land-to-person ratio due to population growth have made this practice increasingly unsustainable. As a result, the community has had to adapt to new economic activities, moving away from their traditional agricultural methods[50].

Shifting cultivation, or slash-and-burn agriculture, is the primary source of food for the tribal communities in the area. The Kondhs call it dongar chaas or podu chaas. The crops are grown during the Kharif season (June to September). The average size of podu landholdings ranges from 0.5 to 3 acres, typically on hill slopes. Kondh farmers practicing shifting cultivation do not use manure or chemical fertilizers. Around 68% of households have marginal or small landholdings, 10% own medium

[45] https://www.researchgate.net/profile/Naresh-Saxena/publication/283994561_Non-timber_forest_products_Policy_issues/links/5e3782b0299bf1cdb90845f4/Non-timber-forest-products-Policy-issues.pdf

[46] https://naas.org.in/Policy%20Papers/policy%2083.pdf

[47] https://magazines.odisha.gov.in/orissareview/jan2005/englishPdf/Sustainable_soil.pdf

[48] https://magazines.odisha.gov.in/orissareview/july2006/engpdf/76-84.pdf

[49] https://www.nabard.org/auth/writereaddata/tender/ORI_Gajapati.pdf

[50] https://www.ijiras.com/2017/Vol_4-Issue_2/paper_46.pdf

or large landholdings, and the remaining households are landless. As the population and family sizes grow, landholdings continue to be further divided. The average size of landholdings is between 0.8 and 1.2 acres, with some farmers owning more than 3 acres[51].

In Kandhamal district, both agricultural production and productivity are considerably low, primarily due to the poor water retention capacity of the soil. This results in frequent drought-like conditions, further limiting the growth of crops and the overall agricultural yield. The district's agricultural activities are heavily reliant on rainfall, which is often unpredictable and irregular, leading to uncertain crop production. The availability of irrigation infrastructure is minimal, which exacerbates the situation, leaving farmers with limited options to support their crops during dry periods. The insufficient irrigation infrastructure, coupled with the region's poor soil quality, makes agriculture in Kandhamal highly susceptible to the effects of climate variability and water scarcity[52].

Agriculture in Ganjam district, Odisha, faces numerous challenges that hinder the productivity and sustainability of farming activities. One of the major issues is the lack of sufficient irrigation infrastructure, which limits their ability to irrigate crops effectively. Farmers also struggle with insufficient transportation and marketing facilities, making it difficult to reach broader markets. Furthermore, agricultural production is on the decline, and the quality of the produce often fails to meet the required standards, affecting its marketability[53].

Scenario 2: Forestation of the land within the project boundary performed without being registered as the PLAN VIVO project activity

A study found that 33% of the forest area is designated for ecological protection, another 33% for social forestry, indicating that one-third is allocated to social forestry plantations[54]. In the fiscal year 2021-22, Odisha allocated a budget of Rs. 2325.00 lakh for Artificial Regeneration (AR) and Assisted Natural Regeneration (ANR) initiatives. The activities related to forestry, agro-forestry, and the development of wastelands on both private and government-leased lands have demonstrated financial viability and commercial success. To boost agro and social-forestry, the government is promoting various missions and programs. These efforts include planting on barren and degraded lands and establishing nurseries to support plantation activities, such as the Increasing Green Cover (IGC) initiative across the state[55].

However, the sector faces several challenges:

1. Stringent government norms for tree felling and transportation
2. Bankers' reluctance to finance long gestation projects

[51] https://www.downtoearth.org.in/governance/kalahandi-s-kutia-kondhs-subsistence-a-struggle-for-this-tribe-of-nature-worshippers-75616

[52] https://www.ijcmas.com/7-8-2018/Prangya%20Paramita%20Sahoo,%20et%20al.pdf

[53] https://www.villagesquare.in/cash-crop-cotton-loses-lustre-for-ganjam-farmers/

[54] https://search.proquest.com/openview/8fa125ccb38a893c5c287fb1a1db10ca/1?pq-origsite=gscholar&cbl=51922&diss=y

[55] https://forest.odisha.gov.in/sites/default/files/2022-10/Annual%20Activity%20Report%2021-22%20%28Forest%20Department%29%20P%20%281%29.pdf

3. Non-availability of quality seedlings in sufficient numbers
4. Lack of awareness and extension services
5. Fragmented land holdings that hinder large-scale plantation efforts.

For the year 2020-21, the credit potential for Plantation and Horticulture in Kalahandi was estimated at INR 14,252.84 lakh. The state has implemented advanced agricultural technologies, supported by subsidy programs, including the inauguration of tissue culture laboratories and the promotion of protected cultivation through greenhouses, polyhouses, shade nets, walk-in tunnels, and hot beds. Additionally, horticulture Center of Excellence (CoE) have been established to foster growth in the sector. To minimize post-harvest losses, multiple cold storage units have been identified and supported. Precision farming practices have also been adopted to enhance yield, ensure sustainability, and protect the environment[56].

Gajapati district has a total recorded forest area of 2,623.48 sq. km, accounting for 60.65% of its geographical area (Source: ISFR 2021). Additionally, the district contains 1,230.46 sq. km of wasteland, which constitutes 28.4% of its total area. These wastelands can be utilized for the commercialization of tree crop cultivation through agroforestry, helping to improve land productivity and contribute to the district's economic development. Agriculture credit target for the year 2022-23 has been fixed at Rs.18.50 lakh crore. In order to provide special focus to allied activities, separate sub targets of Rs. 37,800 crore for working capital and Rs. 88,200 crore for term loan towards allied activities under GLC targets have been fixed[57].

For the year 2023-24 in Kalahandi district, the assessed credit potential (PLP) for Forestry and Wasteland Development stands at INR 1533.64 lakh. The agriculture credit target for the year 2022-23 has been fixed at Rs.18.50 lakh crore. In order to provide special focus to allied activities, separate sub-targets of Rs. 37,800 crore for working capital and Rs. 88,200 crore for term loan towards allied activities under GLC targets have been fixed.

With rising income from horticultural crops per unit area and government efforts to promote the export of fresh produce to the Middle East, Southeast Asia, and the European Union, the credit potential of the sector has increased. The horticulture supply chain, coupled with the adoption of high-tech practices, is inherently capital-intensive, requiring significant investment to sustain and expand.

Constraints in the development of the Plantation & Horticulture Sector[58]:

1. Poor supply of quality planting materials
2. Inadequate storage, transportation, market infrastructure, and market intelligence
3. Bankers' reluctance to extend long gestation investment credit
4. Lack of adequate technical staff at bank branches
5. Limited awareness and inadequate extension services to support stakeholders

[56] https://www.nabard.org/auth/writereaddata/tender/1702201956State%20Focus%20Paper%20Odisha.pdf

[57] https://www.nabard.org/auth/writereaddata/tender/ORI_Gajapati.pdf

[58] https://www.nabard.org/auth/writereaddata/tender/1603220936SFP_Odisha.pdf

Ganjam district has a total forest area of 2,105.40 sq. km, which makes up 25.65% of the district's total area of 8,206 sq. km (IFSR, 2019). Of this, 164.39 sq. km is classified as very dense, 1,074.32 sq. km as moderately dense, and 866.69 sq. km as open forest. There has been focusing on wasteland and forest development programs, offering refinancing to the banking system when beneficiaries are individuals. Cooperative banks and Regional Rural Banks can leverage this support to bring private wastelands under green cover. While credit flow to the sector has shown an upward trend over the past two years, it remains minimal. In 2020-21, the ground-level credit disbursed was Rs. 181.34 lakh.

In Kandhamal district, the agriculture credit target for 2022-23 is set at Rs. 18.50 lakh crore, with a special focus on allied activities. The total credit potential under agriculture for 2023-24 has been assessed at Rs. 75,587.99 lakh. The district's agrarian economy is dominated by small and marginal farmers, who make up 95% of the farming population. However, the weak rural banking network limits access to institutional credit, affecting agricultural growth. In 2021-22, banks disbursed farm credit of Rs. 40,188.74 lakh, with crop loans making up 50.04% and agriculture and allied term loans accounting for 15.87% of the total loans under the Annual Credit Plan (ACP). The credit potential for 2023-24 takes into account revised priority sector norms, the national goal of achieving 4% growth in agriculture, and various state and central schemes such as BGREI (Bringing Green Revolution to Eastern India), NFSM (National Food Security Mission), RKVY (Rashtriya Krishi Vikas Yojana), MIDH (Mission for Integrated Development Of Horticulture), NMSA (National Mission for Sustainable Agriculture), and NLM (National Livestock Mission) to address challenges like climate change[59].

Additionally, Kandhamal district has a forest coverage of 5,404 sq. km, representing 67.37% of its total geographical area, as per the India State of Forest Report 2021. The district also has 1,320.97 sq. km of wasteland, which includes 10,079 ha of forest wasteland and 44,188 ha of non-forest wasteland. Traditional practices like shifting cultivation, combined with uncontrolled soil erosion, have contributed to the growth of wasteland in the region[60].

Landscape and socio-economic factors play a pivotal role in determining the expansion of agroforestry projects (FAO, 2018). The scale of such projects is largely influenced by community needs and access to resources like land, labor, agricultural technology, and adequate funding. In 2018, a Memorandum of Agreement was signed with the World Agroforestry Centre to collaborate on agroforestry initiatives, 38 nurseries and 1,422 hectares of plantations were established during 2018-19. The Internal Rate of Return (IRR) for various systems showed that the Agri-Silvi-Horti system had the highest IRR at 48.75%, followed closely by the Silvi-Horti system at 48.52%, while the Agri-Horti system recorded the lowest IRR at 45%[61].

In Odisha, several agroforestry systems such as Agri-Horti, Bund Plantation, Homestead, and Silvi-Horti have been implemented. Among these, Agri-silviculture has emerged as the most profitable, with a Net Present Value (NPV) of Rs 3,20,812. The preferred tree and forest species in these systems include Acacia, Teak, Subabul, Mango, Guava, and Papaya, alongside intercrops like Cowpea, Turmeric, and

[59] https://www.nabard.org/auth/writereaddata/tender/ORI_Kandhamal.pdf

[60] https://www.nabard.org/auth/writereaddata/tender/ORI_Kandhamal.pdf

[61] https://krishikosh.egranth.ac.in/items/53efc08a-e8d4-4ba7-82fa-9d069950d87c

Garlic. Consequently, the credit allocation for horticulture stands at Rs 1,876.64 crore, significantly higher than the Rs 221.73 crore allocated for forest development[62].

Various afforestation schemes have been implemented in Odisha to rehabilitate degraded forests, conserve soil, and plant fast-growing species[63].

- 2018-2021:5000 ha (261,445 plants), 5537 ha, 4620.74 ha, 4118 ha (28.80 lakhs plants)
- 2021-22: 1000 ha (75 lakh plants), 3487.65 ha, 2186 ha and 22,885 ha (92.08 lakh plant), 75,000 ha, 46.10 ha, 57000 ha (194.23 plants) were planted for Sustainable Forest Management
- 2021-22: 750 ha and 1866 ha of land were prepared for plantation under non JFM by OFSDP
- 2021-22: 4118 ha (28.80 lakh plants) under Farm Forestry (Agroforestry model including Arhar/sesame/Bengal gram/turmeric)

Advance work included the rehabilitation of degraded forests (2,09,568 ha without gap, 20,000 ha with gap), afforestation cum soil conservation (43342.32 hectares 248.39 lakh plants), and casuarina plantation (122.78 ha, 3.07 lakh plants)[64].

In 2016, the Government of Odisha introduced a "AMA JANGALA YOJANA" welfare scheme aimed at achieving sustainable forest management through forest restoration efforts. The initiative focused on enhancing forest cover while providing income-generating and livelihood opportunities. It was implemented across 30 forest divisions, covering a total area of 2,65,000 hectares through Assisted Natural Regeneration (ANR) and block plantation. The project had a total budget of Rs 1170.02 crore and involved planting a diverse range of species, including timber-yielding and fruit-bearing varieties such as Amla, Karanja, Bahada, Jamun, Sisoo, Mango, Khaira, Gamhari, Arjuna, Siris, Cashew, Neem, and various bamboo species[65].

Issues and Failures in plantations:

- Poor growth of bamboo clumps was seen due to higher canopy cover of more than 40%.
- Failure of plantation by OFSDP due to fire outbreak
- Inadequate supply of saplings of MGNREGS plantation, high mortality rates were observed due to insufficient irrigation and lack of maintenance.
- There is a lack of storage, processing units, and marketing infrastructure, along with limited awareness of government schemes.
- The region lacks forest-based industries, quality nurseries, and value addition for NTFPs.
- Limited bank involvement and inadequate facilities for NTFP storage and processing hinder development[66].

[62] https://www.nabard.org/auth/writereaddata/tender/1603220936SFP_Odisha.pdf

[63] https://forest.odisha.gov.in/sites/default/files/2022-10/Annual%20Activity%20Report%2021-22%20%28Forest%20Department%29%20P%20%281%29.pdf?utm_source=chatgpt.com

[64] https://odishaforest.in/admin/data/documents/publication_file_1682200290.pdf

[65] http://ofsds.in/Publication/ajycourse_Materials.pdf

[66] https://www.nabard.org/auth/writereaddata/tender/ORI_Kalahandi.pdf

Agriculture in Orissa remains marked by low productivity due to outdated farming methods, insufficient capital investment, limited irrigation infrastructure, and small landholdings. Approximately 62% of the arable land depends on rainfall and is vulnerable to the uncertainties of the monsoon[67]. In 2022-23, NABARD projected that Odisha's credit potential for agriculture was Rs 52,050.78 crore. This was about 38.65% of the total priority sector credit potential. Credit potential under agriculture constitutes around 38.65% of the total priority sector, of which Rs 48,221.10 crore (92.64%) is estimated under farm credit[68].

Scenario 3: If applicable, forestation of at least a part of the land within the project boundary of the proposed PLAN VIVO project at a rate resulting from:

- Legal requirements
- Extrapolation of observed forestation activities in the geographical area with similar socio-economic and ecological conditions to the proposed PLAN VIVO project activity occurring in a period since 31 December 1989 as selected by the PP.

For scenario 3, all lands within the project boundary of the proposed AFOLU project are subject to the same legal requirements, and there are no additional legal requirements for conducting similar project activities. Additionally, satellite imageries and baseline survey data show the project area was fallow, and minimal agricultural practices were followed under subsistence agriculture for over ten years prior to the project start date. Therefore, (iii) is not applicable in this context.

Outcome of sub-step 1a: Alternative land use scenarios to the proposed project activity include:

1. Scenario 1: Continuation of pre-project land use: i.e., Subsistence low-output agriculture

2. Scenario 2: Forestation of the land within the project boundary performed without being registered as the PLAN VIVO project activity

STEP 2. Barrier analysis

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

Alternate land use scenarios	**Scenario 1**	**Scenario 2**
Investment barrier		X
Institutional barrier		
Technological barrier		X
Local tradition		

[67] https://pc.odisha.gov.in/sites/default/files/2020-03/eco-4.pdf

[68] https://www.nabard.org/news-article.aspx?id=25&cid=552&NID=438#:~:text=NABARD%20projects%20Odisha's%20credit%20potential,Various%20schemes

Prevailing practice		
Ecological conditions		X
Social conditions		X

Outcome of sub-step 2a: The barriers that are considered plausible for the implementation are: Investment barrier, technological barrier, and ecological conditions.

Investment Barrier-

Farmers lack knowledge about agroforestry systems, which involve growing trees alongside other crops, and are hesitant to plant any tree species due to concerns about the potential negative impact of canopy shade on their field crops. This lack of awareness leads to a disinterest in adopting agroforestry practices. To encourage the adoption of agroforestry, it is crucial to educate both farmers and financial institutions about the benefits of this practice. The absence of awareness about agroforestry results in limited access to financial support from banks and other financial organizations[69]. Increased funding for government tubewell programs, including higher budget allocations and expanded subsidies for individual or community-managed systems, can promote groundwater irrigation in underdeveloped regions. In Odisha, around 80% of the area is dominated by hard rock aquifers, where water yields are low and influenced by fractures, which can hinder the success of borehole drilling. As a result, the combination of lower yields, higher drilling costs, and the risk of tubewell failure limits the potential for groundwater irrigation development driven by private investments from small-scale farmers[70].

Additionally, expanding government tubewell programs through increased budget allocations and subsidies for individual and community-managed systems can enhance groundwater irrigation in underdeveloped regions. In Odisha, where nearly 80% of the land is dominated by hard rock aquifers with low water yields dependent on fractures, the high costs and risks associated with borehole drilling further discourage private investment from small-scale farmers. Addressing these challenges through awareness campaigns and financial support can significantly boost both agroforestry adoption and groundwater irrigation development. The main factors contributing to the under-developed status of Orissa economy are the undiversified economy, low level of investment, slow economic growth and frequent occurrence of natural calamities. Since the main constituent of the primary sector is Agriculture and Allied Activities which are susceptible to shocks caused by drought conditions and other natural calamities, the overall macro economy has become prone to instability[71].

Public investment in agriculture has been on the decline, which is a key factor contributing to reduced productivity and low capital formation in the sector. Private investment has also been sluggish and needs to be encouraged through suitable policies. To promote agricultural development, accelerated investments are essential. Small and marginal farmers make up about 83% of the farming population. Agriculture in Odisha faces challenges such as low productivity due to issues like problematic soil

[69] https://www.cifor-icraf.org/publications/pdf/reports/Odisha-Project-Report.pdf

[70] https://cgspace.cgiar.org/server/api/core/bitstreams/7d54a2eb-48d6-4bad-9254-ac2b0aa1d208/content

[71] https://pc.odisha.gov.in/sites/default/files/2020-03/eco-21CFA.pdf

(acidic, saline, and waterlogged), inadequate irrigation, low seed replacement rates, limited fertilizer usage, and low mechanization levels. Despite these challenges, there is significant potential for the state to enhance production and productivity by addressing the existing gaps in yield potential and improving technology transfer

Farmers lack knowledge about agroforestry systems, which involve growing trees alongside other crops, and are hesitant to plant any tree species due to concerns about the potential negative impact of canopy shade on their field crops. This lack of awareness leads to a disinterest in adopting agroforestry practices. To encourage the adoption of agroforestry, it is crucial to educate both farmers and financial institutions about the benefits of this practice. The absence of awareness about agroforestry results in limited access to financial support from banks and other financial organizations[72].

The Self-Help Groups (SHGs) and Farmer Producer Organizations (FPOs) were established as part of an action plan to provide financial support to tribal women. The EShakti project aims to promote financial inclusion by facilitating access to a range of financial services and enhancing bankers' confidence in credit appraisal and linkage, particularly for women in 19 districts of the state. However, the scheme has been implemented in only 9 districts, lacking tangible security for participants. In 2020-21, the average per capita credit disbursed to SHGs across the country exceeded Rs. 2.00 lakh, whereas in Odisha, it was only Rs. 1.39 lakh. There is an urgent need to double the average credit assistance provided to SHGs in the state[73].

There are specific challenges in providing agricultural term loans that need to be addressed. The government should play a role in diversifying the agricultural credit portfolio. To boost term lending, it is recommended that each bank branch allocate at least 30% of their total agricultural loans to agri-term loans. Banks should also leverage various State and Central Government subsidy programs to enhance agri-term loan financing. Additionally, there should be an increased focus on extending credit to non-farm activities, rural housing, and education. To achieve an average credit of ₹25,000 per hectare, banks must take necessary measures to improve credit flow. Furthermore, banks should support private entrepreneurs in developing storage infrastructure, utilizing the capital subsidy provided under the AMI scheme. Insufficient and delayed funding could significantly hinder the sector's growth[74].

Odisha's limited progress in improving its irrigation ratio may be attributed to the underutilization of its exploitable water resources. Irrigation is a crucial factor for agricultural growth in the state. Despite having abundant groundwater resources, only 26% of the 11.9 BCM available for irrigation is currently being used. A significant reason for this underutilization is the inadequate power supply. Agriculture's share in total power sales in Odisha was just 1.3% in 2012-13, compared to the national average of 22.5%. In areas where fallow land is increasing due to insufficient irrigation, solar energy can be employed to ensure reliable irrigation. The state government has been securing soft loans from NABARD through the Rural Infrastructure Development Fund (RIDF) to subsidize farmers for digging shallow tube wells, deep bore wells, and constructing dug wells, in addition to implementing river lift

[72] https://www.nabard.org/auth/writereaddata/file/NABAKRUSHNA%20CHOWDARY%20ODISHA%20NCDS%20Chairman%20Lecture%2017.02.2016.pdf?utm_source=chatgpt.com

[73] https://www.nabard.org/auth/writereaddata/tender/1603220936SFP_Odisha.pdf

[74] https://www.nabard.org/auth/writereaddata/tender/1603220936SFP_Odisha.pdf

and surface lift irrigation wherever feasible. However, small farms often lack the scale required for cost-effective farm mechanization through ownership[75].

Securing institutional finance for cultivators without land titles has consistently posed a difficult challenge. In Odisha's Scheduled Areas, three-fourths of the land is state-owned, with tribals owning less than 10% in districts like Gajapati and Kondhmal. Tribal households have low land ownership, averaging 1.12 standard acres per household, and marginal ST households, making up over 50% of tribal landowners, hold just 0.44 standard acres on average. Despite a ban on share tenancy, concealed tenancy involving marginal farmers and landless cultivators persists. Informal land mortgaging, often for marriage and funeral expenses, is a key issue. Current moneylending laws are ineffective due to the reliance on oral agreements. Solutions include promoting thrift and credit groups, community funds, reviewing land records, and conducting baseline surveys before implementing area-based schemes[76].

Investment remains a major obstacle for smallholder farmers due to several interrelated challenges:

- Many smallholder farmers lack the financial literacy needed to understand and access available funding options.
- The absence of sufficient collateral prevents farmers from securing loans, making financial support from traditional banks difficult to obtain.
- Banks and financial institutions view smallholder farmers as high-risk borrowers due to their unstable income, small landholdings, and susceptibility to environmental shocks.
- Existing tenancy laws and unrecorded tenancies hinder smallholder farmers from accessing institutional credit and subsidies.
- Government and financial schemes often fail to reach the most marginalized and small-scale farmers, limiting their capacity to invest in agroforestry.

Technological Barrier-

Agricultural development in the district faces several challenges, including land ownership issues, erratic rainfall, small landholdings, limited irrigation, and frequent natural calamities such as droughts, floods, and hailstorms. The heavy population pressure on land exacerbates these problems. The inadequate use of organic fertilizers and farmyard manure (FYM), along with unscientific cropping practices, has led to a decline in soil fertility. The combination of dwindling water resources, fragmented landholdings, and a growing population has resulted in significant socio-economic challenges, jeopardizing the long-term agricultural stability and livelihoods of the district's rural population[77].

[75] https://www.researchgate.net/profile/Dr-Pattanayak-2/publication/330411039_A_Study_on_Irrigation_and_Agricultural_Productivity_in_Odisha/links/5c3ecaca299bf12be3cb4255/A-Study-on-Irrigation-and-Agricultural-Productivity-in-Odisha.pdf

[76] Link

[77] https://www.researchgate.net/profile/Sushanta-Tarai/publication/370059720_Economics_of_Sustainable_Agriculture_and_Environment/links/643d0a26e881690c4bdd123f/Economics-of-Sustainable-Agriculture-and-Environment.pdf#page=412

One of the most pressing technological barriers in these areas is the limited access to modern farming techniques and tools. Traditional farming practices are still dominant, and there is a slow adoption of advanced technologies such as precision farming, mechanization, and improved irrigation methods. According to a report by the Odisha State Agriculture Policy, while the state has made efforts to modernize agriculture, the uptake of new technologies in these particular districts remains slow due to inadequate awareness and access to agricultural extension services[78]. The rural areas in Kalahandi, Gajapati, and Kandhamal suffer from poor mobile and internet connectivity, making it difficult for farmers to receive information about weather patterns, pest outbreaks, and price fluctuations, which are essential for informed decision-making in agriculture. This lack of information results in poor planning and missed opportunities for farmers to take proactive measures, often leading to financial losses[79].

Water is the primary crisis in the region, particularly for agriculture, and is further worsened by soil erosion. With only 18.49% of groundwater development, the district is highly vulnerable to droughts due to a critical shortage of irrigation water. The government has made substantial investments in soil and water micro-watersheds in the region. However, many of these structures remain unused or nonfunctional due to a lack of awareness and interest among the farmers[80]. Access to agricultural credit and technological support in these districts is limited, further exacerbating the difficulties faced by farmers. The lack of digital platforms for financial transactions and advisory services hinders farmers from obtaining timely loans and expert advice. The programs such as the Kisan Credit Card (KCC) and e-NAM (National Agriculture Market) are available, their implementation and accessibility in remote and tribal areas like Ganjam, Gajapati, Kalahandi, and Kandhamal are still insufficient due to challenges like low digital literacy and poor infrastructure[81].

Agriculture in Odisha is primitive and heavily reliant on the monsoon, making it particularly vulnerable to climate change. The region's limited technological adoption amplifies the impact of climate variables, including insufficient rainfall, temperature changes, and extreme weather events. These factors directly affect water balance and indirectly exacerbate pest outbreaks, soil erosion, biodiversity loss, and tree mortality, further degrading soil quality[82].

The primary challenge in Gajapati's dry region is the lack of irrigation systems like drip and sprinkler. Banks could consider financing bore well recharge structures and solar pumps. Farmers have limited awareness about changing cropping patterns and adopting high-value crops to maximize irrigation use. The use of synthetic fertilizers has further degraded the soil, exacerbated by frequent droughts and floods leading to soil erosion. The limited involvement of agriculture and horticulture departments results in inadequate technical support and guidance for farmers. Establishing village

[78] https://odishaseedsportal.nic.in/assets/seed/State_Agriculture_Policy_2013.pdf

[79] https://www.nabard.org/auth/writereaddata/tender/3001193250SFP%2019-20%20Odisha.pdf

[80] https://krishikosh.egranth.ac.in/server/api/core/bitstreams/f2f5f983-f1ec-4390-b9c1-4fc3bb9a1c9d/content

[81] https://agri.odisha.gov.in/

[82] Link

knowledge centers and deploying technical personnel at the grassroots level are crucial steps to address these issues[83].

To address delays in energizing irrigation units and the erratic power supply, it is essential to overcome the lack of technology adoption among smallholder farmers, which hinders sustainable agricultural development. Without access to modern irrigation systems (particularly drip irrigation with fertigation), effective soil management, technical support, and proper infrastructure use, farmers face challenges in boosting productivity and resilience. Expanding soil testing facilities, coupled with advisory services and the timely provision of fertilizers, will enhance production and productivity. Bridging these technological gaps is vital for improving soil health, ensuring water availability, and enhancing the livelihoods of smallholder farmers in the region[84].

Ecological conditions-

The Saora tribals in Gajapati are adept at terrace cultivation, utilizing the limited arable land in their hilly region by creating terraced paddy fields on lower slopes and valleys. Turmeric and cashew are important cash crops, typically grown annually. Farming areas range from 0.5 to 4 hectares, with an average of 1.9 acres, and most farmers cultivate on about 1 acre denoting that the farmers exist a small farming unit. The district recorded a gross cropped area of 1.34 lakh hectares and a net sown area of 0.72 lakh hectares. Thus, 78 percent of operational holdings in the country are marginal and small, having less than 2 hectares. Agriculture in the district is mainly traditional, rain-fed, and characterized by fragmented landholdings. Significant crops include oilseeds, wheat, pulses, and vegetables, with a predominant cropping pattern of ragi, biri, kulthi, vegetables, and horticultural fruits[85].

Situated on the eastern coast, Odisha, a tropical humid state, is highly vulnerable to natural disasters, including floods, cyclones, droughts, heatwaves, and earthquakes. The extensive use of chemical fertilizers, minimal application of organic fertilizers and farmyard manure (FYM), and unscientific cropping methods have contributed to a decline in soil fertility. Chemical contamination of agricultural produce and living organisms poses a significant concern. Major obstacles to agricultural development in the district include small landholdings, a resurgence of insect pests, poor marketing infrastructure, and frequent natural calamities like droughts, floods, and hailstorms, further intensified by heavy population pressure on land. Overexploitation of groundwater resources in many areas has led to a declining water table, creating substantial challenges for both drinking water supply and agricultural production[86].

The district spans an area of 3,850 sq km (470,955 hectares) with over 60% of the land in hilly terrain and highlands. In 2020-21, the gross cropped area was 1.34 lakh hectares, and the net sown area was 0.72 lakh hectares, resulting in a cropping intensity of 186%. Irrigation coverage is 34% during the Kharif season and 15% in the Rabi season, with an irrigation potential of approximately 56,610

[83] https://www.nabard.org/auth/writereaddata/tender/ORI_Gajapati.pdf

[84] https://www.nabard.org/auth/writereaddata/tender/ORI_Gajapati.pdf

[85] https://www.ijiras.com/2017/Vol_4-Issue_2/paper_46.pdf

[86]https://www.academia.edu/download/104225592/Impact_of_Tribal_Sub_Plan_Economic_Development_of_Tribes_A_Study_of_Gajapati_District.pdf

hectares from various sources. Fertilizer consumption during Kharif 2021 was around 4,924 MT, averaging 58.22 kg/ha[87].

Gumma primarily depends on rainfed agriculture, but soil erosion, particularly in red loam and laterite soils, poses a significant challenge, leading to low productivity. The shallow soil depth and degraded lateritic soil with minimal organic content further diminish soil fertility. The hilly and uneven terrain of Gumma Block adds to the difficulty of cultivating certain areas, resulting in these lands being classified as wastelands. Additionally, some regions remain uncultivated due to insufficient water resources for irrigation, rendering them unsuitable for traditional farming. Despite these challenges, the block has a cropping intensity of about 192%, with farmers frequently engaging in multiple cropping cycles[88].

Gumma is characterized by negative composite values, low productivity, and minimal irrigation intensity, categorizing it as a region with low agricultural development. Critical indicators such as net sown area, labor availability, the number of fertilizer depots, cooperative societies, and groundwater facilities are insufficient, further contributing to the region's agricultural challenges. Moreover, the lack of access to advanced farming techniques, poor transportation networks, and limited financial support for farmers exacerbate the difficulties faced by the agricultural sector. These factors collectively hinder the region's ability to enhance agricultural output and achieve sustainable development.

In Ganjam district, agriculture and allied activities are the primary livelihood for approximately 80% of the population. Despite this heavy reliance on farming, the region faces significant challenges in land utilization and irrigation. A considerable portion of the land, about 37,000 hectares, is classified as barren or uncultivable wasteland, while an additional 28,000 hectares remain as fallow land. Groundwater development in the district primarily relies on various wells, including dug wells, dug-cum-bore wells, bore wells, and shallow tube wells. However, the existing irrigation infrastructure is insufficient to meet the growing demands of agricultural production. Locals complains about another challenge in the form of limited awareness and training initiatives[89].

The district receives an average annual rainfall of 1295.6 mm, with rivers swelling during the monsoon and drying up by summer. Groundwater movement is influenced by crystalline rocks and laterites, which form aquifers. Pre-monsoon water levels are generally 4-6 meters below ground, with deeper levels in hilly areas. Consequently, poor groundwater potential is mostly found in the hilly regions and settlement areas. Farmers have turned to traditional water harvesting methods, but a lack of organized rainwater conservation efforts leads to 70% of the water being lost as runoff. The water table decline is worsened by unscientific practices and insufficient community engagement in water conservation initiatives. Additionally, the poor implementation of the MGNREGS (Mahatma Gandhi

[87] https://www.indianjournals.com/ijor.aspx?target=ijor:jmra&volume=5&issue=1&article=006&type=pdf

[88] https://www.ccdodisha.org.in/images/pdf/anr2022-23.pdf?utm

[89] https://www.cgwb.gov.in/old_website/District_Profile/Orissa/GANJAM.pdf

National Rural Employment Guarantee Scheme) further contributes to the region's agricultural challenges[90].

The Gajapati region's ecological conditions, marked by rain-fed agriculture and fragmented landholdings, coupled with the heavy use of chemical fertilizers, present considerable obstacles. Likewise, in the Birbhum region, smallholder farmers encounter numerous challenges, including reliance on rainfall, limited land size, soil degradation, natural disasters, insufficient irrigation, dwindling groundwater levels, and ineffective water conservation efforts. These environmental factors create significant hurdles for adopting advanced agricultural technologies and practices, thereby restricting productivity and long-term sustainability in both regions.

Social Barriers-

In the districts of Ganjam, Gajapati, Kalahandi, and Kandhamal in Odisha, farmers face several social and cultural barriers that impact agricultural practices and economic outcomes. One significant social barrier is the strong reliance on traditional agricultural practices, which are deeply rooted in the local culture. Many farmers in these districts continue to follow conventional farming methods, passed down through generations, despite the availability of modern technologies that could improve productivity. This resistance to change is partly due to cultural beliefs and an aversion to adopting unfamiliar practices, as observed in Kalahandi and Kandhamal, where farmers are often hesitant to experiment with new crops, techniques, or technologies. This attachment to traditional farming methods limits the potential for agricultural innovation and modernization, keeping productivity levels low[91].

The women in the rural areas frequently face barriers in accessing agricultural extension services and credit schemes, which could enhance farm productivity and income. These gender-based disparities in accessing resources and participating in decision-making are deeply ingrained in traditional cultural norms that limit women's involvement in essential agricultural activities. This division based on gender further reinforces economic inequality and hampers overall agricultural productivity[92].

The communities struggle with limited access to government schemes, subsidies, and agricultural training programs due to their remote locations and lack of integration into the larger economic systems. The combination of social exclusion and geographical isolation reduces the ability of tribal farmers to benefit from technological advancements and government support, further entrenching poverty and underdevelopment in these regions[93].

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

The subsistence low-output agriculture is a prevailing activity in the project region and is considered the baseline scenario due to its dominance. However, the adoption of plantation activities without

[90] https://www.researchgate.net/publication/255699792_Delineation_of_Groundwater_potential_zones_using_Remote_Sensing_and_Geographic_Information_System_Techniques_A_case_study_from_Ganjam_district_Orissa

[91] https://odishaseedsportal.nic.in/assets/seed/State_Agriculture_Policy_2013.pdf

[92] https://www.ormas.org/content/3/3

[93] https://stsc.odisha.gov.in/sites/default/files/2021-03/Annual_Report2019-20.pdf

carbon incentives encounters significant barriers, including a lack of technological guidance and robust monitoring and execution protocols.

Outcome of sub-step 2b: The land use case scenario that avoids the identified barriers is "Scenario 1: Continuation of pre-project land use: i.e., Subsistence low-output agriculture" which is prevalent in the project's region.

The prevalence of this activity can be attributed to the region's difficult ecological conditions, including significant soil runoff and a lack of knowledge and resources within the local communities. As a result, it becomes more practical for these communities to abandon the land and adopt minimal agricultural practices, such as planting upland paddy, rather than exploring other potential land uses or more sustainable alternatives.

Sub-step 2c. Determination of baseline scenario:

Is forestation without being registered as an A/R project activity included in the list of land use scenarios that are not prevented by any barrier? → NO

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

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

Continue with Step 4: Common practice test

STEP 4. Common practice analysis

Odisha, predominantly an agrarian state, relies on agriculture for the livelihood of over 83% of its population, with rainfed farming systems being a major feature. Agriculture in the state is heavily dependent on the monsoon, and more than 75% of farmers are small and marginal, cultivating less than 2 hectares of land on average. Paddy is the dominant crop, occupying nearly 50% of the total cropped area, which is crucial for the state's food security and economic well-being. Alongside paddy, the state grows a variety of other crops, including maize, pulses, oilseeds, vegetables, spices, sugarcane, tobacco, and cash crops such as cashew nuts, reflecting its diverse agricultural landscape.

Although agriculture and forest areas, covering 33% of the land, are designated for ecological protection, there is an urgent need for better infrastructure, including irrigation, transportation, storage, marketing, and communication. Traditional farming methods like manual plowing and hand weeding dominate, as mechanization remains limited due to topographical challenges and financial constraints. The lack of access to modern equipment and insufficient knowledge of advanced farming techniques restricts farmers' ability to increase productivity or shift to more profitable crops[94]. To address this, continued capital investment from both the Central and State Governments is needed, along with a mission-driven approach to foster strategic investments. Key government missions and state schemes should focus on improving institutional credit, promoting private sector participation,

[94] https://rd.odisha.gov.in/sites/default/files/2021-03/ANNUAL%20ACTIVITY%20REPORT-2019-20-ENGLISH_0.pdf

enhancing agricultural marketing, advancing post-harvest technologies, streamlining extension services, and encouraging contract farming[95].

Odisha, a tribal state home to 62 different tribes, including the Khondh and Saora communities that are part of 13 PVTGs, predominantly depend on agriculture and forest products such as Kendu leaves, Sal seeds, bamboo, and turmeric. These communities have been greatly impacted by the scarcity of irrigation facilities and prolonged drought conditions. These challenges have led to a decline in both the quantity and quality of forest resources, significantly impacting their livelihoods and income[96].

The lack of access to irrigation facilities is another significant factor that shapes agricultural practices in these districts. While some areas in Ganjam and Kalahandi have access to minor irrigation systems like check dams and wells, the majority of farmers rely on monsoon rainfall for their crops. The inadequate irrigation infrastructure significantly impacts crop yields, particularly in the dry season when water availability is scarce. The regions like Kalahandi and Kandhamal are often affected by water scarcity, which forces farmers to adopt rain-fed agriculture, resulting in lower productivity and greater vulnerability to climate change. This dependency on rainwater not only affects crop yields but also influences the choice of crops that can be grown, further restricting farmers' agricultural diversity[97].

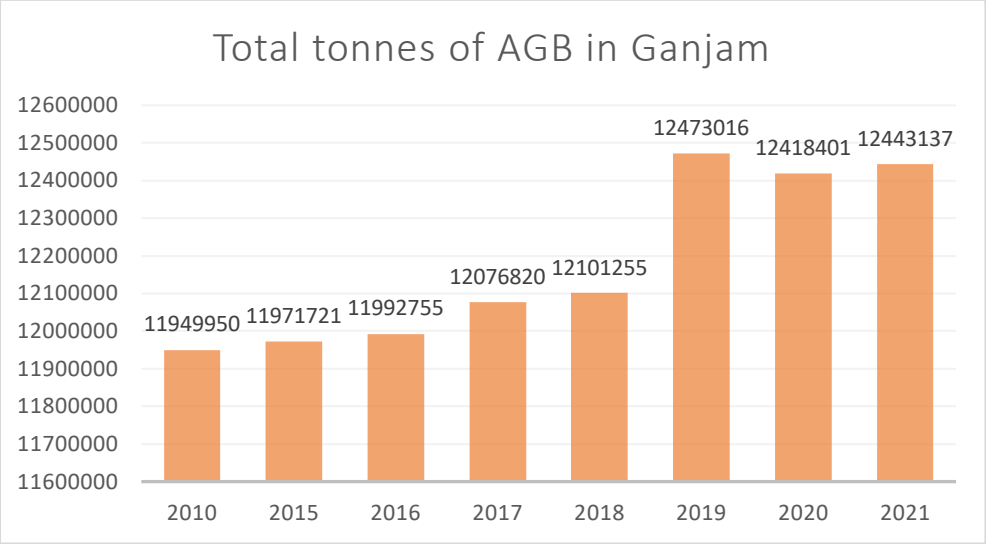
The above-ground biomass data for Kandhamal, Gajapati, and has been analyzed through the graphs below, illustrating fluctuations in biomass levels, with periods of increase and decrease between 2010 and 2021[98].

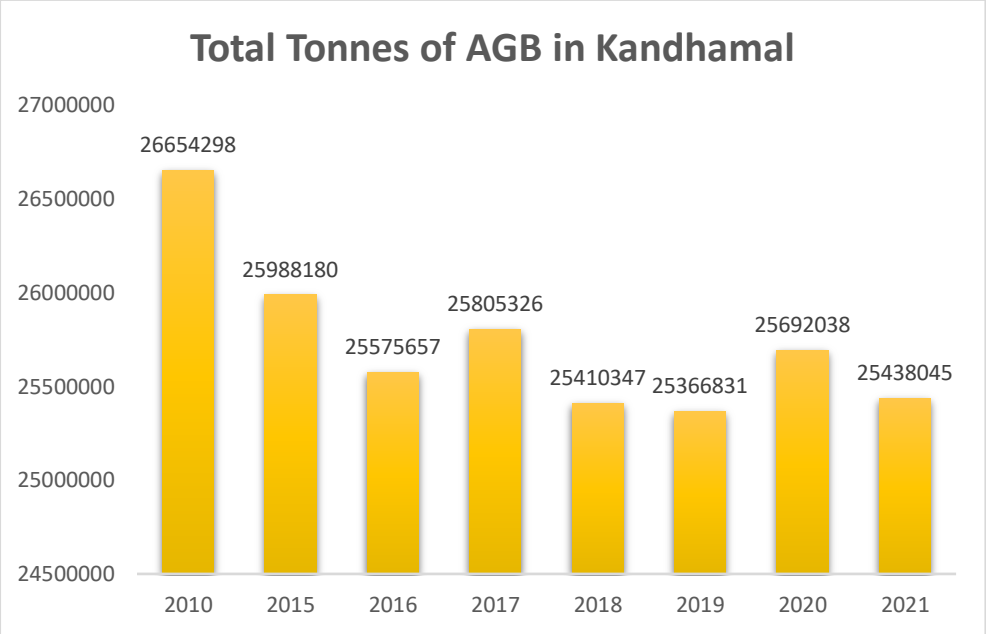
[95] https://www.nabard.org/auth/writereaddata/tender/2410161158Ganjam.split-and-merged.pdf

[96] https://www.researchgate.net/profile/Naresh-Saxena/publication/283994561_Non-timber_forest_products_Policy_issues/links/5e3782b0299bf1cdb90845f4/Non-timber-forest-products-Policy-issues.pdf

[97] https://www.fao.org/faolex/results/details/en/c/LEX-FAOC216071/

[98] https://earthmap.org/?aoi=india&boundary=level2&feature=6283498e1e3aeaa3f2d5d92f955455e0&features&layers=%7B%22CCIBiomass%22%3A%7B%22opacity%22%3A1%7D%7D&map=%7B%22center%22%3A%7B%22lat%22%3A20.592159854712587%2C%22lng%22%3A84.75515070708434%7D%2C%22zoom%22%3A11%2C%22mapType%22%3A%22roadmap%22%7D&scripts=%7B%7D&statisticsOpen=true





Discussions with the implementation partner and a literature review highlight that droughts frequently impact Gajapati and Ganjam, severely affecting agricultural productivity. Limited irrigation facilities force smallholder and marginal farmers to rely on rainfed agriculture. Agroforestry adoption remains low due to a lack of awareness and financial constraints. While initiatives like MGNREGA and NABARD have supported plantations, their survival rates are poor due to inadequate maintenance, irrigation, and technical support. Surveys indicate high plantation failure rates primarily due to these challenges. Analysis of above-ground biomass data reveals a significant decline in tree cover, largely due to deforestation. This underscores the need for afforestation and reforestation efforts to restore ecological balance and enhance green cover in the region.

Agroforestry systems have become integral in addressing rural livelihood challenges in India by providing both economic and ecological benefits. These systems offer farmers critical resources such as food, fodder, timber, and fuel at minimal input costs, thereby increasing their income and enhancing community welfare. In doing so, agroforestry contributes significantly to livelihood security and economic resilience. Additionally, agroforestry practices improve soil health, making them an effective tool for restoring degraded lands. By combining trees and crops, agroforestry systems help

maintain soil fertility, ensuring its long-term ability to support plant and animal life, sustain ecological balance, and promote agricultural productivity. This holistic approach fosters sustainable land use and strengthens the socio-economic fabric of rural areas[99].

The establishment of Self-Help Groups (SHGs) as part of an action plan has provided various financial support services to tribal women, boosting bankers' confidence in credit appraisal and linkage, particularly in 19 districts of the state. Agroforestry systems play a key role in empowering women by creating employment opportunities and promoting gender equality. These systems allow women to become significant contributors to household income, thereby improving their livelihoods and socio-economic standing. Additionally, horticulture plays a crucial role in addressing nutritional needs by increasing the production of fruits and vegetables. It also offers higher income opportunities through the cultivation of flowers, medicinal plants, and aromatic plants on smaller plots of land[100].

The agricultural economy in the districts of Ganjam, Gajapati, Kalahandi, and Kandhamal in Odisha is deeply intertwined with the livelihoods of local communities, but it faces several challenges that hinder its growth and development. These districts have a predominantly agrarian economy, with a significant portion of the population dependent on farming for sustenance. However, agricultural productivity in these regions remains low due to the reliance on traditional farming practices, inadequate infrastructure, and limited access to modern technology, the contribution of agriculture to the state's gross domestic product (GDP) is significant, yet it remains underdeveloped in these districts due to inefficient resource utilization and low-input farming techniques. This underperformance is further compounded by issues such as soil degradation, erratic weather patterns, and limited irrigation facilities, which make agricultural production highly vulnerable and uncertain[101].

In addition to the credit gap, the region's agricultural economy is heavily influenced by the dominance of rain-fed farming systems. Due to inadequate irrigation infrastructure and the dependency on monsoon rainfall, farmers in these districts are vulnerable to climate change, particularly prolonged droughts or erratic rainfall patterns. The agricultural economy in these areas is highly sensitive to climatic variability, making it prone to crop failures and lower yields. This vulnerability to climate change not only affects food security but also undermines the economic stability of farming communities, as they face fluctuating incomes and financial uncertainty[102].

[99] https://www.cifor-icraf.org/publications/pdf/reports/Odisha-Project-Report.pdf

[100] https://www.nabard.org/auth/writereaddata/tender/1603220936SFP_Odisha.pdf

[101] https://finance.odisha.gov.in/sites/default/files/2021-02/Economic_Survey.pdf

[102] http://climatechangecellodisha.org/pdf/Odisha_SAPCC_2016-2020.pdf

Year 2014 Year 2024

Image: Historical land change analysis in Gopalpur Block of Kalahandi District of project area

As per the historical land change images of the project area shared above, it is evident that the project area remained barren and degraded and no afforestation activities have taken place in the project area and nearby. With the project interventions focusing on afforestation activities by planting Mango, Karanj, Cashew, Jamun, Neem, Litchi, Amla, Jack fruit trees and livelihood generation, the project is not a common practice in the region. Therefore, the proposed afforestation and reforestation (A/R) project is considered an additional.

Project activities

Intervention type	Project Intervention	Expected Benefits
Restoration	Undertaking agroforestry plantations on privately owned land by planting fruit-bearing species to improve the livelihood of the tribal communities.	Plantation of fruit bearing species will generate an additional source of income for tribal communities. The produce from the trees such as fruits or other NTFPs will enable the local communities to sell in the markets, contributing to improved economic conditions and livelihoods. Fruit-bearing trees contribute to improved food security by providing a sustainable source of nutritious food for local communities. Agroforestry plantations will contribute to carbon sequestration and assist in mitigate climate change by reducing the concentration of greenhouse. It helps in maintaining a more stable and favorable environment for both crops and surrounding ecosystems. Native fruit bearing tree species to be planted are as follows: *Mangifera indica, Anacardium occidentale, Syzium cuminii, Atrocarpus hetrophyllus, Litchi chinensis*etc.
Restoration	Undertaking social-forestry plantations on community lands to provide benefits like establishment of	Social forestry, a concept rooted in community engagement and sustainable land management, involves the deliberate cultivation of trees on communal lands. In the proposed project, we

	carbon sink by increasing the green cover, regulation in micro-climate and improvement in soil and water resources.	aim to plant 16 diverse social forestry tree species on community lands. These carefully selected species, including Millettia pinnata, Tamarindus indica, Dalbergia sissoo, Bombax ceiba, Simarouba glauca, Pterocarpus marsupium, Terminalia ballerica, Terminalia chebula, Azadirachta indica, Melia Azaderach, Cassia tora, Neolamarckia cadamba, Syzyium cuminii, Madhuca longifolia, Phyllanthus emblica etc. are native to the area and were suggested by the community, chosen for their ecological significance and local adaptability. This initiative contributes to environmental conservation and also holds immense potential for community benefits. The plantation enhances biodiversity, providing habitat for various plants, animals, and microorganisms. Additionally, the diverse tree cover promotes soil stability, reduces erosion, and contributes to improved water quality. As these trees mature, they act as natural air purifiers, absorbing pollutants and releasing oxygen, thereby enhancing air quality. Beyond the environmental impact, social forestry initiatives offer both social and economic benefits within the project framework. Community members, overseen by the Village Development Committee (VDC), play a central role in various project activities, including land preparation, plantation, and post-plantation management. These activities provide employment opportunities for community members, who will receive their daily wage determined by the VDC. Additionally, Self-Help Groups (SHGs) play a vital role in seed collection from the plantation area, establishing nurseries, and selling saplings. This economic activity not only generates income for SHG members but also contributes to local livelihoods and sustainable forestry practices. Additionally, they will also get revenue generated from the sale of PVCs. In essence, this project encapsulates the essence of social forestry, intertwining environmental sustainability with community well-being.
Improved Land Management	Undertaking soil and moisture conservation works such as stone bunds and contour trenches for sustainable agriculture and	Implementation of systematic and community-driven approach to enhance water conservation through the strategic construction of various structures. The process includes hydrogeological mapping of the watershed/spring shed, followed by an analysis

	environmental management	of topographic parameters like relief and slope. Based on the above analysis, suitable specific structures such as staggered contour trenches, continuous contour trenches, stone bunding, gully plugs, water absorption trenches, and farm bunds are identified to harness water efficiently. The local communities are actively engaged in the construction process by providing temporary labour opportunities for the project. Payments to community labour are facilitated through schemes like MGNREGA or by Gram Vikas with the assistance from the Village Development Committees (VDC) in coordinating and determining fair wages. The benefits of these water conservation structures are manifold, including improved land and soil stability, decreased disturbance of topsoil, soil recharge, water conservation, and ultimately, enhanced growth within the agro-forestry ecosystem. This holistic approach integrates ecological considerations, community participation, and sustainable funding mechanisms, creating a comprehensive strategy for watershed management and the sustainable development of agro-forestry initiatives.

Carbon benefits

Table: Expected Carbon Benefits Summary

Project Intervention	**Baseline Emissions (t CO_2e/ha)**	**Project Emissions (t CO_2e/ha)**	**Leakage Emissions (t CO_2e/ha)**	**Carbon Benefit (t CO_2e/ha)**
Plantation on Private and Community lands	0	0	0	2,460,438

Table : Plan Vivo Certificate Potential

Project Intervention	**Carbon Benefit (t CO_2e/ha)**	**Project Area (ha)**	**Total Carbon Benefit (t CO_2e)**	**Risk Buffer (t CO_2e/ha)**	**Potential PVCs (t CO_2e)**
Plantation on private and community lands	18.43	3561	246,438	492,087	1,968,351
TOTAL	**18.43**	**3561**	2,460,438	**492,087**	**1,968,351**

Crediting Period

The crediting period of the project is 30 years and carbon benefits are estimated for over the period of 30 years.

Carbon Pools and Emission Sources

To identify the inclusion and exclusion of the carbon pool in the project AR- TOOL 04 "Tool for testing significance of GHG emissions in A/R CDM project activities" (Version 01) of CDM has been used.

Source	Gas	Included?	Justification
Above-ground woody biomass	CO_2	Yes	Major portion of the carbon stock is expected to store in the pool, hence considered for ex-ante calculations.
Aboveground non-woody biomass	CO2	No	Non-woody biomass contributes less than 5% of the total GHG emission reduction and does not contain major portion of carbon stock and hence can be conservatively ignored from the calculations
Below-ground biomass	CO_2	Yes	Major portion of the carbon stock is expected to store in the pool, hence considered for ex-ante calculations.
Soil Organic Carbon	CO_2	No	Soil organic carbon contributes less than 5% of the total GHG emission reductions and does not contain major portion of the carbon stock and in the ex-ante calculations can be conservatively ignored. But the pool is expected to increase due to project interventions.
Dead Wood	CO_2	No	Dead Wood

			contributes less than 5% of the total GHG emission reductions and does not contain major portion of the carbon stock and in the ex-ante calculations can be conservatively ignored. But the pool is expected to increase due to project interventions.
Litter	CO_2	No	Litter contributes less than 5% of the total GHG emission reductions and does not contain a major portion of the carbon stock and in the ex-ante calculations can be conservatively ignored. But the pool is expected to increase due to project interventions.
Wood Products	CO2	No	Wood products contribute less than 5% of the GHG emissions in the ex-ante calculations and can be conservatively ignored.

Litter and dead wood on land in the baseline scenario remains in-situ and is not removed from the project boundary and the carbon stock in them are expected to decrease further in the absence of the project. Additionally, the land parcels included in the project are degraded pasture lands where Soil organic carbon will also decrease with time in the absence of the project activity. Considering all these factors and the conservative approach, the project participants have selected to account only for above-ground and below-ground carbon.

To identify the inclusion and exclusion of the GHG emission sources in the project AR- TOOL 04 “Tool for testing significance of GHG emissions in A/R CDM project activities” (Version 01) of CDM has been used.

GHG emission sources

GHG Emission Sources	Gas	Included?	Justification
Nitrogen Fertilisers	N2O **GHG emission sources**	No	The project includes the plantation of native tree species. The plantation does not include the use of nitrogen fertilisers. Hence, the emission source can be conservatively ignored.
Nitrogen fixing species	N2O	No	The project includes the plantation of native tree species. The plantation does not include nitrogen fixing species. Hence, the emission source can be conservatively ignored.
Biomass burning	CH4	No	As there is no burning considered in the pre and post project scenario, no woody biomass for the purpose of site preparation or as part of management is included. Additionally, the project includes the plantation of native tree species. Hence, the emission source can be conservatively ignored.
Fossil fuel use	CO2	No	The project includes the plantation of native tree species. The project does not include the use of fossil fuel. Hence, the emission source can be conservatively ignored.
Enteric fermentation	CH4	No	The project includes the plantation of native tree species. The project does not include enteric

			fermentation. Hence, the emission source can be conservatively ignored.
Manure deposition	CH4, N2O	No	The project includes the plantation of native tree species. The project does not include the deposition of manure. Hence, the emission source can be conservatively ignored.
Soil Methanogenesis	CH4	No	The project activity does not cause or contribute to water logging that could lead to anaerobic conditions. Therefore, it does not result in any methane emissions..

Baseline Emissions/Removals

To estimate the baseline emissions, the module PU001, "Estimation of Baseline and Project GHG removals by Carbon pools in Plan Vivo projects, Version 1.0 was used.

The baseline net GHG removals by sinks shall be calculated according to the PV Climate methodology-Agriculture and Forestry Carbon Benefit Assessment Methodology version 1.0, as follows:

Equation 1 of the methodology is as follows:

$BR_{a,y} = BRWB_{a,y} + BRNB_{a,y} + BRBG_{a,y} + BRLI_{a,y} + BRDW_{a,y} + BRSO_{a,y} + BRWP_{a,y}$

Where:

$BR_{a,y}$= Net GHG removals under the baseline scenario for project area a up to year y (t CO_2e)

$BRWB_{a,y}$= Net GHG removals in aboveground woody biomass under the baseline scenario for project area a up to year y (t CO_2e)

$BRNB_{a,y}$= Net GHG removals in aboveground non-woody biomass under the baseline scenario for project area a up to year y (t CO_2e)

$BRBG_{a,y}$= Net GHG removals in belowground biomass under the baseline scenario for project area a up to year y (t CO_2e)

$BRLI_{a,y}$ = Net GHG removals in litter under the baseline scenario for project area a up to year y (t CO_2e)

$BRDW_{a,y}$ = Net GHG removals in dead wood under the baseline scenario for project area a up to year y (t CO_2e)

BRSO,a,y = Net GHG removals in soil organic carbon under the baseline scenario for project area a up to year y (t CO2e)

BRWP,a,y = Net GHG removals in wood products under the baseline scenario for project area a up to year y (t CO2e)

BRa,y is accounted as zero, and baseline conditions are mentioned below:

▪ The Baseline trees are neither harvested, nor cleared, nor removed throughout the crediting period of the Project activity;

▪ 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;

▪ The Baseline trees are 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. Baseline trees are inventorised through geo tagging and the carbon stock generated won't be included in the estimation of project removals.

BRWB,a,y , BRNB,a,y and BRBG,a,y are conservatively assumed to be zero in the baseline scenario, due to the fact that changes in carbon stock of above and below ground biomass of non-tree vegetation of the degraded land in baseline scenario is not possible.

Also BRLI,a,y and BRDW,a,y are assumed to be zero due to the fact that the baseline scenario was degraded pasture, which did not allow accumulation of dead wood and litter.

BRSO,a,y and BRWP,a,y are assumed to be zero due to the fact that the baseline scenario was degraded pasture and no vegetation was present, which had a adverse effect on the Soil Organic Carbon. As in the baseline no vegetation was present, GHG removals by wood products under the baseline scenario was zero.

That is why the estimated baseline emissions or removals are considered insignificant and hence accounted as zero. BRa,y = 0

Expected Project Emissions/Removals

The actual net GHG removals by sinks are estimated according to the PV Climate methodology- “Agriculture and Forestry Carbon Benefit Assessment Methodology” version 1.0. To estimate the project removals, the module PU001, “Estimation of Baseline and Project GHG removals by Carbon pools in Plan Vivo projects, Version 1.0 will be used.

Equation 4 of the methodology as follows:

PRa,y = PRWB,a,y + PRNB,a,y + PRBG,a,y + PRLI,a,y + PRDW,a,y + PRSO,a,y + PRWP,a,y

Where,

PRa,y = Net GHG removals under the project scenario for project area a upto year y

PRWB,a,y = Net GHG removals in above ground woody biomass under the project scenario for project area a upto year y.

PRNB,a,y = Net GHG removals in above ground non-woody biomass under the project scenario for project area a upto year y.

PRBG,a,y = Net GHG removals in below ground biomass under the project scenario for project area a upto year y.

PRLI,a,y = Net GHG removals in litter under the project scenario for project area a upto year y.

PRDW,a,y = Net GHG removals in dead wood under the project scenario for project area a upto year y.

PRSO,a,y = Net GHG removals in soil organic carbon under the project scenario for project area a upto year y.

PRWP,a,y = Net GHG removals in wood products under the project scenario for project area a upto year y.

Estimation in the changes in carbon stock in litter:

Litter is expected to remain in the project area and will not be removed. Conservatively, the carbon stock contained in this pool is expected to remain unchanged for the programme duration.

Hence, PRLI,a,y= 0

Estimation in the changes in carbon stock in dead wood:

Deadwood is expected to remain in the project area and will not be removed. Conservatively, the carbon stock contained in this pool is expected to remain unchanged for the programme duration.

Hence, PRDW,a,y= 0.

Estimation in the changes in carbon stock in soil organic carbon:

Change in carbon stock in soil organic carbon is not taken into consideration as a part of the project activities as therefore this parameter will be estimated as zero in both ex-ante and ex-post calculations.

Hence, PRSO,a,y= 0.

Estimation in the changes in carbon stock in wood products:

Change in carbon stock in wood products is not taken into consideration as a part of the project as the project intervention does not involves manufacturing of any wood products. Therefore, this parameter will be estimated as zero in both ex-ante and ex-post calculations.

Hence, PRWP,a,y = 0.

Assumptions made in the calculations are tabulated below:

Species	**Allometric Equation**	**Wood Density**	**Biomass Expansion Factor**	**Root to Shoot ratio**	**Carbon Fraction**
Mangifera Indica	V = 0.108-1.706*D+7.559*D2	0.59	1.5	0.27	0.47
Anacardium Occidentale	-	-	1.5	0.27	0.47
Artocarpus Heterophyllus	sqrtV= (-0.15154+2.79983*D)	0.6	1.5	0.27	0.47
Litchi Chinensis	-	0.86	1.5	0.27	0.47

Millettia Pinnata	V = 0.11079-1.81103*D+11.4132*D^2+0.38528*D^3	0.61	1.5	0.27	0.47
Azadirachta indica	V=(-0.03510+5.32981*D2)	0.72	1.5	0.27	0.47
Phyllanthus indica	V=(-0.022635+4.889163*D2)	0.72	1.5	0.27	0.47
Dalbergia sissoo	Y=-3.53+(0.71*DBH)+(0.33*Ht)	0.69	1.5	0.27	0.47
Cassia tora	V=0.05159-0.53331*D+3.46016*D2+10.18473*D3	0.6823	1.5	0.27	0.47
Neolamarckia cadamba	V=0.088183-1.490948*D+8.984266*D2	0.48	1.5	0.27	0.47
Anacardium Excelsum	-	-	1.5	0.27	0.47
Syzyium cuminii	V=(D^2.479397)*(e^2.132776)	0.7	1.5	0.27	0.47
Tamarindus indica	V= (0.088074-1.449236*D+8.760534*D2)	0.75	1.5	0.27	0.47
Madhuca latifolia	V= -0.00092-0.55547*D+7.3446*D2	0.91	1.5	0.27	0.47
Terminalia chebula	V=-0.05004-0.0344*D+6.35715*D2	0.88	1.5	0.27	0.47
Terminalia bellerica	V= (-0.14325+3.07937*D)	0.69	1.5	0.27	0.47
Melia Azadirach	V=(-0.03510+5.32981*D2)	0.72	1.5	0.27	0.47
Pterocarpus marsupium	ln 2.828679 = -3.19198+2.828679DBH	0.67	1.5	0.27	0.47
Bombax ceiba	V=(0.04507-0.93461*D+5.48513*D2+9.16037*D3	0.32	1.5	0.27	0.47
Albizia lebbeck	V = (-0.0367+5.87369*D2)	0.5964	1.5	0.27	0.47
Simarauba glauca	AGB = 0.557(DBH)^3.017	0.465	1.5	0.27	0.47
Dendrocalamus strictus	Y=-3.53+(0.71*DBH)+(0.33*Ht)	-	1.5	0.27	0.47

Sources:

Species	**Allometric Equation**	**Wood Density**	**Biomass Expansion Factor**	**Root to Shoot ratio**	**Carbon Fraction**	**Growth Data Source**
Mangifera Indica	Link	-	Link	Link	Link	Link
Anacardium Occidentale	-	-	Link	Link	Link	Link
Artocarpus Heterophyllus	Link	Link	Link	Link	Link	Link

Litchi Chinensis	-	Link	Link	Link	Link	Link
Millettia Pinnata	-	-	Link	Link	Link	
Azadirachta indica	Link	Link	Link	Link	Link	Link
Phyllanthus indica	Link	Link	Link	Link	Link	Link
Dalbergia sissoo	-	Link	Link	Link	Link	Link
Cassia tora	Link	Link	Link	Link	Link	Link
Neolamarckia cadamba	Link	Link	Link	Link	Link	-
Anacardium Excelsum	-	-	Link	Link	Link	Link
Syzyium cuminii	Link	Link	Link	Link	Link	Link
Tamarindus indica	Link	Link	Link	Link	Link	Link
Madhuca latifolia	Link	Link	Link	Link	Link	Link
Terminalia chebula	-	Link	Link	Link	Link	Link
Terminalia bellerica	Link	Link	Link	Link	Link	Link
Melia Azadirach	Link	Link	Link	Link	Link	Link
Pterocarpus marsupium	Link	Link	Link	Link	Link	Link
Bombax ceiba	Link	Link	Link	Link	Link	Plantation Trees by RK Luna- Page- 206
Albizia lebbeck	-	Link	Link	Link	Link	Plantation Trees by RK Luna- Page- 206
Simarauba glauca	Link	Link	Link	Link	Link	Link
Dendrocalamus strictus	Link	-	Link	Link	Link	Link

Tree Growth

For the calculation of tree growth throughout the crediting period, the diameter at breast height (DBH) for all species was determined using secondary literature. DBH values were obtained for various ages to calculate the Mean Annual Increment (MAI), which was then used to estimate DBH for the remaining ages. To ensure the reliability and accuracy of the data, the secondary literature chosen for DBH values was sourced either from the same area or from a similar agro-climatic zone. In cases where such localized data was unavailable, country-specific secondary literature was referred to as an alternative.

Furthermore, to adopt a conservative approach in emission reduction calculations, the MAI was reduced by 50% after the age of 20. This adjusted MAI was subsequently applied to estimate the DBH for trees aged 21 to 30. Refer to the calculation spreadsheet for more detailed explanation.

Potential Leakage

The leakage for the project has been calculated using the tool PU004[103]. The steps mentioned in the tool have been followed to estimate the leakage from the project activities. Considering a conservative approach in assessing the leakage from the project, option 1 of the tool (section 5) has been considered to estimate the potential leakage from the project activities.

6. The leakage estimation using the AR-TOOL15[104] (section 6) under the following conditions is considered insignificant or accounted as zero:

Conditions	**Justifications/ Explaination**
Animals are displaced to existing grazing land, and the total number of animals in the receiving grazing land (displaced and existing) does not exceed the carrying capacity of the grazing land	No animal are displaced to any of the existing grazing land: hence the carrying capacity of the grazing land is not exceeded. The livestock of the beneficiaries are stall fed or on the land allotted by the village development committee which is separate from the project lands.
Animals are displaced to existing non-grazing grassland, and the total number of animals displaced does not exceed the carrying capacity of the receiving grassland	No animals are displaced to any existing non-grazing land: hence, the carrying capacity of the receiving grazing land is not exceeded. Primarily the livestocks are stall fed.
Animals are displaced to cropland that has been abandoned within the last five years	No animals are displaced to any of the cropland within the last 5 years.
Animals are displaced to forested lands, and no clearance of trees, or decrease in crown cover of trees and shrubs, occurs due to the displaced animals	No animals are displaced to any of the forested lands, and no clearance of trees or decrease in crown cover of trees and shrubs occurred. The project area boundary does not consist of any forested area nor the land parcels are nearby any forested areas, resulting in no clearance of trees or decrease in the crown cover of trees or shrubs.
Animals are displaced to zero-grazing system	No animals are displaced to any zero-grazing system.

Calculation of carbon pool leakage emissions from displacement of agricultural activity

$$LE_{CP,a,y} = \sum_{t=1}^{y} LE_{AGRIC,t}$$

Where,

$LE_{CP,a,y}$ = Net GHG emissions due to carbon pool leakage from project area a up to year y (tCO2e)

[103] https://www.planvivo.org/Handlers/Download.ashx?IDMF=8acbfa5d-bb81-430c-964a-8e802bea0ce6 – Section 5

[104] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-15-v2.0.pdf - Section 6

$LE_{AGRIC,t}$ = Leakage emission due to the displacement of agricultural activities in year t (tCO2e from AR-TOOL15 v2.0)

There are no such cases within the project boundary from which the pre-project agricultural activities are to be displaced outside the project boundary, hence leakage emission resulting from displacement of the activities is considered as zero.

3. Leakage estimation using PT002 v2.0[105] to estimate leakage from displacement of deforestation and degradation (see Section 5.1.2)

As per the tool PT002 v2.0, expected leakage emissions are estimated with a conservative estimate of the proportion of carbon benefits that could be lost through leakage using Equation 10.

$$E_{LK,VP} = L. (E_{BS,VP} – E_{PS,VP})$$

Where,

$E_{LK,VP}$ = Leakage emissions expected to result from displacement of deforestation and degradation during verification period VP (tCO2e)

$E_{BS,VP}$ = Baseline scenario emissions from deforestation and forest degradation expected during verification period VP (tCO2e)

$E_{PS,VP}$ = Expected project scenario emissions from deforestation and forest degradation expected during verification period VP (tCO2e)

L = Expected emissions from deforestation and forest degradation that result from displacement of activities from the project area as a result of project activities, expressed as a proportion of carbon benefits that are expected to be lost as a result of leakage

The project activity includes afforestation and reforestation activities that will be implemented on private and community lands, hence the Leakage emissions due to the above equation for the displacement of deforestation and degradation is insignificant and can be considered as zero.

Calculation of expected leakage emissions from displacement of deforestation and forest degradation.

$$LE_{CP,a,y} = \sum_{VP} E_{LK,VP}$$

Where,

$LE_{CP,a,y}$ = Net GHG emissions due to carbon pool leakage from project area a up to year y (tCO2e)

$E_{LK,VP}$ = Leakage emissions expected to result from displacement of deforestation and degradation during verification period VP (tCO2e; from PT002 v2.0)

Calculation of actual leakage emissions from displacement of deforestation and forest degradation

$$LE_{CP,a,y} = \sum_{VP} AE_{LK,VP}$$

[105] https://www.planvivo.org/Handlers/Download.ashx?IDMF=6cd0134e-d874-4c2a-9259-6272fb1e9413 – Section 5.8

Where,

$LE_{CP,a,y}$ = Net GHG emissions due to carbon pool leakage from project area a up to year y (tCO2e)

$AE_{LK,VP}$ = Maximum potential leakage emissions that could have occurred as a result of displacement of deforestation and degradation during verification period VP (tCO2e; from PT002 v2.0)

There are no such cases within the project boundary from which the pre-project agricultural activities are to be displaced outside the project boundary, hence leakage emission resulting from displacement of the activities is considered as zero.

4. Leakage estimation calculation using PU003 v1.0 to estimate any increase in GHG emissions from emission sources outside the project area that results from project activities

The module is applicable to all Plan Vivo project interventions including the following intervention types:

c. Agroforestry and Social forestry
d. Afforestation and reforestation

The above two project intervention type falls under the current project activities. The net GHG emissions have been calculated using this tool and no leakages are associated in any of GHG emitting sources considered under the project.

Hence, the leakage emissions from the project interventions area considered as zero.

Uncertainty

To calculate the uncertainty of measured carbon benefits, PU005, "Estimation of uncertainty of carbon benefit estimates in Plan Vivo projects, Version 1.1 will be used.

For carbon stocks and GHG emissions estimated with sampling approaches, the percentage uncertainty at a 90% confidence level will be calculated by Equation 1 of the methodology.

$$U_x = z \cdot \frac{SD_{CDx}}{\sqrt{n}} \cdot \frac{1}{CD_x}$$

Where:

Ux = Uncertainty of the carbon stock/GHG emission estimate x at a 90% confidence level (percent)
z = Critical value for one-tailed test of significance at a 90% confidence level and n -1 degrees of freedom (from t distribution table)
SDCDx = Standard deviation of the estimated value (t CO2e/ha)
n = Sample size used to estimate the value
CDx = Carbon density or GHG emissions per hectare for estimated value x (t CO2e/ha)

Confidence intervals will be calculated separately for each value (x) of carbon density/ GHG emissions per hectare estimated with sampling approaches. Estimates from the start and end of the monitoring period, and project, baseline and leakage estimates will be treated as separate values.

Expected Carbon Benefits

Table: Plantation Model and Density

Year	Expected GHG benefit after 20% buffer
1	-
2	-
3	5,633
4	7,265
5	17,161
6	26,176
7	33,991
8	46,339
9	56,683
10	54,069
11	61,554
12	69,809
13	78,013
14	85,208
15	93,474
16	100,611
17	105,269
18	115,804
19	125,300
20	132,781
21	137,363
22	143,262

23	139,909
24	132,873
25	127,095
26	118,579
27	107,672
28	110,252
29	112,854
30	115,439
Total tCo2e	**2,460,438**
Annual Average tCO2e	**82,015**
Average per year hectare tCO2e	**23.03**
Average per year per hectare tC	**6.28**

Model	Name of Tree	Scientific Name	Spacing (ft)	Type of Plantation	Trees required in 1 Ha
1	Mang	Mangifera indica	30	Main field Tree	100
2	Cashew	Anacardium occidentale	20	Main field Tree	200
3	Mango	Mangifera indica	30	Main field Tree	50
	Cashew	Anacardium occidentale	30	Main field Tree	100
4	Mango	Mangifera indica	30	Main field Tree	25
	Cashew	Anacardium occidentale	30	Main field Tree	100
	Jackfruit	Artocarpus heterophyllus	30	Main field Tree	25
5	Mango	Mangifera indica	30	Main field Tree	25
	Cashew	Anacardium occidentale	30	Main field Tree	100
	Litchi	Litchi chinensis	30	Main field Tree	50
6	Karanj	Millettia Pinnata	10	Main field Tree	112

	Neem	Azadirachta indica	10	Main field Tree	112
	Amla	Phyllanthus emblica	10	Main field Tree	112
	Sishu	Dalbergia Sissoo	10	Main field Tree	112
	Chakunda	Cassia Tora	10	Main field Tree	112
	Kadam	Neolomarckia Cadamba	10	Main field Tree	112
	Wild Cashew	Anacardium Excelsum	10	Main field Tree	112
	Jamkoli	Syzyium Cumini	10	Main field Tree	112
	Tamarind	Tamarindus Indica	10	Main field Tree	112
	Mahua	Madhuca Latifolia	10	Main field Tree	112
7	Tamarind	Tamarindus Indica	10	Main field Tree	80
	Harda	Terminalia Chebula	10	Main field Tree	80
	Baheda	Terminalia Bellirica	10	Main field Tree	80
	Amla	Phyllanthus Emblica	10	Main field Tree	80
	Neem	Azadirachta Indica	10	Main field Tree	80
	Jackfruit	Artocarpus Heterophyllus	10	Main field Tree	80
	Mahua	Madhuca Latifolia	10	Main field Tree	80
	Chakunda	Cassia Tora	10	Main field Tree	80
	Karanj	Millettia Pinnata	10	Main field Tree	80
	Mahalimba	Melia azadirach	10	Main field Tree	80
	Pia sal	Pterocarpus marsupium	10	Main field Tree	80
	Jamukuli	Syzyium Cumini	10	Main field Tree	80
	Kadam	Neolomarckia Cadamba	10	Main field Tree	80
8	Karanj	Millettia Pinnata	10	Main field Tree	50
	Simli	Bombax ceiba	10	Main field Tree	100
	Siris	Albizia lebbeck	10	Main field Tree	100
	Jamun	Syzyium Cumini	10	Main field Tree	100

	Nimba	Azadirachta Indica	10	Main field Tree	100
	Tentuli	Tamarindus Indica	10	Main field Tree	100
	Simarua	Simaruba glauca	10	Main field Tree	100
	Harda	Terminalia Chebula	10	Main field Tree	100
	Amla	Phyllanthus Emblica	10	Main field Tree	100
	Baheda	Terminalia ballerica	10	Main field Tree	100
	Bamboo	Dendrocalamus strictus	10	Main field Tree	100
9	Jackfruit	Artocarpus Heterophyllus	10	Main field Tree	187
	Mahua	Madhuca Latifolia	10	Main field Tree	187
	Neem	Azadirachta Indica	10	Main field Tree	187
	Chakunda	Cassia Tora	10	Main field Tree	187
	Karanj	Millettia Pinnata	10	Main field Tree	187
	Tamarind	Tamarindus Indica	10	Main field Tree	187

The project proponent has accounted for a 20% mortality rate, with plans in place to replant any lost trees to maintain project goals.

Monitoring

Data/ Parameter	Area of stratum
Data Unit	Ha
Value Applied	Will be decided after data collection
Source of Data	Monitoring of strata and stand boundaries will be done using a Geographical Information System (GIS)
Purpose of Data	Definition of project spatial boundary and calculation of Project emission reductions

Data/ Parameter	DBH
Data Unit	cm (centimetre)
Value Applied	Will be collected for every tree present in the sample plot
Source of Data	Field measurement
Purpose of Data	Calculations of project removals

Data/ Parameter	Height
Data Unit	m (metre)

Value Applied	Will be collected for every tree present in the sample plot
Source of Data	Field measurement
Purpose of Data	Calculation of project removals

Data/ Parameter	BEF (Biomass Expansion Factor)
Data Unit	Dimensionless
Value Applied	From 1.15 to 3.4, depends upon secondary source
Source of Data	IPCC default Values
Purpose of Data	Calculation of project removals

Data/ Parameter	CF (Carbon Fraction)
Data Unit	t C t-1
Value Applied	0.47
Source of Data	IPCC default Values
Purpose of Data	Calculations of project removals

Data/ Parameter	Root to Shoot Ratio
Data Unit	Dimensionless
Value Applied	Depending upon the equation used for the calculation
Source of Data	Tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs"
Purpose of Data	Calculation of project removals

Data/ Parameter	Wood Density (D)
Data Unit	t d.m./m^3
Value Applied	Depends upon the species
Source of Data	IPCC default values
Purpose of Data	Calculations of project removals

Data/ Parameter	Volume
Data Unit	m3
Value Applied	Will be calculated on the basis data collected
Source of Data	Field measurement
Purpose of Data	Calculations of project removals

The project employed a rigorous methodology to quantify the carbon benefits generated through its activities. Tree growth data sets for each species were determined using secondary literature and field measurements. The calculation process involved the following steps:

1. Tree Growth Data Identification: Tree growth data sets were sourced from secondary literature and field measurements for each species.
2. Volume Calculation: Species- and area-specific volumetric equations were used to determine tree volume.
3. Above-Ground Biomass Estimation: The volume was multiplied by wood density and biomass expansion factors to calculate above-ground biomass.

4. Below-Ground Biomass Estimation: Appropriate species-specific factors were applied to estimate below-ground biomass.
5. Total Biomass Calculation: Above-ground and below-ground biomass values were summed to determine total biomass.
6. Carbon Stock Estimation: The total biomass was multiplied by the global default value of 0.47 to derive the carbon stock.
7. CO_2 Equivalent Calculation: The carbon stock was multiplied by 3.67 to estimate the CO_2 equivalent.

This systematic approach was applied to each species to ensure accurate carbon credit calculations, reinforcing the project's contribution to climate change mitigation. An Excel sheet containing the ex-ante calculations for potential carbon credit generation has been prepared and is available upon request.

Project Intervention	**Carbon Indicator**	**Means of Verification**
Empowering Communities, Enriching Private and Community Lands in Rural Odisha	Project Area (Ha)	The plantation area will be clearly delineated either on the ground using GPS or through geo-referenced remote sensing data, encompassing all polygons included in the project. Data collection will take place during each monitoring cycle.
	Number of Sample Plots (N)	To determine the sample size, a stratified random sampling approach will be employed to ensure representation across various categories, including population groups, land area, selected species, and land-holding sizes. Once the sample plots are identified, random stratified sampling will be used to pinpoint geo-coordinates for laying out the sample plots.
	Height of Tree (H)	The height of each tree within the sample plots will be

		measured using a clinometer, altimeter, or rangefinder and recorded at every verification period.
	Diameter at breast height (cm)	The diameter at breast height (DBH) will be measured in centimeter using a measuring tape for all trees within the sample plots and will also be documented during each verification cycle.

For deriving the bio-physical plots where measurements/ sample will be collected, the project developer has planned for monitoring of the project as a whole and defined the tasks to be undertaken and technical requirements therein as per the details below.

a) Defining Sampling Intensity and Sample Plots Using Stratified Random Sampling

A stratified random sampling approach will be used to determine the sample size, ensuring representation across different categories, including population groups, land areas, selected species, and land-holding sizes. Accurate identification and stratification of sample plots are essential to make the sample representative of various land types. The sampling must cover all blocks and districts, incorporating diverse plantation models, irrigated and non-irrigated plots, varying slopes, and locations at different distances from the community.

b) Effective Data Collection from Plantation Sites

To ensure accurate data collection, the team will receive training on relevant parameters and tools, including Google Sheets and Kobo for digital data entry. Monitoring will focus on key factors such as existing woody biomass percentage, plant spacing, species diversity, plant count (both in main fields and along boundaries), fencing conditions, compost application, termite treatment, irrigation needs, survival rates, and community involvement in maintenance.

c) Management Practices to Maximize Survival Rates

In addition to monitoring plantation details, extra management parameters—such as fencing status, compost and termite treatment, irrigation needs, and disease/pest infestation—will be tracked. Corrective actions will be taken where necessary to ensure optimal survival rates. Gap plantation will be carried out to replace lost saplings, maintaining 0% mortality.

d) Measuring Tree Growth (DBH and Height)

The GV monitoring team will be trained by Fair Climate Fund (FCF) in measuring diameter at breast height (DBH) and tree height to enhance their skills for carbon monitoring. This team will conduct periodic field surveys to maintain consistency in measurements and ensure adherence to quality control protocols.

e) Defining Project Boundaries Using GIS

The team will collect KML files for all land parcels to verify project boundaries, assess plots for more than 10% woody biomass, and monitor plantations. Team members have been trained to capture and document this data with high accuracy, ensuring precise boundary delineation and monitoring.

Measuring, recording, storing and aggregating data

The GV and GVCDF team will have a monitoring calendar for capturing and recording the data against the monitoring parameters as provided in the table below:

S. No.	Parameters to be monitored
1	Name of the Farmer
2	Village
3	Block
4	District and State
5	Geo-coordinates and KML of the plantation Site
6	% of existing woody biomass present in the plots if any
7	Date of Plantation
8	Species diversity and number in main field and boundary
9	Tree growth details- DBH and Height
10	Health of Plants- sprouting progress, pest/ disease infestation
11	Survival Rate of plants
12	Spacing of plants
13	Fencing status
14	Irrigation requirements and facilities available
15	Application of compost and termite treatment
16	Involvement of community in the care and maintenance work and benefit sharing mechanism

Responsibilities and competencies of the personnel that will be carrying out monitoring activities

GV will establish a dedicated team for the carbon project, overseeing village selection and the setup of field offices. As part of their responsibilities, will identify farmers, map lands, collect KYC documents, and formalize carbon waiver agreements with participating farmers. GV will work on designing and implementing the project, ensuring effective monitoring, problem identification, and resolution of implementation challenges.

Additionally, GV will focus on community mobilization by engaging with women's collectives such as VDC, SHGs, FPG to support plantation efforts and empower local communities. They will also assist in developing business plans for plantation families, emphasizing the harvest process and value chain integration.

The skilled personnel of GV who will carry out the survey and data collection will be given training on the following topics:

- How to collect data from plantation sites effectively.
- How to ensure a good survival rate.
- Measuring tree growth (DBH and height).
- Tree identification.
- Establishment of project boundary using tracking systems

Sampling approaches used, sample sizes, sample site locations, stratification, frequency of measurement and QA/QC procedures.

Establishment of project boundary using tracking systems.

All land parcels subject to plantations under this project activity are delineated using GPS tracking function and for this, extensive training is conducted. Each planting plot, and the tracks are downloaded and recorded as Google Earth kml file, as shapefile and an Excel file. This allows for further processing of the tracks via GIS applications.

Stratification and sampling framework

The ex-ante stratification of the project will be done on the year of planting. The sampling framework adopted will be as follows:

The number of samples and sample size will be calculated using "Calculation of the number of sample plots for measurements within A/R CDM project activities (Version 02.1.0)". The number of required plots will be calculated using the following equation:
Where:
n = Number of sample plots required for estimation of biomass stocks within the project Boundary; dimensionless

N= Total number of possible sample plots within the project boundary (i.e. the sampling space or the population); dimensionless

tval= Two-sided Student's t-value, at infinite degrees of freedom, for the required confidence level; dimensionless

wI= Relative weight of the area of stratum I (i.e. the area of the stratum I divided by the project area); dimensionless

sI= Estimated standard deviation of biomass stock in stratum i; t d.m. (or t d.m. ha-1)

E= Acceptable margin of error (i.e., one-half the confidence interval) in the estimation of biomass stock within the project boundary; t d.m. (or t d.m. ha-1), i.e., in the units used for si

I= 1, 2, 3, biomass stock estimation strata within the project boundary

The number of plots allocated to each stratum will be calculated as follows:

Where:

ni= Number of sample plots allocated to stratum i; dimensionless

n= Number of sample plots required for estimation of biomass stocks within the project boundary; dimensionless

wi= Relative weight of the area of stratum i(i.e. the area of the stratum I divided by the project area); dimensionless

SI= Estimated standard deviation of biomass stock in stratum i; t d.m. (or t d.m. ha-1)

I= 1, 2, 3, biomass stock estimation strata within the project boundary

The sampling plot area to 20 m x 20 m plots of 0.04 ha (400 m2) will be laid out calculated as per the CDM afforestation field manual.

The QA/QC measures for monitoring and collection of field data will be as follows:

(1) Collection of field data promptly.

(2) Independent random checking of data by an independent expert

(3) Entering the data in a computer system followed by analysis and storing the same in cloud storage.

Description of steps

(1) Collection of field data promptly- A team consisting of people belonging to the project area will be formed. The team will be carrying out field monitoring. Before that, they will undergo training in data collection, data entry and data analysis. Specific duties will be assigned to each team member.

(2) Independent random checking of data by an independent expert- The independent expert will do random checks from sampling plots. In case of any error reported, they will be collected and recorded.

(3) Entering the data in the computer system followed by analysis and archiving the same- Data management will be done in electronic and paper format. Data entering will cover all the parameters for the calculation of GHG removals, carbon stock changes and records of project participants. GIS shapefiles and maps will be stored electronically in the local hard drive and cloud network.

• Type of Plots- For monitoring the project over the project period, permanent sample plots will be established and managed just like the rest of the project area.

• Number of plots- The number of plots will be calculated using the a forementioned formulae • Location of sampling plots- The locations of sampling plots will be randomly distributed to avoid any project developer biases and it will represent all strata. The geographical locations (geo coordinates), ID numbers of the stratum will be recorded and archived.

• Monitoring frequency- Permanent sample plots will be monitored annually to measure the parameters required for assessing change in carbon stock accumulation.

• Measuring and estimating carbon stock change- Using the parameters measured from the permanent sample plots carbon stocks in aboveground biomass and belowground biomass will be estimated.

• Stratification and sample size- Sample plots of 0.04 ha (400 m2) with 20 m x 20 m will be established randomly in each stratum based on the year of plantation. The ex-ante stratification will be according to the year of planting

Annex 8– Exclusion List

Activities	**Included in Project ('Yes' or 'No')**
Any project activities leading to or requiring the destruction [1] of critical habitat [2] or any forestry project which does not implement a plan for improvement and/or sustainable management.	No

Any activity which could be associated with the significant impairment of areas particularly worthy of protection of cultural heritage (without adequate compensation in accordance with international standards).	No
Trade in animals, plants or any natural products not complying with the provisions of the CITES/Washington convention [3].	No
Destructive fishing methods or drift net fishing with a net more than 2.5 km in length, explosives and/or poison.	No
Large-scale commercial logging operations for use in primary tropical moist forest.	No
Production or trade in wood or other forestry products other than from sustainably managed forests [4].	No
Exploitation of diamond mines and marketing of diamonds where the host country has not adhered to the Kimberley Process.	No
Activities involving harmful or exploitative forms of forced labour [5] or harmful child labour [6].	No
Projects that include involuntary physical displacement and/or forced eviction.	No
Production or activities that encroach on lands owned, or claimed or occupied by Indigenous Peoples, without full documented consent of such peoples.	No
Harmful and unsafe production, use, sale or trade of pharmaceuticals, ozone layer depleting substances [10], and other toxic [11] or dangerous materials such as asbestos or products containing PCB's [12], wildlife or products regulated under CITES, including all products that are banned or are being progressively phased out internationally	No
Production or trade of arms, ammunition, weaponry, controversial weapons, or components thereof (e.g., nuclear weapons and radioactive ammunition, biological and chemical weapons of mass destruction, cluster bombs, anti - personnel mines, enriched uranium).	No
Procurement and use of firearms.	No
Provision of finances to military institutions involved in conservation or security activities.	No
Production or trade of strong alcohol intended for human consumption or other alcoholic beverages (excluding beer and wine).	No
Production or trade of tobacco and other drugs	No
Gambling, gaming establishments, casinos or any equivalent enterprises and undertaking [10].	No
Any trade related to pornography or prostitution.	No
Production or trade in radioactive material. This does not apply to the procurement of medical equipment, quality control equipment or other application for which the radioactive source is insignificant and/or adequately shielded	No
Production or trade in unbound asbestos. This does not apply to the purchase or use of cement linings with bound asbestos and an asbestos content of less than 20%.	No
Production, trade, storage, or transport of significant volumes of hazardous chemicals, or commercial scale usage of hazardous chemicals. Hazardous chemicals include gasoline, kerosene, and other petroleum products.	No
Transboundary trade in wastes, except for those accepted by the Basel Convention and its underlying regulations [11].	No

Any activity leading to an irreversible modification or significant displacement of an element of culturally critical heritage [12].	No
Production and distribution, or investment in, media that are racist, antidemocratic or that advocate discrimination against a part of the population.	No
Projects involving the planting or introduction of invasive species	No
Projects that increase the dependency of primary participants and other stakeholders on fossil fuels.	No

Notes:

[1] Destruction means (1) the elimination or severe reduction in the integrity of a habitat/area caused by a major and long-term/prolonged change in land-use or water resources or (2) the modification of a habitat such that this habitat's ability to fulfil its function/ role is lost.

[2] The term critical habitat encompasses natural and modified habitats that deserve particular attention. This term includes (1) spaces with high biodiversity value as defined in the IUCN's classification criteria, including, in particular, habitats required for the survival of endangered species as defined by the IUCN's red list of threatened species or by any national legislation; (2) spaces with a particular importance for endemic species or whose geographical range is limited; (3) critical sites for the survival of migratory species; (4) spaces welcoming a significant number of individuals from congregatory species; (5) spaces presenting unique assemblages of species or containing species which are associated according to key evolution processes or which fulfil key ecosystem services; (6) and territories with socially, economically or culturally significant biodiversity for local communities. Primary forests or high conservation value forests must also be considered as critical habitats

[3] https://cites.org/eng/disc/text.php

[4] Sustainably managed forests are forests managed in a way that balances ecological, economic and socio-cultural needs.

[5] Forced labour means all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.

[6] Harmful child labour means the employment of children that is economically exploitive, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral, or social development. Employees must be at least 14 years of age, as defined in the ILO’s Declaration on the Fundamental Principles and Rights at Work (C138 – Minimum Age Convention, Article 2), unless local laws require compulsory school attendance or a minimum working age. In such circumstances, the highest age requirement must be used.

[7] Any chemical component which reacts with, and destroys, the stratospheric ozone layer leading to the formation of holes in this layer. The Montreal Protocol lists Ozone Depleting Substances (ODS), their reduction targets and deadlines for phasing them out

[8] Including substances included under the Rotterdam Convention, Stockholm Convention and WHO "Pharmaceuticals: Restrictions in Use and Availability".

[9] PCBs (polychlorinated biphenyls) are a group of highly toxic chemical products that may be found in oil-filled electrical transformers, capacitors and switchgear dating from 1950 to 1985.

[10] Any direct financing of these projects or activities involving them (for example, a hotel including a casino). Urban improvement plans which could subsequently incorporate such projects are not affected.

[11] Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal (1989).

[12] "Critical cultural heritage" is considered as any heritage element recognised internationally or nationally as being of historical, social and/or cultural interest.

Annex 9 - Environmental and Social Screening Report

SECTION A: PROJECT INFORMATION	
Project title:	Empowering Communities, Enriching Private and Community Lands in Rural Odisha
Project coordinator:	Name & Designation: Liby T Johnson, Executive Director, Gram Vikas Community Development Foundation, Phone number: +91 94465 15053, Address: GVCDF, Opp. Ganesh Temple, Hillpatna, Ram Nagar, Berhampur - 760005 India Email address: liby@gramvikas.org
Country:	India
Geography/ landscape:	State: Odisha District: Gajapati, Ganjam, Kalahandi, Kandhamal, Nayagarh
Project summary:	The project is located in India, specifically in the state of Odisha, covering the districts of Gajapati, Ganjam, Kalahandi, and Kandhamal, Nayagarh. Approximately 6000 farmers, with an average landholding of 0.3 hectares, will be covered under the project. The project also includes several community lands, aiming to cover 3561 hectares in the Gajapati, Ganjam, Kalahandi, and Kandhamal districts of Odisha. The participants are primarily smallholder farmers belonging to the Khond and Saora tribes, along with Gram Panchayats/village councils that own community lands. The project encompasses both restoration and conservation efforts. Restoration activities involve agroforestry plantations on private lands, focusing on fruit-bearing species to enhance local livelihoods, and social-forestry plantations on community lands to increase green cover, create carbon sinks, and improve soil and water resources. Conservation efforts include improved land management through the construction of soil and moisture conservation structures, such as stone bunds and contour trenches, aimed at stabilizing soil, promoting sustainable agriculture, and managing landslides. The project offers significant ecosystem and livelihood benefits. Restoration efforts through agroforestry and social-forestry plantations enhance biodiversity, soil health, and green cover, with agroforestry improving soil fertility and water regulation, and social-forestry contributing to climate change mitigation and better water retention. Conservation activities involve constructing soil and moisture structures, such as stone bunds and contour trenches, to stabilize soil and manage landslides. Livelihood benefits include new income sources from fruit-bearing species, job creation in planting and maintenance, and improved agricultural productivity. Capacity-building initiatives enhance sustainable farming skills, supporting economic resilience and empowering marginalized groups. The project is proposed to remove 2,460,438 tCO2eq from the atmosphere over the course of 30 years.
Name and role of project coordinator staff member filling this questionnaire:	

SECTION B: POTENTIAL E&S RISKS AND IMPACTS			
Topic	**Question**	**Project coordinator response**	**E&S reviewer comments**
Vulnerable Groups	Are there vulnerable or disadvantaged groups or individuals, including people with disabilities (consider also landless groups, lower income groups less able to cope with livelihood shocks/ stresses) in the project area, and are their livelihood conditions well understood by the project?	Yes, there are vulnerable groups who are our project participants. There are more than 60 tribal groups present in the project area, out of which 13 are PVTGs. The proposed villages in our project area mostly consist of Khond and Saora tribe. The tribal communities are the primary beneficiaries of this project. These farmers rely entirely on agriculture and forest resources for their livelihoods. They face significant challenges in coping with livelihood-related shocks. Any farmer who is willing can participate in this project. There is no discrimination based on age, sex, religion, caste, or creed. To ensure this, the participating members, community based institution and village development committee which are part of the project governance structure are made up of the Vulnerable groups of the project area. The proposed interventions aim to improve livelihood status of these groups and benefit the native ecosystem.	OK – thank you for this explanation. The relevant sections in the PDD (e.g. 2.1, 2.3, 2.4, 2.5 and 2.6) are sufficient in describing the participatory nature of the project design process so as not to discriminate or not thoroughly engage with the vulnerable groups identified here.
	Is there a risk that project activities disproportionately affect vulnerable groups, due to their vulnerability status?	The project aims to empower tribal women and youth by enabling them to access their rights and entitlements. Project introduces interventions such as plantation-based agroforestry and social forestry to rehabilitate barren and degraded lands, ensuring both immediate and sustained economic benefits. Furthermore, the project incorporates soil and water conservation measures to support sustainable land management. These efforts collectively help generate consistent and diversified income sources for the village communities, while also strengthening their capacity to withstand the adverse effects of climate change through the restoration and improvement of natural resources. So, there is not any risk that the project activities would disproportionately affect the vulnerable groups. The project includes the small land holder farmers. Additionally, the landless farmers can also take part in the project	OK

		by participating in the different activities during different instances of project development. The interventions will create job opportunities for these people.	
	Is there a risk that the project discriminates against vulnerable groups, for example regarding access to project services or benefits and decision-making?	No, the project does not discriminate against vulnerable groups. From the very beginning of the design phase, various participatory methods were employed to engage with these groups in discussions about plantation models, land development, soil moisture conservation, and the community institutional framework for project management. The suggestions and feedback provided by the community were carefully considered and have been implemented on the ground. Moreover, the project's objectives and benefits were clearly communicated to them, ensuring their inclusion. As a result, there has been no discrimination in terms of access to services, benefits, or involvement in decision-making processes. The project is designed to be fair and impartial, ensuring that no advantages or preferential treatment are granted to any influential groups. For privately owned lands, individual farmers or landowners will receive direct benefits, including the yield from their respective lands and a proportionate share of the carbon revenue. In the case of community lands, the Village Development Committee (VDC) will be responsible for overseeing the equitable allocation of benefits among all stakeholders. The VDC will ensure a transparent and democratic distribution process, guaranteeing that all participants receive their rightful share of the benefits derived from the community land.	OK – this is clear and evidenced in the PDD. Thank you for the explanation.
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 2 – there is a significant presence of vulnerable groups in the project area, but the project activities and aims themselves aim to work with, engage with and lift these groups through the interventions and community benefits. These measures are sufficient in managing this risk so it is not likely to occur. Estimated magnitude of risks (1-5) & justification: 3 – due to the high incidence of vulnerable groups within the project area, should this risk occur, it would have a significant impact on a substantial number of people. Risk significance: Moderate			
Gender equality	Is there a risk of adverse gender impacts due to the project/ project activities, including for example discrimination or	No, there is not any risk of adverse gender impacts due to the project activities.	OK

	creation/exacerbation or perpetuation of gender-related inequalities?	The project is designed to prioritize women's participation, primarily through Self-Help Groups (SHGs) and Village Development Committees (VDCs), while promoting sustainable income generation. Women in the project area are now empowered to produce food and earn income independently. Additionally, the intervention supports sustainable livelihoods for families where men are often forced to migrate for work, leaving women behind. By creating local income opportunities, the project aims to reduce gender inequality and encourage the return of migrating men, fostering stronger, more stable households.	
	Is there a risk that project activities will result in adverse impacts on the situation of women or girls, including their rights and livelihoods? Consider for example where access restrictions disproportionately affect women and girls due to their roles and positions in accessing environmental goods and services?	No, the project activities will not result in adverse impacts on the situation of women or girls. Usually, practices like collection of NTFP is done by women of the tribal communities, which explains that there are not any access restrictions on the women in accessing environmental goods and services.	OK
	Is there a risk that project activities could cause or contribute to gender-based violence, including risks of sexual exploitation, sexual abuse or sexual harassment (SEAH)? Consider partner and collaborating partner organizations and policies they have in place. Please describe.	Policies and procedures are in place at the partner and cooperating partner to address instances of sexual harassment or abuse. All staff members have received training on the organisation's Prevention of Sexual Exploitation and Abuse Policy (PSEA) and Ethics Committee.	OK
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 2 – the thorough identification and management of risks towards women and girls in the project, and the nature of the project design itself, mean this risk is not likely to occur. Estimated magnitude of risks (1-5) & justification: 2 – should this risk occur, it would have a significant impact on a relatively small number of people. Risk significance: Low			
Human Rights	Is there a risk that the project prevents peoples from fulfilling their economic or	No, there is not any risk that the project prevents people from fulfilling their economic or social rights. The project interventions aim to improve	OK

	social rights, such as the right to life, the right to self-determination, cultural survival, health, work, water and adequate standard of living?	the economic conditions and social conditions by providing additional source of income, promoting women participation, and land, soil, water improvement conditions. The project activities, such as Focus Group Discussions and general meetings, have helped boost their confidence and contributed to their future capacity building.	
	Is there a risk that the project prevents peoples from enjoying their procedural rights, for example through exclusion of individuals or groups from participating in decisions affecting them?	No, the project doesn't prevent people from enjoying their procedural rights. The project places strong emphasis on active community involvement throughout the planning and implementation stages. By ensuring inclusive participation at every level, the risk of excluding any individuals or groups from decisions that impact them is effectively minimized. This participatory approach fosters transparency, builds trust, and strengthens community ownership, ultimately leading to more equitable and sustainable outcomes for all stakeholders involved.	OK
	Are you aware of any severe human rights violations linked to project partners in the last 5 years?	No, there have been no human rights violations linked to project partners in the last 5 years.	OK
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 1 – the nature of the project and its aims and coordination mean this risk is negligible. Estimated magnitude of risks (1-5) & justification: 4 – should this risk occur, it would have a substantial impact on a large number of people. Risk significance: Low			
Community, Health, Safety & Security	Is there a risk of exacerbating existing social and stakeholder conflicts through the implementation of project activities? Consider for example existing conflicts over land or natural resources, between communities and the state.	By design, the project will involve all interested parties, including the community, various government agencies, and others, in all phases of execution, including the planning process. As a result, any risk of conflict is eliminated. Furthermore, because the implementation would take place on the participating homes' private property, any potential disputes over land or natural resources are likewise ruled out. The landless farmers will also get equal opportunities to participate in the project by their involvement in different stages of the project instances. Also, the Panchayati Raj Institutions are actively involved in various phases of the project, including the planning process, ensuring transparency, local accountability, and alignment with community needs, significantly reducing the likelihood of any conflicts arising during	OK – the project design process laid out in the PDD shows good detail and evidence of this involvement. Monitoring throughout the project period should maintain this level of engagement with

		implementation.	the stakeholders mentioned here.
	Does the project provide support (technical, material, financial) to law enforcement activities? Consider support to government agencies and to Community Rangers or members conducting monitoring and patrolling. If so, is there a risk that these activities will harm communities or personnel involved in monitoring and patrolling?	Community-level monitors, namely FPGs and VDCs, will be encouraged to oversee and offer guidance to project beneficiaries while offering continuous handholding support, including technical guidance and capacity building. They will receive compensation for their services from the project, ensuring that it does not adversely affect the communities. There would be layers of monitoring at the implementing organization level for smooth implementation of the program.	OK – descriptions of the technical guidance and capacity building training have been sufficiently included in the PDD.
	Are there any other activities that could adversely affect community health and safety? Consider for example exacerbating human-wildlife conflict, affecting provisioning ecosystem services, and transmission of diseases.	During project implementation, there is no risk of human-wildlife conflict or disease transmission to the community.	OK

E&S reviewer conclusions

Estimated likelihood of risks (1-5) & justification: 2 – a thorough analysis of existing or potential tensions or conflicts within the project area has been undertaken and understood by the project coordinators. The management of the community lands within the project further maintains that this risk is unlikely to occur.

Estimated magnitude of risks (1-5) & justification: 2 – should this risk occur, it would have a fairly significant impact on a small number of people.

Risk significance: Low

Labour and working conditions	Is there a risk that the project, including project partners, would lead to working conditions for project workers[106] that are not aligned with national labour laws or the International Labor Organization's (ILO) Declaration on the Fundamental Principles and Rights at Work (discriminatory working conditions, lack of equal opportunity, lack of clear employment terms, failure to prevent harassment or exploitation, failure to ensure freedom of association etc.)?	The Project Is aligned with the payment terms to men and women as per the government norms and hence there are clear employment terms in the design of the project itself.	OK
	Is there an occupational health and safety risk to project workers while completing project activities?	The project personnel won't face any occupational health and safety risks while carrying out the project's tasks as everything will be done naturally on their own lands. We acknowledge the potential health and safety risks for labourers involved in agricultural and forestry activities. To mitigate these, the project provides ergonomic tools (e.g., lightweight hoes, mechanized seed planters, shock-absorbing pruning shears) and protective equipment (e.g., gloves, knee pads, sun hats, dust masks). Additionally, training on safe practices, scheduled rest breaks, and first aid provisions will be implemented to reduce strain and injuries. These measures ensure a safer working environment and sustainable labour practices.	OK – descriptions of these trainings should be included at PDD stage.
	Is there a risk that the project support or be linked to forced labour, harmful child	No, the project does not involve child labour or any other damaging forms of labour.	OK

[106] Project workers include project coordinator staff, staff of other project partners, third party groups fulfilling core functions of the project, and community volunteers or contracted workers.

	labour, or any other damaging forms of labour?		
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 2 – the labour involved in implementing the project activities has been well-thought out by the project coordinators, and any health and safety risks are being well-managed. Therefore, this risk is unlikely to occur. Estimated magnitude of risks (1-5) & justification: 2 – should this risk occur, it would have a substantial impact on a relatively small number of people. Risk significance: Low			
Resource efficiency, pollution, wastes, chemicals and GHG emissions	Is there a risk that project activities might lead to releasing pollutants to the environment, cause significant amounts of waste or hazardous waste or materials?	The initiative is intended to lower GHG emission rather than containing any hazardous waste, materials, or contaminants. Additionally, the project has not used any hazardous materials or contaminants in any stage of the project implementation and development.	OK
	Is there a risk that the project will lead to significant consumption of energy, water or other resources, or lead to significant increases of greenhouse gases?	No, the project does not lead to any significant consumption of energy, water or other resources	OK
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 1- the nature of the project activities mean this risk is negligible. Estimated magnitude of risks (1-5) & justification: 2 – should this risk occur, it would have a relatively small impact on a fairly substantial number of people. Risk significance: Low			

Access restrictions and livelihoods	Will the project include activities that could restrict peoples' access to land or natural resources where they have recognised rights (customary, and legal). Consider projects that introduce new access restrictions (e.g. creation of a community forest), reinforce existing access restrictions (e.g. improve management effectiveness and patrolling of a community forest), or alter the way that land and natural resource access restrictions are decided (e.g. through introducing formal management such as co-management).	The initiative doesn't involve any activities that would limit people's access to land or other natural resources. The project works with the community and there are clear provisions for incorporating their inputs and address grievances during the implementation and development of project. In fact, the alternative livelihood possibilities that the project would offer to the involved households would lessen their reliance on the resource and assist to rehabilitate it. Additionally, the participants will sign the carbon rights agreement to transfer the rights of carbon to the project proponent. The participants will continue to hold the legal ownership of the land parcels and NTFP that will be generated from the project activity on their lands.	OK – please ensure that descriptions and evidence of the project effectively working with the community and incorporating their inputs into project design are detailed in the PDD.
	Is there a risk that the access restrictions introduced /reinforced/altered by the project will negatively affect peoples' livelihoods?	No, there are no such risks. After the implementation of the project activity, the farmer and the VDC will continue to hold the legal ownership of the land parcels and NTFP that will be generated from the project activity on their lands.	OK – how is the project dealing with the project activities to be implemented on community lands? These should be clearly identified at PDD stage, with the relevant FPIC procedures well-detailed.
	Have strategies to avoid, minimise and compensate for these negative impacts been identified and planned?	As explained above, there is no risk associated to the access restrictions and livelihoods due to the implementation of the project activity. The project participants will have access to the land and the NTFP produced in their field. Farmer will only transfer the rights of carbon generated from	Ok – please see comments above.

		the project. In return, 60% of the revenue generated from the sale of credits will flow back to them.	
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 3 – due to the project activities taking place on mostly private and some community lands, this risk remains likely to occur. Appropriate FPIC activities and engagements should take place to ensure the community lands used to implement project activities are not putting any groups at a disadvantaged or limiting their resources or general activities. Please detail these FPIC processes and community engagements at PDD stage. Estimated magnitude of risks (1-5) & justification: 2 – should this risk occur, it would have a substantial impact on a relatively small number of people. Risk significance: **Moderate**			
Cultural heritage	Is the Project Area officially designated or proposed as a cultural site, including international and national designations?	No, the project area is not officially designated or proposed as a cultural site. Yes, it has been discussed with the community residing in the project area.	OK
	Does the project site potentially include important physical cultural resources, including burial sites and monuments, or natural features or resources of cultural significance (e.g. sacred sites and species, ceremonial areas) and is there risk that the project will negatively impact this cultural heritage?	No, there is not any cultural heritage associated in the project area.	OK
	Is there a risk that the project will negatively impact intangible cultural heritage? Consider for example cultural practices, social and cultural norms in relation to land and natural resources.	No, there is not any cultural heritage associated in the project area.	OK
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 1 – negligible risk Estimated magnitude of risks (1-5) & justification: 2 – if this risk were to occur, it would have a relatively small impact on a substantial number of people Risk significance: Low			

Indigenous Peoples	Are there Indigenous Peoples[107] living within the Project Area, using the land or natural resources within the project area, or with claims to land or territory within the Project Area?	Yes, there are indigenous tribal communities Khond and Saoraresiding within the project area. The project would work with these tribal communities, mainly with Khond and Saora tribes to improve their livelihoods and also create job opportunities. The project doesn't have any negative impact on indigenous people in any sense. IP groups have been actively consulted through community meetings, stakeholder workshops, and direct engagement sessions to ensure their perspectives and concerns are incorporated into the project design. Regarding FPIC, farmers have fully integrated into the process through transparent communication, participatory decision-making, and continuous consultations. They have received detailed information about the project's objectives, potential impacts, and expected benefits, enabling them to make informed choices.	OK – thank you for the explanation here and in the relevant sections of the PDD.
	Is there a risk that the project negatively affects Indigenous Peoples through economic displacement, negatively affects their rights (including right to FPIC), their self-determination, or any other social or cultural impacts?		OK
	Is there a risk that there is inadequate consultation of Indigenous Peoples, and/or that the project does not seek the FPIC of Indigenous Peoples, for example leading to lack of benefits or inappropriate activities?		OK
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 3 – due to the nature of the project participants being exclusively indigenous peoples, despite the thorough consultations and engagements and provisions in place to protect the rights of the participants, this risk still remains likely, due to the high incidence of indigenous people within the project area. Estimated magnitude of risks (1-5) & justification: 3 – should this risk occur, it would have a significant impact on a substantial number of people. Risk significance: Moderate			

[107] As per the IUCN Environmental and Social Management System, Indigenous Peoples include: "(i) peoples who identify themselves as "indigenous" in strict sense; (ii) tribal peoples whose social, cultural, and economic conditions distinguish them from other sections of the national community, and whose status is regulated wholly or partially by their own customs or traditions or by special laws or regulations; and (iii) traditional peoples not necessarily called indigenous or tribal but who share the same characteristics of social, cultural, and economic conditions that distinguish them from other sections of the national community, whose status is regulated wholly or partially by their own customs or traditions, and whose livelihoods are closely connected to ecosystems and their goods and services" (IUCN 2016).

Biodiversity and sustainable use of natural resources	Is there a risk that project activities will cause adverse impacts on biodiversity (both in areas of high biodiversity value, and outside of these areas) or the functioning of ecosystems? Consider issues such as use of pesticides, construction, fencing, disturbance etc.	Project activities include plantation of native species like Mango, Cashew, Jackfruit, Karanja, Shishu and other forestry related species. Promotion of sustainable land management practices and construction of water conservation structures would help in sustainable use of natural resources and reduced emission from the fallow land.	OK
	Is there a risk that the project will introduce non-native species or invasive species?	No, the project involves the promotion of native species only	OK
	Is there a risk that the project will lead to the unsustainable use of natural resources? Consider for example projects promoting value chains and natural resource-based livelihoods.	No, the project encourages the sustainable use of natural resources by promoting the adoption of indigenous species for both agroforestry and social forestry. It also implements soil moisture conservation practices, providing additional livelihood opportunities. These efforts not only reduce the dependency of participating households on forests but also contribute to enhancing biodiversity within the project area.	OK
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 1 – the nature of the project means this risk is negligible. Estimated magnitude of risks (1-5) & justification: 1 – should this risk occur, it would have a very small impact on a low number of people. Risk significance: Low			
Land tenure conflicts	Has the land tenure and use rights in the project area been assessed and understood?	The project activities will be taken up in private lands of farmer and community land and hence there would not be any land tenure or use right conflicts. The land ownership will verified during the FPIC of the individual farmer. For the community lands, the VDC will pass the resolution for the incorporation of lands in the project. The participants will sign the carbon rights agreement to transfer the rights of carbon to the project proponent. The participants will continue to hold the legal ownership of the land	OK
	Is there a risk that project activities will exacerbate any existing land tenure conflicts, or lead to land tenure or use right conflicts?		OK

		parcels and NTFP that will be generated from the project activity on their lands.	
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 2 – due to the nature of the project taking place on majority privately-owned and some community-owned lands, this risk is unlikely to occur. Estimated magnitude of risks (1-5) & justification: 2 – should this risk occur, it would have a relatively significant impact on a fairly small number of people. Risk significance: Moderate			
Risk of not accounting for climate change	Have trends in climate variability in the project areas been assessed and understood?	This has been covered above. Yes, the climate vulnerability has been discussed with the community. The project activities like plantation of native tree species and construction of water conservation structures are selected after discussion with the community which will help in reducing their vulnerability towards climate change.	OK
	Has the climate vulnerability of communities and particular social groups been assessed and understood?		
	Is there a risk that climate variability and changes might influence the effectiveness of project activities (e.g. undermine project-supported livelihood activities) or increase community exposure to climate variation and hazards? Consider floods, droughts, wildfires, landslides, cyclones, etc	The communities in the project area rely heavily on climate-sensitive sectors such as agriculture and horticulture. As a result, irregular rainfall and occasional droughts could potentially impact the effectiveness of project activities.	OK
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: 3 – the project has identified climate related risks well and aims to work against their negative impacts, however, the nature of the physical impact of climate change, particularly droughts, mean this risk remains likely. Estimated magnitude of risks (1-5) & justification: 2 – management and assessment of these risks and the nature of the project activities mean that, should it occur, it would have a limited impact on a low number of people. Risk significance: Moderate			
Other – e.g. cumulative impacts	Is there a risk that the project will contribute cumulatively to existing environmental or social risks or impacts, for example through introducing new	This has been covered above. Additionally, The positive outcomes of the project will mitigate the likelihood of social risk associated with the project. Here's how:	OK – thanks for your comments here!

	access restrictions in a landscape with existing restrictions and limited land availability?	**Community Engagement:** The project actively engages with the community throughout the planning and implementation stages, ensuring that their needs, concerns, and aspirations are taken into account.	
	Are there any other environmental and social risks worthy of note that are not covered by the topics and questions above?	**Job Creation:** By providing employment opportunities, to marginalized or economically disadvantaged community members, the project enhances social cohesion and economic stability. Access to dignified work can reduce social tensions and vulnerabilities, contributing to overall community well-being. **Ecosystem Benefits:** The environmental benefits generated by the project, such as improved air and water quality, habitat restoration, and climate change mitigation, directly contribute to community resilience and quality of life. Healthy ecosystems provide essential services and resources that support human livelihoods and social cohesion. Input and Grievance Redressal Mechanism: The project establishes transparent and accessible mechanisms for addressing grievances, or inputs that may arise during implementation. Clear communication channels and grievance redressal procedures ensure that issues are addressed promptly and effectively, minimizing the potential for social unrest or resentment. There will be no discrimination based on gender, caste, religion, social status, or creed which further helps in minimizing social risk.	OK
E&S reviewer conclusions Estimated likelihood of risks (1-5) & justification: N/A Estimated magnitude of risks (1-5) & justification: N/A Risk significance: N/A			
SECTION C: SAFEGUARD PROVISIONS			
Stakeholder engagement-2.1.1-2.1.3	Has a stakeholder analysis been conducted that has identified all stakeholders that could influence or be affected by the project, or is this still to be completed? Please describe.	Stakeholder analysis has been done and the roles and responsibilities have been chalked out for each of the stakeholder groups in the project (Refer Table 2.1).	OK
	Are the local community and indigenous peoples statutory or customary rights to	Yes, the rights of people over their land have been assessed. All the lands are private lands and community lands.	OK

	land or resources within the project area already clear and documented, or is further assessment required? Please describe.		
	Are local governance structures and decision-making processes described and understood (including details of the involvement of women and marginalized or vulnerable groups), or is further assessment required? Please describe.	The project clearly defines the role of the community, their institutions and also the local governance structures in the planning process and also implementation and monitoring of the project.	OK
	Are past or ongoing disputes over land or resources in the project area known and documented, or is there need for further assessment? Please describe.	There are no disputes over land and resources in the project area as of now.	OK
Stakeholder consultation-2.5.1-2.5.2	Does the project have a Stakeholder Engagement Plan with clear measures to engage Vulnerable Groups, or is this plan still to be developed? Please describe.	The stakeholder engagement plan is clearly documented and is part of the project. Throughout the entire crediting period, community members will be actively engaged in the project, starting with the election of the Village Development Committee (VDC). This foundational step ensures community representation and participation in decision-making processes. To facilitate project activities, Self-Help Groups (SHGs) have been identified to oversee seed collection and nursery establishment. Some nurseries have already been established, further expediting project implementation and ensuring continuity of efforts. Additionally, adjacent farmers are encouraged to form Farmer Producer Groups (FPGs), with 10-12 farmers per group. Some FPGs have already been formed, indicating proactive community involvement and collaboration in agricultural endeavors. To empower and involve youth in project implementation, Village Integrated Support Persons (VISP) are selected through interviews	OK – noted.

		conducted by the VDC. These VISPs, drawn from the local youth population, play integral roles in various project aspects. Further elaboration on the specific roles and responsibilities of each stakeholder group is detailed in Section 2.1 of the Project Idea Note (PIN).	
	Has the Project Coordinator informed all stakeholders of the project, through providing relevant project information in an accessible format, or does this still need to be completed? Please describe.	Yes, the project coordinator has held individual meetings with each stakeholder to brief them about the project. Once the project is launched, these sessions will be repeated in a more organised manner.	OK
Free, Prior and Informed Consent- 2.6.1-2.6.4	Has the project analysed and understood national and international requirements for Free Prior and Informed Consent (FPIC)? Please describe.	Yes, the project has informed of the FPIC (Free Prior and Informed Consent) requirements at the national and international levels. Gram Vikas consistently adheres to this practice, ensuring that the community is well- informed about any proposed initiatives and provides its consent. To ensure that community members possess comprehensive awareness and understanding of the FPIC process, the project incorporates training and capacity-building sessions into its schedule. This proactive approach emphasizes the importance of transparency and community involvement in decision-making processes.	OK – this section in the PDD is looking strong, thank you.
	Has the project identified potential FPIC rightsholders and potential representatives in local communities and among indigenous peoples, or is this still to be completed? Please describe.	The project has identified probable right holders and potential local community representatives. The team will hold meetings and training because the project includes four adjacent districts. There will be a standard signed agreement between Gram Vikas and the possible community leaders once the procedure is finished in every project location.	OK
	Has the project worked with rightsholders and representatives of local communities and indigenous peoples to understand the local decision-making process and timeline (ensuring involvement of women and vulnerable	Yes, the project works with right holders and representatives of local communities and indigenous peoples to understand the local decision-making process and timeline of the project activity. The project participants will be involved in this project throughout the crediting period. No, the project will not coincide with any other work that needs to be done surrounding marginalized groups, particularly to varying tribes in the project area.	OK

	groups), or is this still to be completed? Please describe.		
	Has the project sought consent from communities to 'consider the proposed Project', and if so, where is this in principle consent documented? Please describe.	Since the project is planned in private land of farmers and community land, the in-principal consent of the people has been taken.	OK
Grievance Mechanism-3.16.1	Does the project already have a Grievance Mechanism, or is this still to be established? Please describe. For projects with a GRM, is this accessible to project affected people? Please describe.	A grievance redressal mechanism is in place, ensuring a systematic resolution process for any identified grievances. Depending on the severity and nature of the issue, a hierarchical system is in place, involving VDC's, field staff and Project Manager. If anyone has any grievances or inputs from the community, they can inform the Village Development Committees (VDCs). The VDCs will then relay the information to Jalabandhu, who will, in turn, communicate it to the Thematic Manager of Gram Vikas. Subsequently, Gram Vikas will further discuss the matter with FCF India and C-GEM. Following thorough discussion, a general meeting will be organized with all the community members to address the potential ways of resolving the grievance or input. Upon mutual consent, the VDC will pass a resolution accordingly. By involving key stakeholders at various tiers of leadership, the organization demonstrates its commitment to addressing concerns comprehensively and promoting a culture of accountability and continuous improvement within the project framework.	OK

E&S reviewer conclusions for safeguard provisions

Are the project Safeguard Provisions adequately addressed, or to be adequately addressed during the project design phase? Yes

What additional actions need to be conducted during the project design phase? Just the sections required as part of the PDD itself.

Any other comments: N/A

SECTION D: SCREENING REPORT (E&S REVIEWER TO COMPLETE)	
Name of E&S reviewer	**Amelia Evans**
Date of E&S screening:	**06/06/25**

<table>
<tr><td>Project risk rating:</td><td>Moderate risk - The project does well to identify the relevant risks pertinent to the project and its' activities. Where risks are well-managed and appropriate safeguarding provisions are place, some risk factors still remain of a moderate rating. These include risks to vulnerable groups and indigenous peoples, by nature of the project participants and stakeholders involved in the project, risks to access restrictions as some project activities take place on community lands which are yet to be identified, as well as risks of climate change impacts within the project area.</td></tr>
<tr><td>Principle risks and impacts</td><td>
<table>
<tr><th>E&S topic/ risk area</th><th>Likelihood (1-5)</th><th>Magnitude (1-5)</th><th>Significance (low, moderate, severe, high)</th></tr>
<tr><td>Vulnerable Groups</td><td>2</td><td>3</td><td>Moderate</td></tr>
<tr><td>Gender equality</td><td>2</td><td>2</td><td>Low</td></tr>
<tr><td>Human Rights</td><td>1</td><td>4</td><td>Low</td></tr>
<tr><td>Community, Health, Safety & Security</td><td>2</td><td>2</td><td>Low</td></tr>
<tr><td>Labour and working conditions</td><td>2</td><td>2</td><td>Low</td></tr>
<tr><td>Resource efficiency, pollution, wastes, chemicals and GHG emissions</td><td>1</td><td>2</td><td>Low</td></tr>
<tr><td>Access restrictions and livelihoods</td><td>3</td><td>2</td><td>Moderate</td></tr>
<tr><td>Cultural heritage</td><td>1</td><td>2</td><td>Low</td></tr>
<tr><td>Indigenous Peoples</td><td>3</td><td>3</td><td>Moderate</td></tr>
<tr><td>Biodiversity and sustainable use of natural resources</td><td>1</td><td>1</td><td>Low</td></tr>
<tr><td>Land tenure conflicts</td><td>2</td><td>2</td><td>Low</td></tr>
<tr><td>Risk of not accounting for climate change</td><td>3</td><td>2</td><td>Moderate</td></tr>
<tr><td>Other – e.g. cumulative impacts</td><td>N/A</td><td>N/A</td><td>Low</td></tr>
</table>
</td></tr>
<tr><td>E&S assessment required</td><td>ESA, ESA report and ESMP should give extra consideration to the risks rated here as moderate. The initial and continued engagement and consultation with vulnerable groups and indigenous peoples (the project participants) should be made very clear and properly evidenced. The safeguarding provisions described above should be described in detail in the PDD and carried out thoroughly and systematically throughout the project period.</td></tr>
</table>

Annex 10 – Environmental and Social Assessment Report

1.Introduction

Purpose and Objective of the assessment

Environmental and social safeguard policies aim to uphold human rights and mitigate any unintended negative effects of projects. Properly managing these risks improves project sustainability, ensuring that initiatives support both communities and the environment while preventing harm.

Scope of the assessment

The ESA includes the in-field assessment of all potential negative environmental and social risks and impacts identified during the E&S screening of the project.

- **Aims and objectives of the assessment**

The Environmental and Social Assessment (ESA) seeks to confirm the findings of the E&S screening, conduct a deeper evaluation of identified risks and impacts, uncover any additional concerns, and develop a comprehensive strategy for managing these risks. Additionally, the ESA ensures compliance with safeguard policies, engages stakeholders in risk mitigation planning, and integrates adaptive measures to enhance project resilience.

Assessment Approach and methodology

Methodology

Sampling Strategy

The sample size will be determined using a stratified random sampling approach to ensure representation across various categories, including different demographic groups, geographic areas, selected species, and landholding sizes. The focus is on incorporating vulnerable households, including women, wage labourers, landless individuals, and small and marginal farmers. The key objective is to accurately identify and categorize households most at risk from environmental and social impacts. The sample will be distributed across all blocks and districts in the two states to ensure comprehensive coverage.

Methodology

Informant interviews were held with a range of stakeholders to ensure that communities were well-informed about the project's design, implementation, and the processes of monitoring, reporting, and verification (MRV). In addition, a series of consultations, focus group discussions, and participatory rural appraisals (PRAs) were organized for different stakeholder groups. These sessions also covered details about associated costs, potential risks, and the roles and responsibilities of all parties involved. To ensure inclusivity and transparency, all discussions were conducted in English, Hindi, and the local language, Odia.

Additionally, some photographs capturing these interactions and PRA techniques followed in the process have been added in Annex 4.

Assessment team

Name of the Professional	Years of Experience/ Area of expertise Educational qualification	Responsibilities in Project
Executive Director	Expertise in policy making, natural resource management, alternate energy disaster management, community institutions and organisational development with more than 26 years of experience	Ensures Planning of risk deduction strategies, implementing of sustainable resource strategies, promoting long-term sustainability practices
Thematic Manager	Expertise in civil engineering, data management, hydrogeology, natural resource management with more than 6 years of experience	Responsible of Program budget management, donor project deliverables, and quality control of thematic work on field
Junior Manager	More than 2 years of experience in Hydrogeology and natural resource management	Handling of Water Resource assessment, Hydrological Modelling, sustainable resource management
Thematic Coordinators	Skilled in spring shed/ watershed, water conservation, community mobilisation and plantation activity with more than 20 years of experience	Supervising spring shed/watershed management, planning and execution of plantation activities, capacity building of the local communities
Field Experts	Expertise in spring shed/ watershed, water conservation, community mobilisation and plantation activity	Responsible for planning of project activities with the communities, technical skill building and providers of the Jalabandhus. They also manages Springshed/ watershed and plantation activities and their linkages with carbon and livelihoods.
Technical Team	Technical skill building team	Planning of project activities with communities technical skill building, and Local service providers and also the management of Springshed/watershed and plantation activities
Administrative Team	Collaboration team	Complying with government laws and policies, collaborating with community institutiuons, and coordinating with government departments
Social Functions Team	Institution Building team	Establishing community institutions to support the development of rural communities and the

		sustainable management of natural resources.

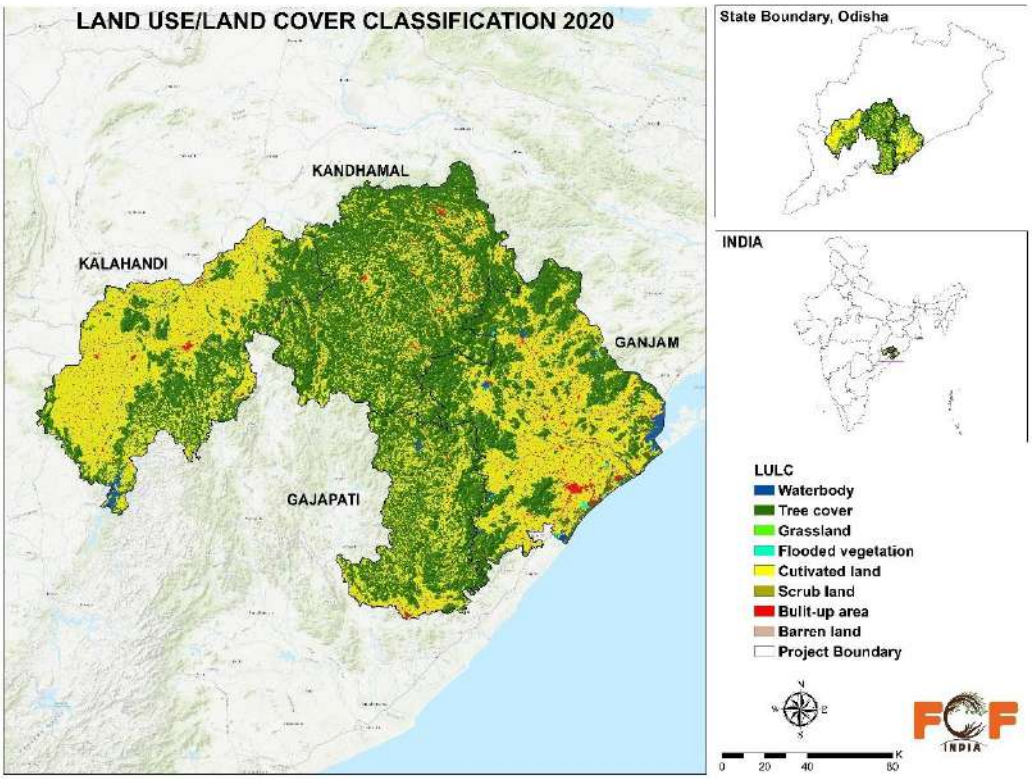
Assessment Schedule

Date	FCO	Village	District	Participants	Topics Covered
10-04-2023	Kumdabal	Sundijiba	Kalahandi	VDC and the Farmers	Vulnerable Groups, Livelihood, Climate Sensitivity, Gender Equality, Women Safety, Human Rights, Land Tenure and Ownership and Conflicts, Cultural Heritage, Indigenous people and Traditional rights
15-06-2024	Adri	Bafla	Kalahandi	VDC and the Farmers	
23-02-2023	Tumba	Tumba	Ganjam	VDC and the Farmers	
12-05-2025	Daringbadi	Satari	Kandhamal	VDC and the Farmers	
15-05-2025	Surda	Dibelopanka	Kandhamal	VDC and the Farmers	
26-09-2025	Rudapadar	Rampoo	Ganjam	VDC and the Farmers	
06-01-2024	Balliguda	Pakulada	Kandhamal	VDC and the Farmers	
03-08-2025	Koinpur	Kalinga	Gajapati	VDC, SHG and the Farmers	
11-11-2024	Mohna	Dabakua	Gajapati	VDC and the Farmers	
30-05-2024	Gumma	A. Labar	Gajapati	VDC and the Farmers	
25-10-2024	Kardasing	Khajuripadar	Gajapati	VDC and the Farmers	

Annex 11 – Land Management Plans

- **Land Management Plan: A Comprehensive Sourceshed Approach**
  The land management plan for the project follows a participatory and sourceshed-based approach, ensuring active involvement of farmers, Self-Help Groups (SHGs), Village Development Committees (VDCs), and Gram Vikas staff. The plan is designed to integrate eco-restoration, groundwater recharge, and land use optimisation in a holistic manner, prioritising the revival and rejuvenation of critical water sources identified by the community.

- **Location and extent of project area.**
  The Gram Vikas Project is situated in the state of Odisha, India, spanning four districts: Gajapati, Ganjam, Kalahandi, and Kandhamal. The project covers a total area of 3561 hectares, with the distribution as follows: 1567 hectares in Gajapati, 969 hectares in Ganjam, 385 hectares in Kalahandi, and 640 hectares in Kandhamal. This diverse landscape includes both privately owned lands and community lands, focusing on areas with significant environmental and livelihood potential. The project area was identified through focused community discussions at the village level and detailed field surveys.



- **Participatory Planning & Sourceshed Principles**

The process begins with community consultations and land assessment surveys to evaluate existing land use, soil erosion, and vegetation conditions. Using Focus Group Discussions (FGDs) and Participatory Rural Appraisal (PRA) techniques, communities identify priority areas for intervention. Planning for land patches aligns with Sourceshed Development (CSSD) principles, ensuring that interventions in both recharge and command areas contribute to groundwater sustainability and improved land productivity.

Draft land management plans are developed based on collected data and community input, detailing interventions, timelines, and required resources. These plans undergo a review process where community members provide feedback before finalisation. The VDC passes a resolution to ensure collective commitment and understanding. Implementation is closely monitored, with continuous training and support provided by the project team and VDCs.

- **Key Land Management Interventions**

1. Watershed-Based Land Development

- Slope Protection & Drainage Line Treatment: Prevents soil erosion and optimises water infiltration.
- Soil & Moisture Conservation Measures: Strengthens land productivity and supports groundwater recharge.
- Water Harvesting Structures: Ensures water retention in key areas for sustained agricultural use.

2. Tree-Based Land Use Planning

- Social Forestry in Recharge Areas: Focuses on community-owned uplands to enhance vegetation cover and improve infiltration.

- Agroforestry in Command Areas: Encourages tree-based farming in privately owned midlands to increase productivity while protecting soil.

3. Sustainable Plantation & Nursery Development
- Establishment of Nurseries as Enterprises: Provides saplings for afforestation and agroforestry, with skill-building support for local communities.
- Gap-Filling in Previously Planted Areas: Ensures continuity and survival of past afforestation efforts.

- **Designing Project Agreements**

After a detailed FPIC process and community driven planning process, a carbon rights agreement is signed between GV, GVCDF and the Individual farmer/ group of farmers who is/ are the project beneficiary. It has details such as name of the farmer/ group of farmers, type of land, plot number, identity proof of the farmer, details of the project and how the project participant can access the grievance mechanism, project period, benefit sharing mechanism, date of signing etc. It is done in the local language to maintain transparency.

The agreement includes:

- Farmer's Name/Group Name
- Land Type & Plot Number
- Identity Proof
- Project Details
- Grievance Mechanism
- Project Duration
- Benefit Sharing Mechanism
- Date of Signing

- **Management objectives**

The management objectives for the proposed project are centred on fostering sustainable development and improving the socio-economic conditions of the local communities. These objectives include:

1. **Enhancing Livelihoods**: Establishing carbon sinks by restoring 3561 hectares of barren and fallow croplands through the plantation of fruit-bearing and other native tree species to create sustainable livelihood opportunities.
2. **Biodiversity Conservation:** Promoting biodiversity by planting a variety of native tree species, which will support local ecosystems and wildlife habitats.
3. **Improved Land Management**: Constructing soil and water conservation structures for soil stabilization, sustainable agriculture and landslide management.
4. **Community Involvement:** Engaging local communities, especially women and socially excluded groups, in the planning and implementation processes to ensure that the project meets their needs and maximizes their benefits.
5. **Climate Change Mitigation**: Reducing greenhouse gas emissions by promoting agroforestry practices and improving land management, contributing to climate change mitigation efforts.
6. **Monitoring and Evaluation:** Establishing a robust system for monitoring and evaluating the project's progress and impact, ensuring that objectives are met and facilitating adaptive management practices.

- **Governance, Implementation, & Monitoring**

The VDC anchors governance and coordination, ensuring synergy between FPGs, SHGs, and other local stakeholders. Trained youth, known as Jala Bandhus, provide technical expertise in groundwater recharge and sourceshed conservation. Implementation follows a sourceshed approach, prioritising catchment treatments first, followed by command area interventions in multi-year plans, subject to written stakeholder commitments.

- **Use of GIS & Remote Sensing for Land Planning**

Remote Sensing and GIS technologies play a crucial role in identifying and delineating project areas. Land Use and Land Cover (LULC) maps are developed to highlight key land features, verified through ground-truthing exercises for accuracy. By integrating community-driven planning, sourceshed-based restoration, and sustainable agroforestry, this land management plan ensures the long-term resilience of water sources, land productivity, and ecological sustainability.

- **Evaluating Land Management**

The land management plan, developed with community participation, is carefully evaluated by GV and GVCDF teams to ensure environmental, economic, and social feasibility before finalizing agreements with farmers.

To collect and manage project data, Kobo Collect is used to gather information on land parcels and the socio-economic status of beneficiaries. This includes farmer details, land type, area, proposed plantation species, ownership documents, and GPS-tagged boundaries. The data is stored as Google Earth KML files, shapefiles, and Excel spreadsheets for accuracy and reference.

Land eligibility is verified to ensure:

- No native species were cleared in the last ten years
- Existing woody biomass does not exceed 10%
- Land ownership and rights are legally verified

The plantation model is designed to meet farmers' needs and is limited to barren private lands that have remained fallow, preventing displacement of existing activities or carbon stock losses. Beyond environmental benefits, the project will create sustainable assets, enabling farmers to earn additional income through crops such as Mango, Jackfruit, Amla, Litchi, Jamun, and Tamarind, improving their livelihoods.

Additionally, the total land area onboarded for this year cannot be specified at this stage, as the mapping and survey of land parcels are still in progress. However, a sample KML file representing the area onboarded so far can be provided upon request. Samples images of the land parcels onboarded within the project

Annex 12 – Project Agreements

Following an extensive Free, Prior, and Informed Consent (FPIC) process and community-driven planning, a carbon rights agreement is formally executed between GV, GVCDF and individual farmers or groups of farmers designated as project beneficiaries. This agreement includes essential details

such as the farmer's or group's name, plot number/Registration Number, farmer's identity proof, project specifics, access to grievance mechanisms, project duration, benefit-sharing mechanisms, signing date, and other relevant particulars.

The agreement is thoroughly drafted in the local language Odia, Hindi, and as well as English ensuring clarity and comprehension for stakeholders in Odisha. Through this agreement, stakeholders establish a mutually beneficial framework, fostering transparency, accountability, and equitable distribution of project benefits among all involved parties.

AGREEMENT FOR THE PLAN VIVO CERTIFICATES FROM EMPOWERING COMMUNITIES, ENRICHING PRIVATE AND COMMUNITY LANDS IN RURAL ODISHA, INDIA

'Plan Vivo Certificates' are environmental service certificates, independently issued by the Plan Vivo Foundation in accordance with the Plan Vivo Standard. Each Certificate represents the reduction or avoidance of one tonne of carbon dioxide (tCO_2) plus additional ecosystem and livelihood benefits.

Empowering communities, Enriching private and community lands in Rural Odisha, India project is a sustainable land-use project coordinated by **GRAM VIKAS and GRAM VIKAS COMMUNITY DEVELOPMENT FOUNDATION (GVCDF).** The project generates Plan Vivo Certificates through community-led afforestation, reforestation and revegetation (ARR) activities.

THE PARTIES:

FCF India Private Limited, a private company registered in India, having its office at B1/H3, Mohan Cooperative Industrial Estate, New Delhi, Delhi 110044 (hereinafter referred to as the "**Carbon Project Developer**" or "**PD**" or "**FCF India**")

Gram Vikas Community Development Foundation (GVCDF)., a company registered under Companies Act 2013 (18 of 2013) having its office at Ganesh Temple, Hillpatna, Ram Nagar, Berhampur - 760005 (hereinafter referred to as the "**Project Co-ordinator**" or "**GVCDF**")

Gram Vikas, registered under Societies Registration Act XXI of 1860, Government of Odisha having its office at Village- Narsinghpur, P.O- Mohuda, via Berhampur-760002, District- Ganjam, Odisha (hereinafter referred to as the "**Implementation Partner**" or "**Gram Vikas**")

Each shall be referred to as a "**Party**" respectively, and as the "**Parties**" collectively.

This carbon agreement is between GRAM VIKAS, GVCDF and the FARMER/Village Development Committee. The FARMER/Village Development Committee have legal rights on land as the land is legally transferred to the heirs from the head of the family. The FARMER/Village Development Committee agrees to transfer the carbon rights to GVCDF (hereinafter referred to as the "**PARTY**") where,

Individual Farmer/ Group of farmers _____

Location ("Village") _____

Land Type (X) □ Privately Owned
□ Leased

WHEREAS, GVCDF has an agreement with GRAM VIKAS who will plan, implement and monitor the project- "EMPOWERING COMMUNITIES, ENRICHING PRIVATE AND COMMUNITY LANDS IN RURAL ODISHA, INDIA" starting from 2021 for the initial period of 30 years and will be renewed for another 20 years by mutual consent. Gram Vikas is a community-based organisation that has been working for the last 40 years.

WHEREAS, the project aims to restore 3561 hectares of private and community lands and provide the environmental and social benefits through following interventions:

- Social Forestry: Plantations through social forestry aims to enhance green cover, sustain local biodiversity, creation of spaces for recreational activities for local communities and generate additional carbon sinks. Additionally, the plantations will help in prevention of soil erosion in the undulating and rocky terrain within the project area.
- Agro-forestry: Agro-forestry plantations will ensure access to produce from the trees to diversify sources of livelihoods of the beneficiaries.
- Water conservation structures: The structures will assist in the conservation of natural springsheds in the project area. The structures will ensure water availability in and around the project area by reducing surface water runoff and improve overall soil fertility.

There are long-term benefits like increase in the generation of ecosystem services in the region. The benefits including the amount accrued from the carbon project through sale of carbon credits will be shared in a minimum of 60:40 ratio with the community. The benefits accrued are not limited to but include:

- Support beneficiary with requisite infrastructure, tools and technology etc. to implement, maintain and monitor plantations during the entire project duration
- Provide technical training & build the capacity of beneficiaries on plantation management and shift in agroforestry practices
- Support in community development works such as public infrastructure, health, and education, preferably administered through village development committees
- Promoting other sustainable land management practices that can generate more carbon credits in the future and as mutually decided between GVCDF and the beneficiary
- Community-mobilization costs incurred by local FPGs, MSMEs, or NGOs, including beneficiary
- Direct payments to community institutions to be empowered and managed the project for long term.

The benefits shared with communities shall be decided upon by the project participants in regular community meetings and discussions.

WHEREAS the Farmer/ Group of Farmers agrees to the following:

- Farmer/ Group of Farmers will implement the best management practices advised by GVCDF, GV and FCF India.

- The best management practices may include, but are not limited to, maintenance of and all due care for the trees, reporting of damage or pest attack to the trees, nutrient management and other soil health practices.
- Farmer/ Group of Farmers, agrees not to do the following on the plantation site,
  i. Permit or engage in over-grazing,
  ii. Cutting of any plant/ trees,
  iii. wilfully or negligently allowing the plants/ trees to die and shall actively strive towards conserving the plants/trees/nature on the land.

- Farmer/ and VDC will ensure maintenance and permanence of the plantation with support from the GVCDF and GV for the initial period of 30 years and will be renewed for another 20 years by mutual consent.

WHEREAS the Farmer/Group of Farmers understand and agree to adhere to the Carbon Project requirements as discussed with GRAM VIKAS and GVCDF for the entire duration of the project. The FARMER/Group of FARMERS also consent(s) to any such information including personal information being used and/or being transferred by GVCDF in consultation with GRAM VIKAS to any other person for the purposes of this Agreement or the Project more generally, provided always that this is done in accordance with the applicable laws.

Grievance Mechanism:
GVCDF in consultation with GRAM VIKAS shall appoint an appropriate point of contact for dealing with any grievances relating to the project that the FARMER may have during the term.

In the event the FARMER/Group of FARMERS have a grievance relating to the project, the FARMER/Group of FARMERS shall first raise the issue with GVCDF through the aforesaid point of contact, who shall endeavour to resolve the FARMER's concern and document the grievance formally.

By signing below, the parties enter into a sale and purchase agreement for the Plan Vivo Certificates and on the following terms and conditions ('the Agreement').

SIGNATORY AUTHORITY

On behalf of the GVCDF

Signature: ----------

Name: ----------

Designation: ----------

Address: ----------

Date:

1. DEFINITIONS:

In this agreement:

(a) The '**Plan Vivo Foundation**' is the organisation that issues Plan Vivo Certificates and oversees Plan Vivo projects.

(b) '**Plan Vivo Carbon Standard (PV Climate)**' – The Standard used in Plan Vivo project design and implementation including the administrative and reporting practices that are in place.

2. TRANSFER OF TITLE

In lieu of the benefits mentioned, all rights and legal title to the Plan Vivo Certificates purchased under this Agreement will be transferred to GVCDF by the Beneficiary. The transaction shall not imply the transfer of any rights of ownership over the land, timber or agricultural produce where the project activities will take place. FCF India will have exclusive rights for the trading of Carbon Credits generated from this project. The participating beneficiaries will be entitled to all other tangible and intangible benefits, including increased crop yields, produce from the fruit bearing trees. The minimum of 60% of the benefits accrued from the selling of carbon credits will flow back to the communities at the time of actual issuance of the credits.

3. WARRANTIES

(a) GRAM VIKAS warrants to FCF India that, as at the date of signing of the Agreement:

i. The Certificates in this Agreement are not subject to any claim, encumbrance or action by any person or entity other than FCF India

ii. The land use activities in the project used to produce the Plan Vivo Certificates will be afforestation, reforestation and revegetation. The beneficiary will ensure maintenance and permanence of the plantation.

4. GENERAL:

a) This Agreement may not be amended or altered unless agreed in writing by the Parties.
b) In case of the change in the ownership of a land, the FARMER agrees to intimate Gram Vikas and GVCDF. Gram Vikas and GVCDF shall be responsible to contact the new owner/farmer and do the necessary Free, Prior and Informed Consent (FPIC). The new landowner shall have the liberty to elect their participation in the program. If the new farmer chooses to enrol in the project, Gram Vikas and GVCDF will be responsible to initiate their enrolment in the PV program. Additionally, they will secure the Carbon Rights Agreement to ensure that all legal obligations are met for the remaining project duration.
c) In case of the new farmer chooses not to participate in the programme, the land parcel will be removed and the project will not claim any PVC generated from that land parcel

d) The Farmer will maintain the plantations for a duration of the initial period of 30 years and will be renewed for another 20 years by mutual consentand will agree to execute all other activities as discussed with GVCDF and

GRAM VIKAS. All project activities will be closely monitored by GVCDF in consultation with GRAM VIKAS. In case of any loss in carbon stock within the project area due to natural disasters (e.g. forest fire or other natural disaster), the beneficiary will not be liable. The loss in carbon stocks will be accounted during the verification.

e) Except as expressly stated to the contrary, all notices and other communications required or permitted to be given under this Agreement shall be in writing and shall be delivered or transmitted to the intended recipient's address as specified above or such other address as either party may notify to the other for this purpose from time to time.

(d) If any term of this Agreement is found to be illegal, invalid or unenforceable under any applicable law, such terms shall, insofar as it severable from the remaining terms be deemed omitted from this Agreement and shall in no way affect the legality, validity or enforceability of its remaining terms.

5. DURATION:

This agreement shall come into force upon the date of signature and shall continue in force till the project period ends.

6. AMENDMENTS:

This Agreement may be modified or amended by written mutual consent of the parties. Consent is not to be unreasonably withheld or delayed.

ANNEXURE 1

Signed on behalf of Farmer/Group of Farmers:Details of Farmer/ Group of Farmers

Farmer Name	Aadhar No./ Identity No.	Village	Block	District	Signature

ANNEXURE 1

Signed on behalf of Village Development Committee:

Details of Village Development Committee

Name of the VDC	Name of the VDC member	Designation	Village	Block	District	Signature

Annex 13 – Monitoring Plan

The project has designed a robust monitoring plan to ensure that project activities are implemented as planned, and they effectively contribute to the project's goal. The plan will track indicators, assess outcomes, and identify any corrections required.

Monitoring Methodology

- Gram Vikas will conduct regular field surveys to monitor the health and survival rates of agroforestry and social forestry plantations.
- Kobo toolbox, a open source data collection application will be used for geotagging, mapping, and monitoring the extent of plantation areas and soil-moisture conservation structures.
- Biodiversity assessment will be conducted at every 10 years of the project crediting period to identify flora and fauna diversity.
- The involvement of the community in project activities will be monitored through records of participation in training, workshops, and meetings.

Progress Monitoring

Indicator	**Frequency of Assessment**	**Entity responsible for collecting and monitoring data**
Number of farmers and VDCs involved in the project. Area under project Number of pits dug Area under agroforestry plantation Number of agroforestry species planted	Annual	Gram Vikas and GVCDF team is responsible for the collecting and monitoring data. Field verification will be done by FCF India for a 10% random stratified sample on an annual basis.
Area under maintenance	Annual	

Number of capacity building programs held Number of participants attending the capacity building programs Number of Practical Field visits		
Number of households in the village engaged in tree planting activity Number of Pits dug Hectares of land treated with soil-moisture conservation measures Number of moisture conservation structures constructed	Annual	
Number of social forestry trees planted Area in hectare in existing plantation Number of structures constructed	Annual	
Number of community plans formally included in the GPDP. Number of women participated	Annual	

Carbon Monitoring

Carbon Indicator	**Means of Verification**	**Frequency of Assessment**	**Entity responsible for collecting and monitoring data**
Project Area (Ha)	The area designated for plantation will be clearly defined on the ground using GPS or geo-referenced remote sensing data. This delineation will encompass all polygons included in the project. Data collection will occur during each monitoring phase of the project.	Annual	Gram Vikas and FCF India

Number of Sample Plots	Number of sample plots will be calculated based on sampling approach.	At every verification	FCF India
Height of Tree (H)	The height of each tree within the sample plot will be measured using a clinometer, altimeter, or rangefinder. This data will be collected during each verification period.	At every verification	FCF India and Gram Vikas
Girth at breast height (GBH)	The Girth at Breast Height (GBH) of each tree within the sample plot will be measured using a measuring tape and recorded in centimeters. This measurement will be taken during each verification period.	At every verification	FCF India and Gram Vikas

Livelihood Monitoring

Livelihood Indicator	**Means of Verification**	**Frequency of Assessment**	**Entity responsible for collecting and monitoring data**
% increase in income of households as a result of project interventions	Income of 10% sample households will be taken at the start of the project and then every five years.	Every 10 years	FCF India and Gram Vikas
Increased access to high value horticulture and agriculture produces	Records of production data during harvest	Every 10 years	FCF India and Gram Vikas

Ecosystem Monitoring

Ecosystem Indicator	**Means of Verification**	**Frequency of Assessment**	**Entity responsible for collecting and monitoring data**
Tree Species richness in number	A biodiversity register will be maintained at the community level to record flora and fauna species richness in number.	Every 10 years	FCF India and Gram Vikas
Tree cover in %			
Fauna species richness in number			

A Rapid Biodiversity Assessment (RBA) was conducted at the project sites to prepare a baseline of the existing biodiversity of the plantation sites under the restoration program. A detailed report is available and will be shared on request.

RBA provides detailed information about the flora and fauna species in the project implementing area, their geographical importance, and threatening factors to the ecosystem and communities. Identification of the species level of flora and fauna and comparison of the same with the existing data and literature provides an excellent management plan for sustainable development (Biodiversity Assessment Report, 2020)

Annex 14 – Project Database

the project, a detailed information on land parcels and the socio-economic aspects of project participants is collected using Kobo Collect, a data collection tool. This tool captures essential data, including farmer details, land types, area coverage, species to be planted, land right documents, and geotagging of farm boundaries. The data also includes signed carbon rights agreements between Gram Vikas, GVCDF, and the project participants.

All socio-economic data and land details are systematically organized and can be downloaded and stored as Excel files, allowing for comprehensive analysis of the baseline scenario of the project participants. Other important documents, such as land right documents and carbon rights agreements, are downloadable in PDF format and securely stored in a designated drive.

Geotagging of farm boundaries:

The geotagging process involves the recording of each planting plot and track, which is then checked for eligibility criteria such as the non-clearing of native species in the past ten years and the presence of no more than 10% woody biomass. All project activities demonstrate clear ownership and rights through validated land titles or other evidence.

Furthermore, all project-related documents, including the Project Design Document (PDD), Emission Reduction Report (ERR), Operational Plan, Socio-economic Survey, Local Stakeholder Consultation (LSC) report, Land Right Documents, Carbon Rights Agreements, Project Agreements, project-related pictures, communication materials, and presentations, are meticulously organized and stored in a dedicated folder under the project's name in the drive managed by FCF India.

Annex 15 – Letter of Approval

Gram Vikas Rudhapadar Project,
At/Po, Gayaganda
Via Kullada, District Ganjam - 761131
Odisha, India
Phone: +91 9124093124
Email: Ghumusur@gramvikas.org

Gram Vikas

Letter No. GV/RDP/2023-24

Date: 06 February 2024

To,
The Block Development Officer,
Block – Jagannathprasad,
District - Ganjam, Odisha.

Subject: Request for support and acknowledgement for the project for rehabilitation of private lands and common lands to address Water and livelihoods security as well as climate change in the Jagannathprasad block of Ganjam District in Odisha.

Dear Sir,

Greetings from Gram Vikas. Gram Vikas is a community development organization working in Odisha and Jharkhand since 1979. We work with rural communities to help them lead a dignified life by building capacities, strengthening community institutions, and mobilizing resources. We focus on issues around water, livelihoods, sanitation & hygiene, habitat & technologies, education and mitigating effects of natural disasters. Between 1995 and 2022, we have worked with more than 80,000 households in 1400+ villages across Odisha and Gumla district of Jharkhand.

We are developing a project in the Jagannathprasad block that aims at rehabilitation of private and common lands of the vulnerable communities. The project is spread over twelve blocks in five districts of Odisha. The goal is to restore the barren and degraded uplands through plantation and soil and water conservation activities. The project also aims at reducing carbon emissions from the plantations as one of the components of the project. Gram Vikas has worked with the communities in the region for 45 years.

We would be very happy to share with you the activities and roadmap of the project. If you can let us know a date and time for the meeting, we will be happy to receive input from you.

Received 16/2/24

Sincerely,

Jaison Jose Thomas,
District Manager – Ghumusur District
District Manager
Ghumusur, Gramvikas

GRAM VIKAS
At- Behind Stadium, Parlekhamundi, Kalahandi (Odisha) 761212
Phone: +91 7609077411, E-mail: gajapati@gramvikas.org
Web: www.gramvikas.org
Head Office - Plot 672, B Forest Park, Bhubaneswar - 751009, Odisha, India

Letter No. GV/Gaj/2023-24 Date: 05 January, 2024

09.02.2024

To,
Block Development Officer,
Block - Mohana
District - Gajapati, Odisha

Sub: Request for support and acknowledgement for the project for rehabilitation of private lands and common lands to address Water and livelihoods security as well as climate change in the Mohana block of Gajapati District in Odisha.

Madam / Sir,

Greetings from Gram Vikas.
Gram Vikas is a community development organization working in Odisha and Jharkhand since 1979. We work with rural communities to help them lead a dignified life by building capacities, strengthening community institutions and mobilising resources. We focus on issues around water, livelihoods, sanitation & hygiene, habitat & technologies, education and mitigating effects of natural disasters. Between 1995 and 2022, we have worked with more than 80,000 households in 1400+ villages across Odisha and Gumla district of Jharkhand.

We are developing a project in the Mohana block that aims at rehabilitation of private and common lands of the vulnerable communities. The project is spread over twelve blocks in five districts of Odisha. The goal is to restore the barren and degraded uplands through plantation and soil and water conservation activities. The project also aims at reducing carbon emissions from the plantations as one of the components of the project. Gram Vikas has worked with the communities in the region for 19 years.

We would be very happy to share with you the activities and roadmap of the project. If you can let us know a date and time for the meeting, we will be happy to receive inputs from you.

Sincerely,

Jobin Chacko
(District Manager, Gajapati)

Annex 16 – Financial Plan

A detailed and realistic financial plan has been developed, and the project is currently in discussions with prospective investors. These investors have demonstrated a favourable interest in the project, are well-informed about the benefit-sharing mechanism associated with Plan Vivo Certificates and have consistently expressed ongoing interest. The financial plan is a confidential document and cannot be shared publicly. FCF India can share the financial plan.

Annex 17 – Local Stakeholder Consultation

Background

The consultations were designed to give stakeholders a thorough understanding of the project, while also providing a platform for gathering their insights, feedback, and suggestions. Key topics such as project activities, geographic scope, partnership opportunities, and community-specific needs were discussed. The feedback received was carefully incorporated into the final project design to ensure it aligns with local priorities and expectations.

The process involved not only community members but also a range of other stakeholders, including Sarpanch representatives, government officials, journalists, and village leaders. Stakeholders were informed well in advance through an invitation letter, which included a non-technical summary of the consultation.

These local stakeholder consultations were carried out in accordance with the Plan Vivo methodology, which is part of the certification process for projects generating carbon credits aimed at addressing climate change. The consultations ensure the project meets the criteria of the Plan Vivo Standard, certifying the project's capacity to reduce greenhouse gases and produce carbon credits with significant climate impact.

Process followed in conducting the LSC

While the stakeholders and the location are different in each consultation, a specific pattern is followed in each. The ground work of finalizing the date and venue of the LSC, list of stakeholders, extending invitation and informing them about the consultation in advance and mobilizing them to participate in the event is done by the implementing organization Gram Vikas and the facilitation of the consultation including the support for invitation letter, non-technical summary, other communication materials like banners, feedback form, registration form etc. is done by Fair Climate Fund(FCF) India along with the implementing organization which supports with the local language as and when required.

A detailed Power Point Presentation is also prepared by FCF India including the following details:

- Purpose of the LSC Meeting
- Project Summary
- Introduction to Stakeholders
- Technical Details
- Plan Vivo Project Cycle
- Risks-Potential Negative Impacts
- Potential Positive Impacts
- Sustainability Monitoring
- Continuous Input and Grievance Mechanism
- Q&A/ Clarifications

Initiation of the meeting

The meeting begins with a warm welcome address delivered by the Gram Vikas team. A representative from Gram Vikas greets the stakeholders and outlines the objectives of the gathering. They provide a concise introduction to Gram Vikas and the Gram Vikas Community Development Foundation (GVCDF), highlighting their efforts to enhance the quality of life in rural Odisha through various developmental initiatives.

Following this, representatives from Fair Climate Fund (FCF) India introduce themselves and the organization. They offer an overview of the Local Stakeholder Consultation (LSC), explaining its purpose and emphasizing that the meeting aims to discuss key aspects related to the project and gather valuable insights from stakeholders.

- Rationale of the carbon project
- Role of different entities including Gram Vikas, GVCDF, C-GEM & Fair Climate Fund India
- Importance of plantation of indigenous tree species under the project
- Projects activities and implementation approach
- Feedback and suggestions from local stakeholders for including in the design of the project if required

Participant details are recorded using a Attendance form, which captures their name, address, gender, and Occupation, whether it be a community institution, farmer, government department, or any other organization. Additionally, participants are asked to provide their signatures or thumb impressions to confirm their attendance.

Date	District	Gram Panchayat	Participants	Stakeholders	Overall Feedback
07th November, 2024	Kandhamal	Danikbadi	96	Farmers, members of Village Development Committee, Sarpanch of the Gram Panchayat, SHGS, JB, VISP, Gram Vikas, FCF India, C-GEM and GVCDF.	The project will help in reducing air pollution, provide additional income, improve the health and well-being of the people, improve the soil quality and ground water level, improve the biodiversity of the area, reverse climate change impacts in the long run. Additionally, it will promote biodiversity conservation and contribute to long-term climate change mitigation. Provision for irrigation and fencing to be included in the project.
08th November, 2024	Kandhamal	Siangbali	65		
09th November, 2024	Ganjam	Gochha	124		

Proceedings of the Local Stakeholder Consultation

In all the locations, a detailed presentation and discussion were done including the project context, impacts of climate change, project objectives, project summary and activities, project stakeholders, carbon project cycle, contribution to SDGs etc. were discussed in detail and their feedback was taken. The representatives of FCF India opened the discussion by addressing climate anomalies and uncertainties arising from the climate crisis and global warming. They engaged the participants in sharing their observations on the impacts of climate change over the past decade. Participants highlighted issues such as untimely rains, recurring droughts and floods, loss of vegetation cover, extinction of various bird, animal, and insect species, and declining crop productivity due to topsoil erosion and soil degradation from chemical fertilizers.

The project area was then introduced to the participants, along with a map that clearly outlined the project boundaries. The locations of all the districts in Odisha were highlighted on the map and thoroughly explained about the boundaries that will be under the project area.

This interactive discussion effectively set the context and established the rationale for the carbon project, emphasizing the urgent need for interventions to address these pressing environmental challenges.

After setting the project context, FCF team re-iterated the objectives of the project as follows:

• Establish carbon sinks to sequester Green House Gases

• Improve soil quality through the adoption of soil and moisture conservation practices

• Develop additional sources of livelihoods through promotion of intercrops and fruit-bearing trees

The area where the project will be taken up was then shared along with the map, clearly stating the project boundary.

Thereafter, a brief summary of the project was given, and project activities were discussed with the participants.

Brief Summary of the Project:

Project Title:	**Empowering Communities, Enriching Private and Community lands in Rural Odisha**
Location:	Country: India State: Odisha District: Gajapati, Ganjam, Kalahandi, Kandhamal,
Project Coordinator:	Name & Designation: Liby T Johnson, Executive Director, Gram Vikas Community Development Foundation, Phone number: +91 94465 15053, Address: GVCDF, Opp. Ganesh Temple, Hillpatna, Ram Nagar, Berhampur - 760005 India Email address: liby@gramvikas.org
Project Intervention(s):	Following is the segregation of the project activity: • Restoration - Undertaking Agroforestry plantations on privately owned land by planting fruit-bearing species to improve the livelihood of the local beneficiaries. • Restoration - Undertaking social-forestry plantations on community lands to provide benefits like establishment of carbon sink by increasing the

	green cover, regulation in micro-climate and improvement in soil and water resources. • Conservation –Improved Land Management by construction of soil and moisture conservation structures such as stone bunds and contour trenches for soil stabilization, sustainable agriculture, and landslide management.
Project Participants:	Approximately a total of 6000 farmers (private lands) with an average land holding of 0.4 Ha and several community lands will be covered under the project. The project area aims to include 3561 hectares of land in Gajapati, Ganjam, Kalahandi and Kandhamal, districts of Odisha. Project participants will be smallholder farmers largely belonging to Khond and Saora tribes of Odisha and Gram Panchayat/village council that are owners of community lands.
Project Area:	Total proposed project area – 3561 ha District wise distribution: Gajapati – 1567 ha Ganjam – 969 ha Kalahandi – 385 ha Kandhamal – 640 ha
Project Period:	30 years
Methodology:	The Plan Vivo methodology PM001, Agriculture and Forestry Carbon Benefit Assessment Methodology, V1.0 is being used to quantify the emission reduction for the development of project.
Expected Carbon Benefit:	The project is proposed to remove 19,68,351 tCO2eq from the atmosphere over the course of 30 years.

The FCF team also described the projected positive impacts on the ecosystem some of them are mentioned below:

a) Carbon Benefit

The Project initiative focuses on capturing atmospheric carbon to support climate change mitigation. Agroforestry and social forestry plantations play a key role in reducing greenhouse gas concentrations, contributing to a healthier environment while promoting stability and sustainability for crops and ecosystems. Transformation of the barren land into carbon sink that actively absorb and store carbon dioxide which eventually help regulate microclimates, conserve topsoil, reduce erosion, and improve water resource management.

b) Livelihood Benefit[108]

A total of 100 day of Employment has been generated through MGNREGA for all the participating households for the plantation which will supports tribal livelihoods through NTFP income, enhances food security. Through fruit-bearing, community will be benefitted from the consumption and as well as selling of fruits ensuring a sustainable source of income. Additionally participating households will benefit grom an additional income stream generated through carbon revenue. The plantations generate local employment, improve skills, and contribute to better soil fertility and water retention, positively impacting agricultural productivity. It improves skills, boosts soil fertility, and aids water retention, increasing agricultural productivity for farmers.

[108] https://www.sciencedirect.com/science/article/pii/S2666660X22000330

c) Ecosystem Benefit

The afforestation and reforestation initiative will enhance resilience by introducing a variety of native tree species, thereby promoting biodiversity and creating habitats for a wide range of plants, animals, and microorganisms. Additionally, the initiative will improve soil health through the enrichment of organic matter, enhanced nutrient cycling, and increased microbial activity, benefiting both the forests and adjacent farmlands. This integrated approach will support soil and water management, strengthen biodiversity, and foster community resilience, all while improving the overall health of the ecosystem. Furthermore, the project will contribute to the enhancement of the surrounding biodiversity, including both flora and fauna.

A comprehensive discussion was conducted on carbon sequestration and the potential carbon credits to be generated by the project. Participants were informed about the projected total carbon credits, the average credits per hectare per year, and the methodology for calculating these values annually based on the tree species and the project's overall duration. The monitoring and verification processes required for credit issuance were explained, along with the benefit-sharing mechanism designed to ensure equitable distribution among stakeholders.

The FCF India team presented the life cycle of the Plan Vivo carbon project. This included steps such as selecting a methodology and standard, PIN development and listing the project, undergoing validation and registration, verifying emission reductions, and ultimately issuing Plan Vivo Certificates (PVCs).

Participants were then asked to share their perspectives on potential negative and positive impacts of the project. Most participants reported no anticipated negative impacts. Instead, they highlighted several positive outcomes, including enhanced biodiversity, increased income from horticulture, as well as the environmental benefits of improved oxygen levels and carbon sequestration.

The discussion then transitioned to the Sustainable Development Goals (SDGs), with each goal explained to the participants. They were encouraged to identify how the project aligns with and contributes to these goals. The participants successfully connected the project to several SDGs, providing insights into how it would foster environmental, social, and economic sustainability. They could relate to the goals and also explain how the project will contribute to some of them as follows:

Goal 1- No Poverty

A total of 100 days of employment have been created for all participating households under MGNREGA to support the plantation activities, providing a crucial boost to tribal livelihoods. This initiative not only enhances food security but also offers the community dual benefits from fruit-bearing trees—both for personal consumption and for generating income through the sale of fruits, ensuring a sustainable livelihood source. Furthermore, participating households will gain an additional income stream through revenue generated from carbon credits.

Goal 2 – Zero Hunger

As one of the objective is restoration of barren farmlands by planting of the agroforestry tree species farmers can either consume or sell these produce, thereby enhancing their food security and generating additional income, thus improving their livelihoods.

Goal 3- Good Health and Well-being

All these plantations are responsible to increase green cover which eventually create maximum carbon sink from the atmosphere, reducing greenhouse gases in the atmosphere. By improving air quality, regulating local climates, and supporting biodiversity. Enhanced greenery and a healthier environment help reduce respiratory illnesses, promote mental well-being, and ensure access to ecosystem services that support healthier, more resilient communities.

Goal 5- Gender Quality

The VDC's promotes to have 1:1 (male:female) gender ratio, and the SHG's comprises of women's only. Women are actively involved in the project activities leading to their empowerment and a key participant in the decision-making process. Self Help Group has been created especially for the establishment of the Nurseries. A number of meetings and capacity building programme have initiated especially for the tribal women.

Goal 13- Climate Action

The plantations taken up under the project shall sequester Greenhouse gases like CO2, methane to regulate climate. Moreover, it will also check the surface run-off, reducing soil erosion and recharging ground water during the life of the project and even beyond that.

Goal 15- Life on Land
This projects aims to maximise the surrounding biodiversity including flora and fauna. By planting native and diverse species, they help sustain balanced ecosystems that are more resilient to environmental changes.

The contact details of Mr. Anurag Sharma, Thematic Manger, Gram Vikas has been shared with all the present stakeholders for approaching him in case of any input or grievances.

In addition to the comments/ suggestions provided by the participants during the interactive sessions, a formal Feedback was also taken from them in a feedback form having the following details:

- Name
- Gender
- What is your impression of the LSC Meeting?
- What are the benefits that you see from the project?
- What are your concerns about this project?
- Signature

At the end, the FCF India team and Gram Vikas team thanked the participants for their valuable time and requested them for their full-fledged participation in the implementation and monitoring of the project.


Gram Vikas C-GEM PLAN VIVO FCF INDIA

Gram Vikas, in partnership with FCF India, C-GEM and GVCDF, invites all interested persons to attend the local stakeholder meeting for "Empowering Communities, Enriching Private and Community Lands in Rural Odisha" at **Danekbadi (7th Nov. 2 P.M.), Siangbali (8th Nov. 10 A.M. onwards) and Goccha (9th Nov. 9 A.M.) GP Headquarters**.

ଗ୍ରାମ ବିକାଶ, FCF India, C-GEM ଏବଂ GVCDF ସହ ସହଭାଗିତାରେ, ସମସ୍ତ ଇଚ୍ଛୁକ ବ୍ୟକ୍ତିଙ୍କୁ ଓଡ଼ିଶାର ଗ୍ରାମୀଣ ଅଞ୍ଚଳରେ ''ସମୁଦାୟମାନଙ୍କୁ ସଶକ୍ତ କରିବା, ବ୍ୟକ୍ତିଗତ ଏବଂ ସାମୁଦାୟିକ ଭୂମିକୁ ସମୃଦ୍ଧ କରିବା'' ପାଇଁ ସ୍ଥାନୀୟ ଷ୍ଟେକହୋଲ୍ଡର ସଭାରେ ଯୋଗଦାନ କରିବା ପାଇଁ ଆମନ୍ତ୍ରଣ କରୁଛି। ଏହି ସଭା ଦାନେକବାଡ଼ି ଗ୍ରାମ ପଞ୍ଚାୟତ ମୁଖ୍ୟାଳୟରେ (୭ ନଭେମ୍ବର ବେଳୁକୁ ୨ଟା), ସିଆଙ୍ଗବାଳିରେ (୮ ନଭେମ୍ବର ସକାଳ ୧୦ଟାରୁ) ଏବଂ ଗୋଚ୍ଛାରେ (୯ ନଭେମ୍ବର ସକାଳ ୯ଟା)ରେ ଆୟୋଜିତ ହେବ।

Figure: Newspaper Advertisement

Sample Copy of Invitations for the LSC are attached below:

Kandhamal District Office
At : Patakhandasahi, Near Bajaj Showroom
Po/Via : Baliguda
Dist. : Kandhamal - 762103
Mobile : +91 9438414558 / +91 8280796877
Email : kandhamal@gramvikas.org
Web : www.gramvikas.org

Gram Vikas

Letter No. Gv/Govt/139/24-25 Date: 05/11/2024

To
The Block development officer
Daringibadi, Kandhamal
Subject: Invitation to the Local Stakeholder Consultation Meeting for the Carbon Project by Gram Vikas
Dear Madam / Sir,
Warm greetings from Gram Vikas.
We are pleased to invite you to participate in the upcoming Local Stakeholder Consultation Meeting for a new Carbon Project being implemented by Gram Vikas. Gram Vikas has worked with rural communities across Odisha and Jharkhand since 1979, empowering them through capacity building, strengthening community institutions, and mobilizing resources. Our focus spans across critical areas such as water, sanitation, livelihoods, habitat & technology, education, and disaster resilience. Between 1995 and 2022, we have positively impacted over 80,000 households across 1,400+ villages.

This new project, developed in partnership with Fair Climate Fund India Pvt. Ltd., the Centre for Grower Centric Eco-Value Mechanisms, and the Gram Vikas Community Development Fund, aims to rehabilitate private and community lands in Daringbadi block and eleven others across five districts in Odisha. Our goals include restoring barren and degraded uplands through plantation, soil, and water conservation activities while creating a steady revenue stream for communities engaged in social and agroforestry practices. The project also focuses on reducing carbon emissions from these new forested areas.

The Local Stakeholder Consultation meeting will be held on November 7, 2024, at Danekbadi village (headquarters of Danekbadi Gram Panchayat) and Singbali Nov-08,2024. This meeting provides an opportunity for you to learn about the project details and to share your valuable insights on how this initiative can be more impactful for diverse stakeholders.

We look forward to your participation in this meeting and hearing your perspectives on this vital project. Should you prefer to join virtually, we will share the web link upon confirmation of your attendance. For any queries, please feel free to contact Sachin Rchilla at srohilla@fcfindia.in or Anurag Sharma at anurag@gramvikas.org.
Thank you for your time, and we hope to have your support in making this project a success.

Sincerely

District Manager
Gram Vikas Kandhamal

District Manager
GRAM VIKAS
Baliguda, Kandhamal

Received 7/11/24.

Figure: Invitation to Block Development Officer

Kandhamal District Office
At : Patakhandasahi, Near Bajaj Showroom
Po/Via : Baliguda
Dist. : Kandhamal - 762103
Mobile : +91 9438414558 / +91 8280796877
Email : kandhamal@gramvikas.org
Web : www.gramvikas.org

Gram Vikas

Letter No. Gv/Govt/[illegible]/24-25 Date: 05/11/2024

To
The Sarapancha,Singbali GP
Daringibadi, Kandhamal
Subject: Invitation to the Local Stakeholder Consultation Meeting for the Carbon Project by Gram Vikas
Dear Madam / Sir,
Warm greetings from Gram Vikas.
We are pleased to invite you to participate in the upcoming Local Stakeholder Consultation Meeting for a new Carbon Project being implemented by Gram Vikas. Gram Vikas has worked with rural communities across Odisha and Jharkhand since 1979, empowering them through capacity building, strengthening community institutions, and mobilizing resources. Our focus spans across critical areas such as water, sanitation, livelihoods, habitat & technology, education, and disaster resilience. Between 1995 and 2022, we have positively impacted over 80,000 households across 1,400+ villages.

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Thank you for your time, and we hope to have your support in making this project a success.

Sincerely

District Manager
Gram Vikas-Kandhamal

Received by Singbali Sarapancha

Figure: Invitation to Sarpanch

Kandhamal District Office
At : Patakhandasahi, Near Bajaj Showroom
Po/Via : Baliguda
Dist. : Kandhamal - 762103
Mobile : +91 9438414558 / +91 8280796877
Email : kandhamal@gramvikas.org
Web : www.gramvikas.org

Gram Vikas

Letter No. Gv/Govt/141/24-25 Date: 05/11/2024

To
The Sarapancha,Dankebadi GP
Daringibadi, Kandhamal
Subject: Invitation to the Local Stakeholder Consultation Meeting for the Carbon Project by Gram Vikas
Dear Madam / Sir,
Warm greetings from Gram Vikas.
We are pleased to invite you to participate in the upcoming Local Stakeholder Consultation Meeting for a new Carbon Project being implemented by Gram Vikas. Gram Vikas has worked with rural communities across Odisha and Jharkhand since 1979, empowering them through capacity building, strengthening community institutions, and mobilizing resources. Our focus spans across critical areas such as water, sanitation, livelihoods, habitat & technology, education, and disaster resilience. Between 1995 and 2022, we have positively impacted over 80,000 households across 1,400+ villages.

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Thank you for your time, and we hope to have your support in making this project a success.

Sincerely

District Manager
Gram Vikas-Kandhamal

District Manager
GRAM VIKAS
Baliguda, Kandhamal

Received
Sarapanch
Naraya Pradhan
05/11/24

Figure : Invitation to Sarpanch

Sample Attendance Sheets from LSC conducted at Kandhamal and Ganjam, Odisha

"Local Stakeholder Consultation- Empowering communities, Enriching private and community lands in Rural Odisha"

Date: 07/11/2024

Attendance Sheet

S. No	Name of the Participant	Designation/ Profession	Village	Gram Panchayat/ Block	District	Signature
1.	Madhaba Pradhan	Members	Mandebadi	Danek badi	Kandhamala	
2.	Thomas Pradhan	VDC VISP	Sripakali	"	Kandhamal	
3.	Pramada Pradhan	Members	Sri Pakali	"	"	
4.	Kanta Pradhan	Members	Sri Pakali	"	"	
5.	Rabi Pradhan	Members	Sri Pakali	"	"	
6.	Jakia Pradhan	Members	Sri Pakali	"	"	
7.	Nanina Pradhan	Members	Sri Pakali	"	"	
8.	Sumanta Pradhan	Members	Sri Pakali	"	"	

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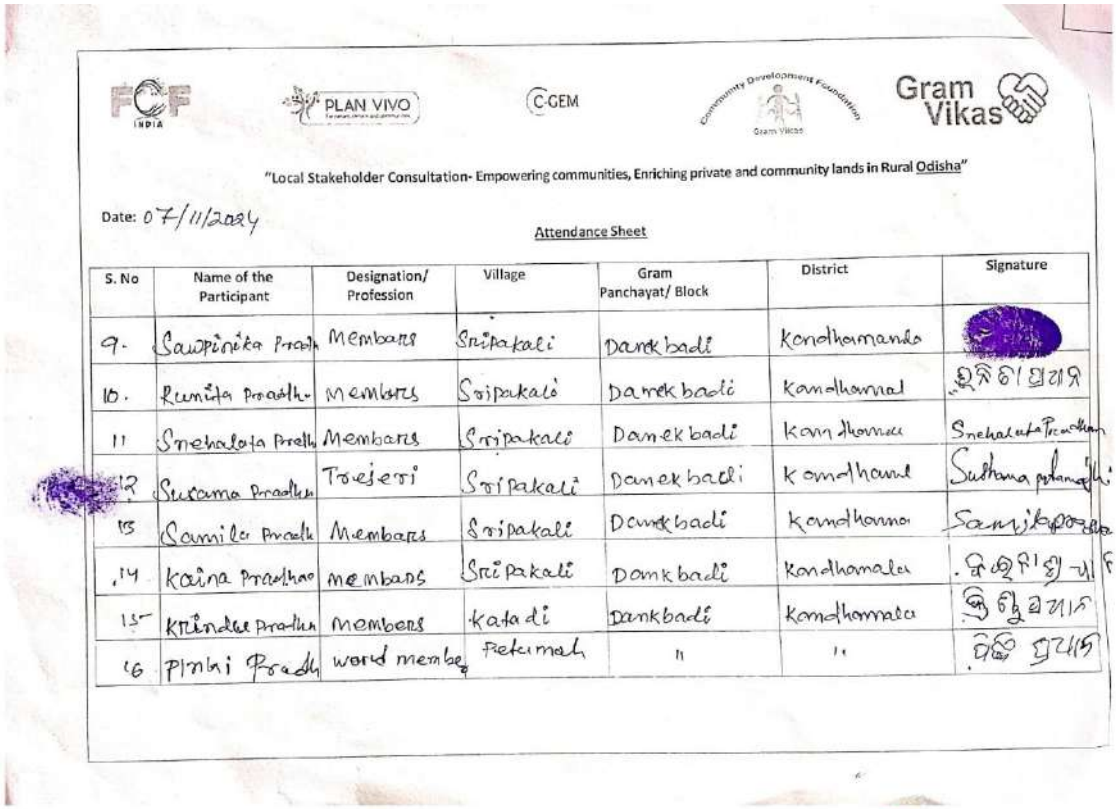

"Local Stakeholder Consultation- Empowering communities, Enriching private and community lands in Rural Odisha"

Date: 07/11/2024

Attendance Sheet

S. No	Name of the Participant	Designation/ Profession	Village	Gram Panchayat/ Block	District	Signature
9.	Sampinika Pradhan	Members	Sripakali	Danek badi	Kandhamanda	
10.	Rumita Pradhan	Members	Sripakali	Danek badi	Kandhamal	
11	Snehalata Pradhan	Members	Sripakali	Danek badi	Kandhamal	
12	Susama Pradhan	Treasurer	Sripakali	Danek badi	Kandhamal	
13	Samika Pradhan	Members	Sripakali	Danek badi	Kandhamal	
14	Kaina Pradhan	members	Sri Pakali	Danek badi	Kandhamala	
15	Krindra Pradhan	members	Kata di	Dankbadi	Kandhamala	
16	Pinki Pradhan	ward member	Ketumah	"	"	

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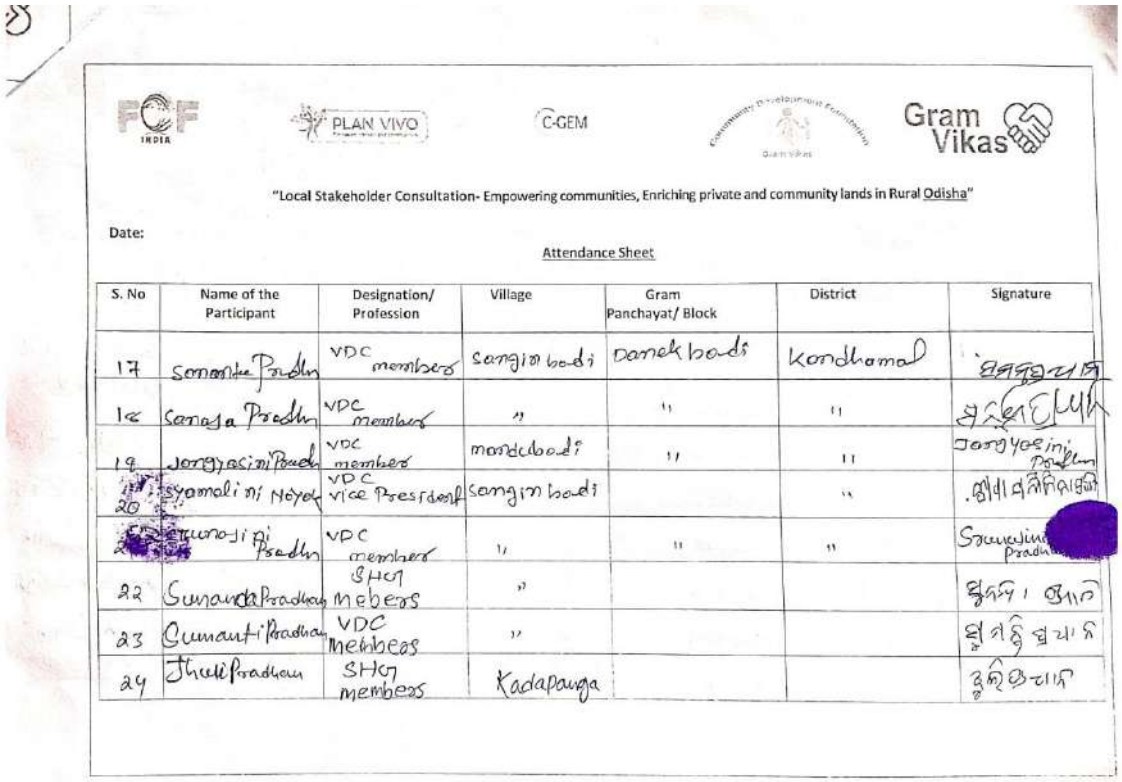
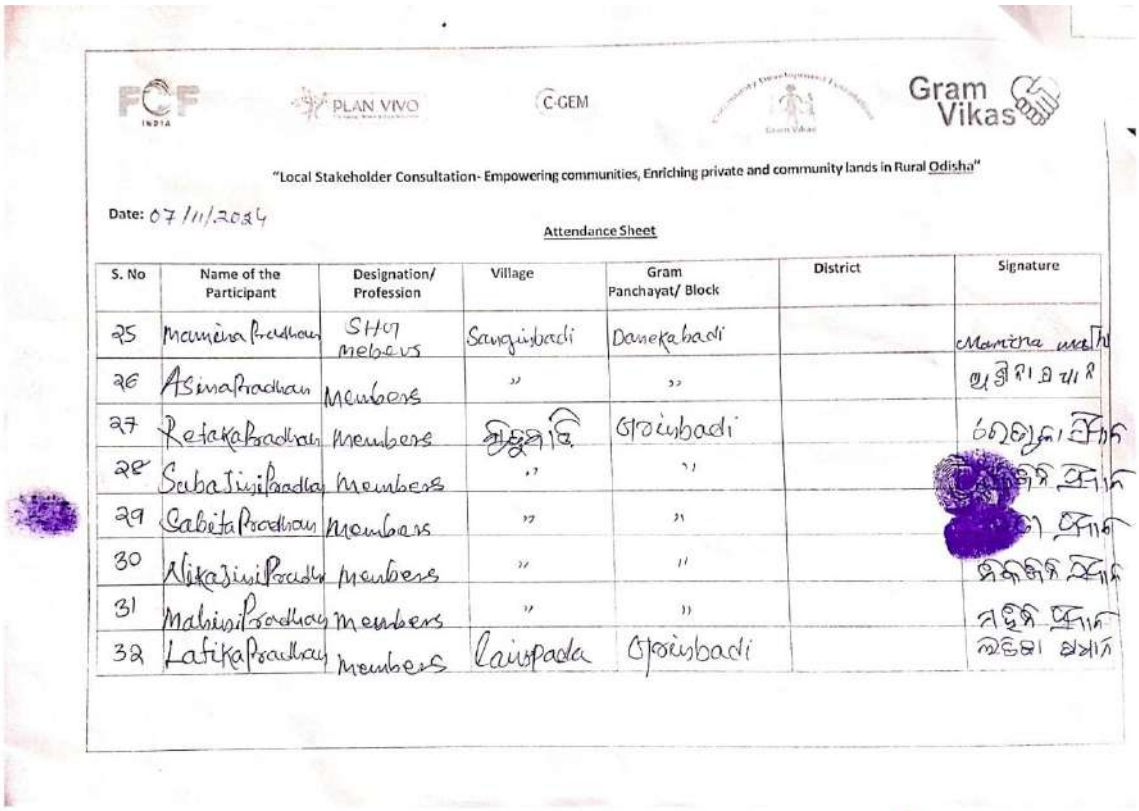


"Local Stakeholder Consultation- Empowering communities, Enriching private and community lands in Rural Odisha"

Date:

Attendance Sheet

S. No	Name of the Participant	Designation/ Profession	Village	Gram Panchayat/ Block	District	Signature
17	Somanta Pradhan	VDC members	Sangimbadi	Danekabadi	Kandhamal	
18	Sanaja Pradhan	VDC member	"	"	"	
19	Jangyasini Pradhan	VDC member	Mandabadi	"	"	
20	Syamalini Nayak	VDC vice President	Sangimbadi		"	
21	[redacted]	VDC member	"	"	"	
22	Sunanda Pradhan	SHG Mebers	"			
23	Sumanti Pradhan	VDC Mebbers	"			
24	Jhuli Pradhan	SHG members	Kadapanga			

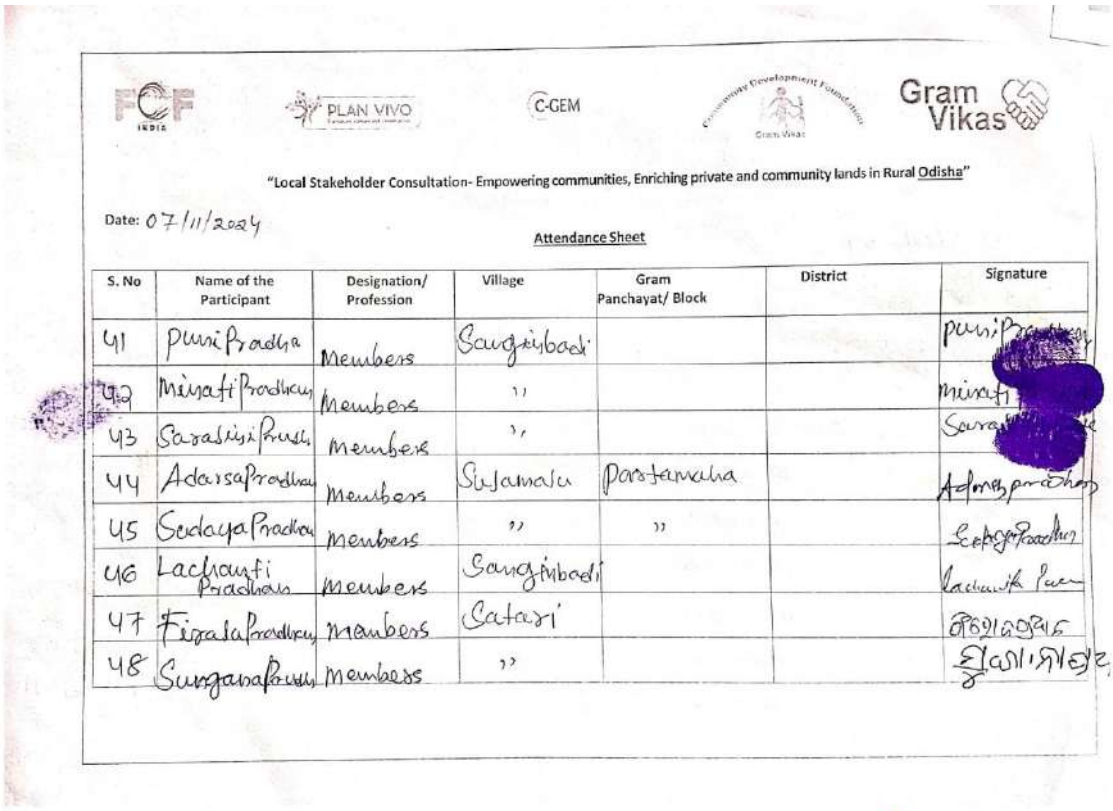


"Local Stakeholder Consultation- Empowering communities, Enriching private and community lands in Rural Odisha"

Date: 07/11/2024

Attendance Sheet

S. No	Name of the Participant	Designation/ Profession	Village	Gram Panchayat/ Block	District	Signature
25	Mamina Pradhan	SHG Mebers	Sangimbadi	Danekabadi		
26	Asina Pradhan	Members	"	"		
27	Retaka Pradhan	Members	[illegible]	Grambadi		
28	Subasini Pradhan	Members	"	"		
29	Sabita Pradhan	Members	"	"		
30	Nikasini Pradhan	members	"	"		
31	Mahisi Pradhan	Members	"	"		
32	Lalika Pradhan	Members	Laispada	Grambadi		



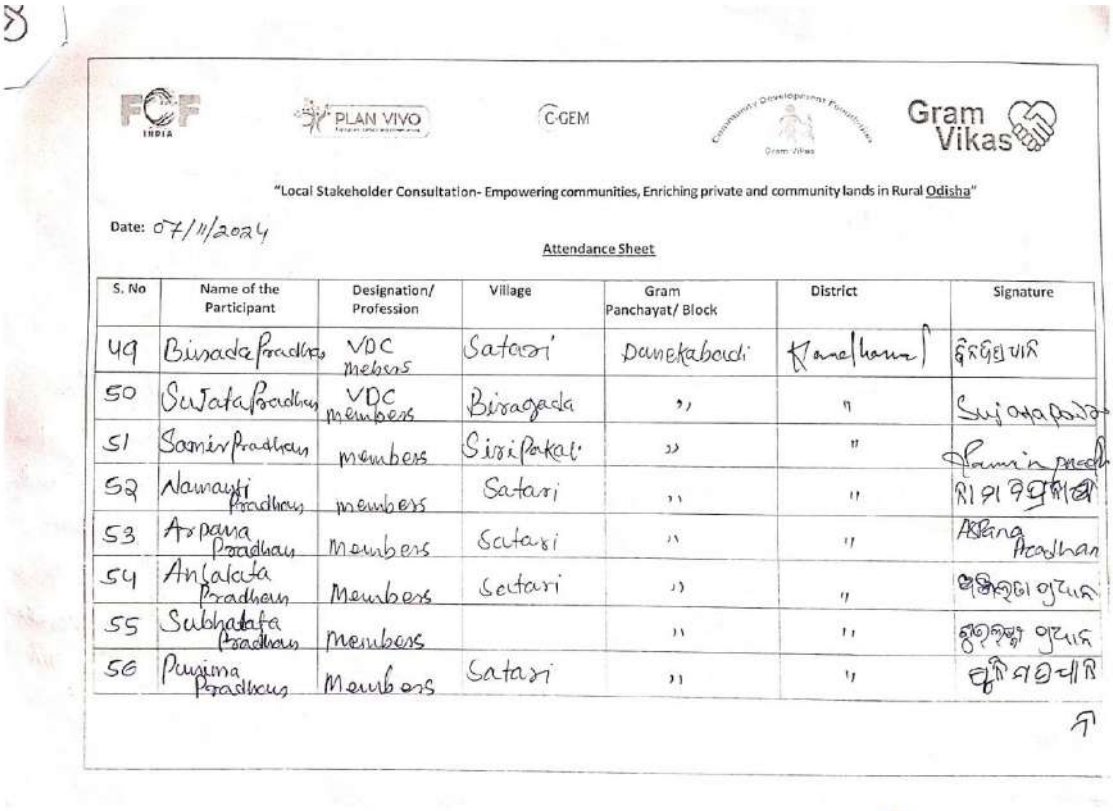
FCF INDIA PLAN VIVO C-GEM Community Development Foundation Gram Vikas

"Local Stakeholder Consultation- Empowering communities, Enriching private and community lands in Rural Odisha"

Date: 07/11/2024

Attendance Sheet

S. No	Name of the Participant	Designation/ Profession	Village	Gram Panchayat/ Block	District	Signature
41	puniPradha	Members	Sangeibadi			
42	MinatiPradhan	Members	"			
43	SarasiniPradh	Members	"			
44	AdarsaPradhan	Members	Sujamalu	Parsamaha		
45	SudayaPradhan	members	"	"		
46	Lachmanti Pradhan	members	Sangeibadi			
47	FiralaPradhan	members	Satasi			
48	SungavaPradhan	members	"			



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"Local Stakeholder Consultation- Empowering communities, Enriching private and community lands in Rural Odisha"

Date: 07/11/2024

Attendance Sheet

S. No	Name of the Participant	Designation/ Profession	Village	Gram Panchayat/ Block	District	Signature
49	BisadaPradhan	VDC mebers	Satasi	Dumekabadi	Kandhamal	
50	SuJataPradhan	VDC members	Biragada	"	"	
51	SamirPradhan	members	SiriPakat	"	"	
52	NamayiPradhan	members	Satasi	"	"	
53	ArpanaPradhan	Members	Satasi	"	"	
54	AnjalataPradhan	Members	Satasi	"	"	
55	SubhadafaPradhan	members		"	"	
56	PunimaPradhan	Members	Satasi	"	"	

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"Local Stakeholder Consultation- Empowering communities, Enriching private and community lands in Rural Odisha"

Date: 07/11/2024

Attendance Sheet

S. No	Name of the Participant	Designation/ Profession	Village	Gram Panchayat/ Block	District	Signature
57	BanitSunamathi	VDC members	Sangiubadi	Danek badi	Kandhamal	[illegible]
58	Mahita Pradhan	Members	Satagi	"	"	[illegible]
59	Liban Pradhan	VDC Members	"	"	"	Laban Pradhan
60	Sipriyan Pradhan	Members	"	"	"	Sipriyan Pradhan
61	Salendra Pradhan	members	"	"	"	[illegible]
62	Sabitri Pradhan		Sangiubadi	"	"	[illegible]
63	Thomas Pradhan		Satari	"	"	Thomas Pradhan
64	Nabanita Pradhan	members	"	"	"	[illegible]

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"Local Stakeholder Consultation- Empowering communities, Enriching private and community lands in Rural Odisha"

Date: 07/11/2024

Attendance Sheet

S. No	Name of the Participant	Designation/ Profession	Village	Gram Panchayat/ Block	District	Signature
65	Rasmita baibasi	member	mandubadi	Dondkbadi	Kandhamal	[illegible]
66	Pramila Bieng	member	"	"	"	[illegible]
67	madhuri Bisoy	member	"	"	"	[illegible]
68	Rasima Pradhan	member	Surde	"	"	Rasima Pradhan
69	Nahusan Pradhan	member	Surde	"	"	Nahusan Pradhan
70	Lingraja Pradhan	Members	Kerkebadi	Partamaha	"	[illegible]
71	Anama Pradhan	Members	kerkebadi	Partamaha	"	[illegible]
72.	Mrutunjaya Pradhan	members	kerkobadi	Partamaha	"	Mrutunjaya Pradhan

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"Local Stakeholder Consultation- Empowering communities, Enriching private and community lands in Rural Odisha"

Date: 07/11/2024

Attendance Sheet

S. No	Name of the Participant	Designation/ Profession	Village	Gram Panchayat/ Block	District	Signature
81	Bibhu Dash	WSC(FE)	Darengbadi			Bibhu Das
82	Aravind Sahu	District Reporter	Daringbadi	Block Reporter	Kandhamal	[signature]
83	Subhashis Pradhan	IDM	Mondakbadi	Daringbadi	"	[signature]
84	Krupasindhu Nayak	GVS(TM)	Kerubadi	Dhamasbadi	Kandhamal	Krupa
85	Eliza Pradhan	SHG	Sundarkumi	Damakabadi	Kandhamal	[signature]
86	Papuni Pradhan	Yuva Sathi	Sugunkela	Sraniketa	"	[signature]
87	Akanaya Pradhan	GVS	Sikopota	Greentoli	"	[signature]
88	Chandrasingh Majhi	EDY-TC	Daringbadi	Daringbadi	"	[signature]

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S. No	Name of the Participant	Designation/ Profession	Village	Gram Panchayat/ Block	District	Signature
89	Joseph Pradhan	JB	Beerstamcoha	Sirkabadaga	Kandhamal	Joseph Pradhan
90	Kunita Pradhan	Yuva Sathi	Mandubadi	Danekbadi	Kandhamal	Kunita Pradhan
91	Anurag Shubham Saha	PMDC				Anurag
92	Shubham Sahu	PMDC			Kandhamal	[signature]
93	Sebin Mathew	Project Manager	Mohuda	Mohuda	"	[signature]
94	Benston Jebin	OMG-Wafer				Benstin
95	Basanta Naik	TC-WSS	Daringbadi	Daringbadi		[signature]
96	Sachin Rohilla	Technical Associate FCF India	-	-	-	Sachin

Sample Feedback Form from LSC conducted in Kandhaml and Ganjam, Odisha

PLAN VIVO C-GEM Gram Vikas

"ସମୁଦାୟମାନଙ୍କୁ ସଶକ୍ତ କରିବା, ବ୍ୟକ୍ତିଗତ ଏବଂ ସାମୁଦାୟିକ ଭୂମିକୁ ସମୃଦ୍ଧ କରିବା"

ମତାମତ ଫର୍ମ

1. ନାମ:	Sabitri Pradhan
2. ପଦବୀ / ପେଶା:	ସଦସ୍ୟା
3. ଆପଣଙ୍କୁ ପ୍ରସ୍ତୁତି କେମିତି ଲାଗିଲା	ଭଲ ଲାଗିଲା।
4. ବକ୍ତାମାନେ ସମସ୍ତ ଧାରଣା ସ୍ପଷ୍ଟ କରିପାରିଲେ କି?	ହଁ
5. ବକ୍ତାମାନେ ପ୍ରଶ୍ନଗୁଡ଼ିକର ଉତ୍ତର ଦେଇପାରିଲେ କି?	ହଁ
6. ପ୍ରକଳ୍ପର ଉନ୍ନତି ପାଇଁ କୌଣସି ମତାମତ ଅଛି କି??	ଅଛି । [illegible]
7. ଆପଣଙ୍କ ପାଖରେ କୌଣସି ଅନ୍ୟ ପ୍ରସ୍ତାବ ଅଛି କି? ଯଦି ଅଛି, ଦୟାକରି ଉଲ୍ଲେଖ କରନ୍ତୁ।	[illegible] ।

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PLAN VIVO C-GEM Gram Vikas

"ସମୁଦାୟମାନଙ୍କୁ ସଶକ୍ତ କରିବା, ବ୍ୟକ୍ତିଗତ ଏବଂ ସାମୁଦାୟିକ ଭୂମିକୁ ସମୃଦ୍ଧ କରିବା"

ମତାମତ ଫର୍ମ

1. ନାମ:	Archana pradhan
2. ପଦବୀ / ପେଶା:	CRP_CM
3. ଆପଣଙ୍କୁ ପ୍ରସ୍ତୁତି କେମିତି ଲାଗିଲା	ଭଲ ଲାଗିଲା।
4. ବକ୍ତାମାନେ ସମସ୍ତ ଧାରଣା ସ୍ପଷ୍ଟ କରିପାରିଲେ କି?	ଠିକ୍ ଭାବରେ ବୁଝି ପାରିଲେ ।
5. ବକ୍ତାମାନେ ପ୍ରଶ୍ନଗୁଡ଼ିକର ଉତ୍ତର ଦେଇପାରିଲେ କି?	A ଉତ୍ତର ଦେଲେ ।
6. ପ୍ରକଳ୍ପର ଉନ୍ନତି ପାଇଁ କୌଣସି ମତାମତ ଅଛି କି??	[illegible]
7. ଆପଣଙ୍କ ପାଖରେ କୌଣସି ଅନ୍ୟ ପ୍ରସ୍ତାବ ଅଛି କି? ଯଦି ଅଛି, ଦୟାକରି ଉଲ୍ଲେଖ କରନ୍ତୁ।	[illegible] ।

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Summary of LSC feedback form was filled by Sabitri Pradhan, a female part participant from the community in the project area.

1. Sabitri mentioned that the Local Stakeholder Consultation (LSC) helped in clearly understanding the project's objectives and details.

- Participant found consultation sessions to be clear, informative, and well-structured.
- Project objectives, roles, and responsibilities were explained effectively.
- Queries from community members were addressed in a transparent and satisfactory manner.

2. Inspired by the learning opportunities and ready to engage in future interventions

- Participant experienced interest in continuing afforestation and land restoration efforts.
- She has a clear willingness to actively support and engage in Gram Vikas's initiatives, provided they receive adequate technical and material support

3. Addressing of Identified Challenges and Community Concerns

- According to her water availability emerged as a major concern; other participants also highlighted the difficulty in maintaining plantations due to erratic water supply.
- She suggested that with better irrigation or water support systems, communities could expand their plantation efforts.

4.**Suggestions for Future Practices for Project Improvement**

- She recommended that meetings and workshops should continue, as they help the community better understand the project interventions.
- She also recommended ongoing support for the upkeep and maintenance of the plantations.
- She emphasized the need for protective measures (like fencing) to prevent damage to plantations.
- Participant also reflect importance of sustained efforts in plantation and tree protection to ensure long-term success.

Sample Photos from the LSC at Kandhamal and Ganjam, Odisha

Annex 18 – Jala Bandhu Roles Responsibilities and Compensation

CAR 31, NIR06, CAR12- Jala Bandhu.pdf