



VCCSL-India

Anantapur district in Andhra Pradesh

2022

Introduction

This report represents a summary of the project details. It has been created in close collaboration between VCCSL and Acorn. A more detailed Acorn Design Document (ADD) for the project will be made available on the Acorn platform and can be requested by validation and verification bodies and certifiers for third-party oversight or quality checks. The number of participants described in this document reflects only those in the first year of the project. For the real-time number of participants at scale please see the Acorn website.

This Plan Vivo certified project run by VCCSL in India has helped over 1500 poverty stricken smallholder sweet lime and mango farmers with degraded lands, low productivity and a technical barriers in Andhra Pradesh, the district of Anantapur, transition to approx. 1000 hectares of land to agroforestry. The planting of mango, sweet lime, jackfruit, and tamarind trees using sustainable land management practices, such as eliminating use of chemical fertilisers, will restore soil and build the resilience of farmers, their families and the community to natural calamities. As a result of project intervention, the increased yield, marketable tree products, and additional carbon finance will help alleviate poverty in the project area and ensure farmers do not have to seek other employment opportunities away from their farms and families.



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Project Summary

Local partner



Project location

India, Andhra Pradesh, Anantapur district

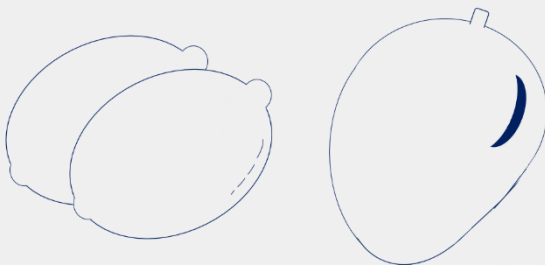
Ecoregion

Deccan Thorn Scrub Forests



Main crops

Sweet lime and mango



Minimum number of existing participants



1,500+

Potential number of additional participants



15,000+

Estimated total size of project area currently



1,000 ha

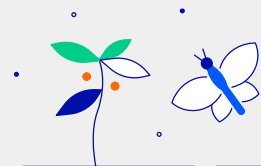
Project's aims and objectives

1. Support smallholder farmers in the transition to agroforestry by enabling multiple co-benefits.
2. To provide additional income through Carbon Removal Units, thereby improving the livelihoods of small holder farmers.
3. To enhance above and below ground carbon sequestration in degraded lands
4. Capacity building of stakeholders for climate change mitigation and adaptation.



Impact to the farmer livelihood and environment

- Increased nutritional intake
- Increased food security
- Increased farmer income
- Increased farmer knowledge and skills
- Safeguarding biodiversity
- Increased farm productivity
- Empowerment of women



Additionality

The agroforestry transition project led by VCCSL was established in 2018. From the start of their project, until the time they connected with Acorn in 2021, VCCSL promised farmers carbon credits as a reward for implementing and maintaining a long-term agroforestry. The intention of creating such a project where farmers are compensated for their sustainable practices arose from experience VCCSL has in securing carbon credits for farmers in other agricultural projects in India. The first trees were planted just after the onset of the monsoon in 2018. Due to the limited amount of free and subsidized seedlings on offer to farmers each year, farmers plant trees over an average period of 5 years until they reach density of 150-200 trees per hectare, depending on the effort involved and resources needed by each farmer. The trees planted by the farmers have been chosen based on traditional knowledge from the farmers/community and agronomical expert advice to ensure carbon sequestration, marketable products and nutritious food sources. The carbon credits farmers receive for the trees planted in the project are ex-post based and will only be derived from one year before CRU issuance.

Farmer Level

Agriculture is the main source of income for local communities in the project area. However, due to severe soil erosion, agricultural production is suffering very much from periodic droughts. Food productivity is very low, thus decreasing farmer income and leading to poverty. Farmers are forced to migrate to the city to earn money to feed their families for at least half the year, leaving their families and their farms vulnerable to the increasing extreme weather events (i.e. droughts and flooding). With the additional income farmers will receive from carbon finance and tree products, they will be able to stay on the farm with their family the whole year round and not be forced to migrate to the city. With more farmers able to stay and work on their lands and market agricultural products the whole year through, there will be a better economy and a greater sense of community in the region.

Without project intervention, there is a lack of coordination in the community and between farmers leading to a loss of social cohesion in the project area and inability to work together. To tackle this barrier, VCCSL in partnership with local NGOs will group participants into multiple Farmer Producer Organisations (FPOs) with the aim of bringing farmers together and increasing their capacity to act collectively. VCCSL will continually allocate money from their share of carbon finance to support the FPOs, especially in manners such as enabling them to overcome political barriers. This will involve FPOs receiving education on agroforestry laws and regulations and guidance from partnering NGOs on how to federate through bargaining power as per the

scheme of the Ministry of Agriculture & Farmers' Welfare, Government of India. This project will then result in farmers being able to have the information necessary on local/state/national regulations regarding agroforestry and land use, and the ability to lobby with political establishments and governments. Regarding cohesion of farmers, special attention will also be paid to the inclusion of women in roles where they are deemed important in the project as they are often not accepted in the farming community or recognized for their efforts on the farm. By partnering with Acorn and having support in the creation of a project council, VCCSL will ensure women are equally represented in this council and can make decisions and actively engage in leadership roles.

Without project intervention, farmers do not have access to quality planting material, adequate training or improved technological equipment/innovations as most are unaware of advancements in farming practices. The carbon finance farmers receive allows them the opportunity to afford high quality planting materials in combination with the access and knowledge provided by VCCSL and local NGOs through ongoing technical backstopping. Approximately 80% of farmers are illiterate, have low per-capita income (approx. INR1000 per annum) and without project intervention cannot afford high investment costs for good quality planting materials. Since most of the land in the project area is degraded and also because of cumbersome procedural requirements, farmers often fail to access loans from the banks. Banks usually insist on collateral security, mortgage etc. to advance loans to the farmers who usually cannot meet such requirements of the bank. Further, lot of paper work is also involved in sanctioning of loans by banks which is beyond the capacity of illiterate farmers. The carbon finance offered by Acorn serves as a stable income stream that demonstrates the farmer is likely to pay back loans etc., increasing their chances of obtaining finance. The farmers commitment to agroforestry and their returns in terms of tree products sold and carbon finance received give financiers proof and faith to invest. In addition to linking farmers to government subsidies in this project, VCCSL will also forge partnerships with other organizations such as microfinance institutions to enable them to access credit in addition to banks to transition to or maintain their agroforestry systems

Project level

VCCSL does not work with a fixed number of smallholder farmers but with a constantly growing and expanding network of farmers of up to 15,000 farmers. VCCSL's aim for this project is to link small holder indigenous farmers with the Voluntary Carbon Market for social advancement, environmental improvement and economic development. The first trees planted under the initial phase of this project are few compared with what will be planted over the following phases with VCCSLs intention to scale to many more villages and districts in India. Additionality must be considered in terms of the larger project and the 15,000 farmers that have the potential to transition to and benefit from the carbon finance and project intervention. The success of the first 1,500 farmers who will be financially compensated for the carbon they sequester will work as an extra stimulus to increase the participation of the 15,000 farmers that VCCSL has access to. The project as a whole will not receive investment unless financiers have proof of and faith in the carbon credit system as a payment for investment. Providing carbon finance to compensate Indian farmers is the only practical way to achieve scale and proof of concept.



Project Baseline

Land use

The land is used by the private small holder farmers to cultivate crops and grow trees. Cultivated species include mango, sweet lime, pepper, cocoa, jackfruit, palm oil and coconut. All of these species are consumed by farmer and the rest of the produce are sold on the market. Cash crops represent approx. 20-30% of the farms. Subsistence agriculture is widely practised in the project area but farmers are encouraged to move to agroforestry.

Without project intervention the farmers would have no support to continue planting trees after the first few years to optimise their agroforestry system. They would not be able to afford to purchase new seedlings and would have only the trees species that were selected by the government on their land which may not provide enough shade or full effects needed for soil health and protection from extreme weather. Farmers would not have the resources or skills to plant live fences, therefore, farmers would be exposed and more vulnerable to trespassing and wind damage. Without the regular support and training provided by VCCSL and the local NGO partners on the importance of agroforestry systems it would be likely farmers would cut down the trees in times of financial hardship or change their land use to cattle raising. It is also likely that the trees would not be maintained properly causing overshadowing of crops or competition, resulting in failure to thrive and loss of the tree.

Habitat species

Farmers in the project area rate the level of biodiversity on their farms before project intervention as low. In the absence of this project, the biodiversity would decrease further due the impacts of climate change, unsustainable subsistence farming, grazing practices, and the demand for wood as fuel. This would result in a limited diversity of tree species and the loss of suitable habitat/corridors for native wildlife and birds. The common flora species, in addition to the cultivated species, include:

- *Hildegardia populifolia*
- *Parahyparrhenia bellariensis*
- *Gyrocarpus americanus*
- *Tectona grandis*
- *Ziziphus mauritiana*,
- *Annona squamosa*

The fauna species found in the project area include :

- *Calotes versicolor*
- *Bonnet macaque*
- *Copsychus fulicatus*
- *Pavo crisatus*
- *Bubulcus ibis*

Socio-Economic Benefits

Area	Indicator	Result
Local livelihood	Nutritional variety	The average farmers consumes 3.5 food groups daily
	Agricultural land use productivity	Productivity is very low as tree/cash crops recently planted are not yet productive
Environmental improvement	Agricultural biodiversity	61% acceptable (under Gini-Simpson Index)

Nutritional variety

Most farmers do not eat enough food daily, as 74% of surveyed farmers reported having skipped meals. Farmer diets consist mainly of cereals such as rice and dairy products such as milk, lacking meat, fruit and vegetables. Most farmers, 86%, reported being able only to buy a few foods that are not produced on the farm, while the rest rely on their farms produce. This is a result of all farmers reporting a poor financial state and lack of resources due to subsistence agriculture. Project intervention is expected to improve farmers' financial state through additional revenue from carbon finance and marketable products from trees (mango/sweet lime). This additional income will allow them to purchase a larger diversity of nutritious foods. Additionally, fruit trees planted under project intervention contribute will ensure farmers have access to a nutritious food on their farm.

Agricultural land use productivity

Farmers in the project area often have poor and unstable productivity mainly due to diseases, droughts and high planting costs impacting their crops. Many farmers have begun to plant their main cash crops, sweet lime and mango, as part of project intervention in 2018, however they are not yet productive. Therefore, the productivity is still null. It is expected that these trees will begin to produce fruit in the upcoming years. The trees planted under project intervention will result in an increase in farm productivity due to the marketable products they provide and the environment benefits they offer such as protection against drought and increase in soil fertility that results in reduced planting costs.

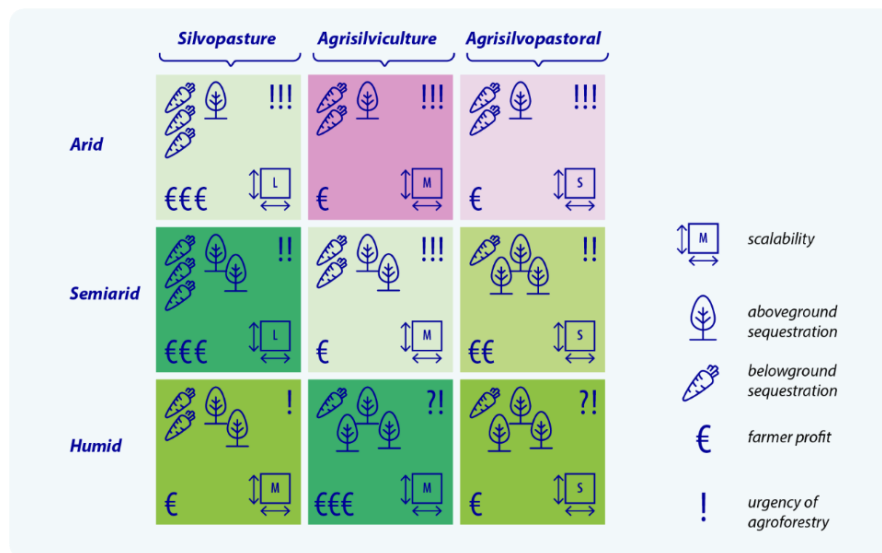
Agricultural biodiversity

Majority of farmers in the project area rate their biodiversity as low. According to the Gini-Simpson Biodiversity Index, the project area has an acceptable level at 61%. This score is due to the emphasis this calculation places on number of crops and livestock not necessarily trees species or wildlife. Farmers already plant various crops for self-consumption, and biodiversity in terms of crops is expected to increase slightly by adding mango and sweet lime trees. Wild animals, such as cheetahs and deer, are regularly spotted in the project area, and others, such as pigs, snakes, and squirrels, are sometimes seen. Under project intervention, the trees will offer shade for native flora to grow and native fauna to seek refuge from the harsh climate. Furthermore, these trees can enable soil preservation during heavy rainfall and wind, thus promoting biodiversity

in the soil. Threatened native species are not spotted in the project area; however, the encouragement of carbon finance to maintain trees will provide a safe space for wild fauna to pass through. With the project intervention, farmers will be provided with the necessary know-how to increase their biodiversity, influencing the increase in the presence of wild and threatened fauna and reducing the risk of diseases affecting the crops.

Project Activities

Farmers will be implementing agrisilvicultural systems in mostly dry and semi-arid environments in Andhra Pradesh. The agroforestry system will contain a mix of fruit-bearing, medicinal and shade trees, depending upon the suitability of soil and climatic conditions.



There are 6 native or naturalised tree species promoted under the agroforestry design that offer shade, fruit and medicine. These species are chosen after testing soil, looking at climatic variables, and using traditional knowledge of the community and farmers.

- *Mangifera indica*
- *Artocarpus heterophyllus*
- *Tectona grandis*
- *Citrus limetta*
- *Tamarindus indica*
- *Prosopis juliflora*

Emphasis has been placed on two of these species, mango (*Mangifera indica*) and sweet lime, (*Citrus limetta*) as they will also be the cash crops for the farmer. The aim for farmers is to plant up to 150-200 trees per hectare. Planting is generally done after the onset of monsoon in July and carried out till September. Casualty replacement is done in October-December. It is the goal that these trees will reduce the need for costly inputs such as fertiliser and pesticides, provide marketable products for an additional income stream, increase pollinators, ensure food security and reduce diseases. Sufficient care would be taken while planting, pruning and weeding to ensure that existing trees before the project intervention are not affected and the new trees do not interfere. This is a key characteristic of the project and will be communicated to the farmers during training on agroforestry models before planting. It is the common practise to maintain a distance of at least 3 metres between the plants to reduce chance of competition. Agroforestry models have been devised by ICRAF to find the optimum combination of crops. Farmers will be encouraged to adopt soil and water conservation measures coupled with trenching to ensure that trees do not die or get damaged.

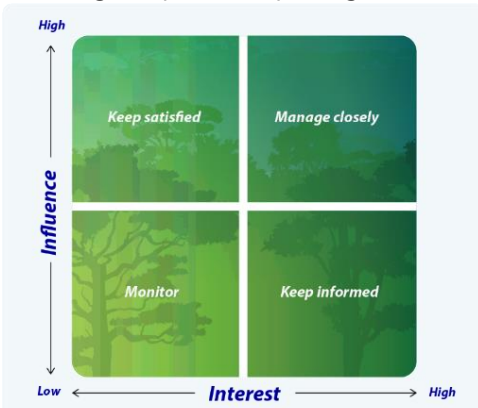
Organisational Capacity

VEDA Climate Change Solutions Ltd (VCCSL) is a company established under the Indian Companies Act. VCCSL has been involved with smallholder farmers and communities through its CDM and other projects for more than 17 years in the states of Odisha and Andhra Pradesh. The personnel of VCCSL have good relationships with the project participants and the communities, demonstrated by the regular engagement during community meetings.

Under previous projects, VCCSL has been improving rural livelihoods through carbon sequestration by adopting environment friendly technology based agroforestry practices addressing over 1600 ha of land parcels owned by 1590 small farmers. Therefore, VCCSL have experience with creating and implementing agroforestry projects that have reduced food insecurity, increased farmer income, provided farmers with training on good agroforestry practices, increased farmer access to seedlings, and brought farmers together to ensure they maintain their strong cultural practices that are disappearing in the community.

The Acorn project will give due emphasis to knowledge sharing by organising workshops, trainings and seminars. This will facilitate a transition of knowledge on cultural practices and agroforestry models. One of the goals of this project is to bring farmers together to ensure their traditional knowledge is not lost but instead shared. Brochures, flyers, and posters/diagrams (for the illiterate) etc. will be prepared and shared with the participants and the communities to share knowledge on agroforestry and the local impact of the project. The project council also offers an open dialogue to share knowledge and feedback on the project and the ability for lead farmers in the council to transfer the learnings from these meetings with other farmers.

As part of the project with Acorn, VCCSL will ensure that no discrimination is shown on the basis of gender, age, income, ethnicity or religion, social status, colour or creed by using the stakeholder analysis tool, seen below, to clearly identify those that have the potential to be discriminated against (stakeholders with a high interest and low influence). All the barriers to the participants and disadvantaged groups will be identified through stakeholder consultations, community meetings and in project councils that will occur at least twice a year. VCCSL strive to promote inclusion of women participants. Other than participating as farmers and in decision making in the project council, women will be involved in various activities such as raising nurseries, watering the plants, imparting skill development training programs etc.



Farmer Payment and Benefit Sharing

The 80% of the carbon revenue for farmers will be deposited in an account, exclusively opened for the purpose of farmer payment, separate to the carbon finance VCCSL receive. All money transfers will be made through mobile banking to avoid pilferage and tracked through monitoring and verification reports. All farmers in the project will have access to mobile banking. Farmers will not be discriminated against when onboarding if they do not have access to this payment method but instead supported by VCCSL to access this.

VCCSL will use their share of the carbon revenue to cover the costs of farmer mobilization and onboarding, capacity building, training, monitoring and reporting, knowledge sharing, etc. If required, a grant will be sought to meet the initial project costs until the revenue share of 10% to the local partner becomes available. Since the plantation activity undertaken from 2018 onwards is taken into account, it is expected that the revenue from CRUs will be available in late 2022. If ongoing costs exceed 10% of the CRU revenue over the life of the project, resources will be mobilized from foundations and other agencies by applying for grants. In no case, farmers revenue share of 80% will be curtailed.

In kind contribution in farmer payment is not applicable in this project. Farmers in the project area would prefer a full payment and VCCSL believe this is the most transparent manner. Farmers can use their share of the CRU payment to purchase necessary resources. Under project intervention, usual in-kind costs such as education, capacity building, etc. will be mobilized from other sources, not farmer CRU revenue, and will only be in addition of 80% CRU contribution for farmers.



Technical Specifications

Carbon Removal Units

There have been no CRUs sold and retired for this project yet, see table below:

Amount of CRUs retired	Crediting Period
0	2021-2022

Leakage

The main cash crops for farmers in the project area are sweet lime (contributing to 95% of farm productivity) and mango (contributing to 5% of farm productivity). There is not expected to be any loss in productivity or a displacement of farmers activities due to project intervention as the type of land in the project area is crop land and the main subsistence crop, rice, is not being displaced. Farmers will plant two additional cash crops, mango and sweet lime, among the rice crops, which will in fact increase productivity. The integration of trees into rice production farms has been occurring more and more in Asia with positive impacts for the crop, soil and carbon storage. With the addition of the two cash crops that will increase productivity, farmers will have an extra incentive (other than carbon finance) to maintain their trees long-term. The possibility of deforestation inside or outside the project area is very low due to the extra income farmers will receive from tree based products and carbon finance, and due to the awareness programmes conducted by the local NGOs on the benefits of forests. The project could in the future be affected by decreased productivity due to natural disasters, but the frequency of such destructive disasters is low in the area. There will not be any increase in emissions in the project area as heavy machinery is not used and forms of renewable energy are increasing inside and outside the project area due to the increased awareness.

Interested?

Please contact Eline Kajim
Head of Certification, Verification & Reporting at Acorn
Wholesale and Rural Innovation Rabobank

Telephone +31 (0)6 57 09 07 40
eline.kajim@rabobank.com

acorn.rabobank.com

