



Green Intelligence

AGROFORESTRY- DHULIKHEL

Introduction

Dhulikhel, are located 30 km from Kathmandu at an altitude of 800-1600 meters above sea level. This is one of the focus area's of the Green Intelligence (GI). The project seeks to enhance local biodiversity, sequester carbon, and generate sustainable income for smallholder farmers. The primary objective of this project is to transform monoculture agricultural land into a resilient agroforestry system that benefits both the environment and local communities. Currently, most farmers in the mid-hills of Nepal, including Dhulikhel, cultivate corn and other monocultural crops on terraced landscapes. By shifting to polyculture cropping, this project seeks to enhance the landscape's resilience to the increasingly erratic climate conditions caused by climate change.

Goal : Increase soil quality, biodiversity, sequester carbon, promote sustainable land use and harvesting and generate income for smallholder farmers



The Project

Following successful pilot projects in Dhulikhel in 2022 and 2023, the project expanded in 2024 with the planting of over 5,500 additional trees across two wards (2 and 11) in Dhulikhel Municipality, working closely with 55 farmers. The selected species are chosen based on; 1) the needs of the farmers, 2) the specific location, and 3) the marketability of the produce ensuring both economic and ecological benefits. These trees are planted alongside traditional crops such as maize and vegetables in a multi-cropping or agroforestry system that integrates tree planting with agricultural activities. This strategy enables farmers to generate income from the trees while preserving biodiversity. The trees are planted in agricultural fields alongside crops such as maize and vegetables, a practice known as multi-cropping or agroforestry. All activities are carried out in partnership with local farmers cooperative; Shree Aarubot Sana Kishan cooperative, and the local smallholder farmers.



The cooperatives serve as a crucial mediator and on the ground partner in the initiative. They have mobilized the participating farmers, co-managed the plantation events and effectively communicated news and information to the farmers. In time to come, their role extends to helping GI out in providing significant daily support in monitoring and advisory to the farmers, ensuring the overall successful of the project.

Project Interventions

The project includes various activities such as species research, soil tests, tree plantation training, GI app training, and seedling distribution. Farmers learn how to plant and maintain trees and register their farmlands and trees on the GI app. Below the projects key activities are further elaborated:

Transformation to Agroforestry:

Initially, farmers in Dhulikhel municipality practiced monoculture, focusing solely on crops like maize. However, this approach has become less sustainable over time, as decreasing yields and rising input costs have made it increasingly difficult to generate sufficient income. Through our intervention, these farmers have transitioned to agroforestry, a more sustainable and profitable practice. The initiative has played a crucial role in this transformation by offering comprehensive training in plantation techniques and agroforestry maintenance. After completing the essential training sessions, farmers receive free, high-quality seedlings to support their transition to agroforestry.



Productive Species Plantation:

The project meticulously selected a diverse mix of tree species based on the needs of the farmers, soil conditions (determined through soil tests), and the specific location factors such as altitude and sunlight. The aim of this mix is to provide both food and income to the farmers while enhancing local biodiversity. Various tree species—including lemon, timur, macadamia nuts, and coffee—were distributed to the farmers and subsequently planted on the farmers agricultural field in between the existing crops. Economically, it diversifies income by allowing farmers to harvest various products, such as fruits, nuts, and timber, alongside traditional crops. This diversification reduces risk and increases resilience to market and climate fluctuations. The trees are registered in Green Intelligence (GI) mobile application to improve the effectiveness of the intervention.

Tree species	Total no.	Uses
Avacado	900	food
Timur	470	food, medicine
Macadamia nuts	660	food
Coffee	360	beverages
Tejpat	30	essential oil
Lemon	3240	food

GI mobile application Training

A comprehensive training session on the GI mobile application was conducted for over 50 local farmers in Dhulikhel municipality. The training covered all aspects of using the GI app effectively, including detailed instructions on how to register trees and land within the application. Farmers learned about each feature of the GI app, empowering them to maximize its benefits for their agricultural practices. This included step-by-step guidance on uploading GPS-linked photos of newly planted or well-maintained trees to earn financial rewards.

Project Impact

The project aims to boost economic, social, and environmental well-being. By generating significant income for local communities through the sale of fruits and forest products, and Green jobs creation. And enhances food security by increasing the availability of fruits, nuts, and other edible products, further supporting local communities. The social benefits include empowerment of communities by actively involving them in reforestation efforts, which strengthens community cohesion and improves livelihoods. Thereby the project positively impacts the environment, by supporting local biodiversity by providing habitats for diverse plant and animal species while conserving native species and restoring degraded habitats. The project also aids to improve soil health by enhancing soil structure, fertility, and moisture retention. In addition to, it also plays a crucial role in carbon sequestration by capturing and storing atmospheric carbon dioxide in trees and soil, significantly increasing the land's carbon storage capacity. Additionally the Farmers also receive financial rewards every six months when they upload the photo (automatically GPS-linked) of a newly planted or well-maintained tree in the GI App. This system is designed to motivate farmers to care for the trees. In the long term, after 3-6 years, the diverse species planted will start producing harvests.



5500

**Trees
Planted**



7 ha

**Landscape
restored**



55

**farmers
trained**



55

**Households
impacted**

What is next?

The plantation efforts are only the start of the agroforestry project. The first two years are critical for the survival of a newly planted trees, therefore the coming 2 years various activities will be conducted like; weeding, adding organic fertilizer and watering of the trees during dry season (October - June). These activities will be executed by the farmers as per suggestions provided on trainings and the advisory available in the GI mobile application. Additionally, trees in the project will be labelled and geotagged (picture with GPS coordinates) to monitor the growth and survival rates and enabling the GI team to provide customized advisory. Financial compensation will be provided (every 6 months) to the farmers after uploading of a tree update in the app, this compensation aims to motivate farmer to take care of the trees. Furthermore, as the trees mature, the project will facilitate harvest and market linkages, ensuring that farmers have access to buyers and markets for their agroforestry products, thereby maximizing their economic benefits. The project will continue planting new seedlings next plantation season July/Aug 2025 and aims to expand in the area.



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