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Defire: Carbon Credit Mechanism to incentivise good Crop Management

Background

Thailand’s farmers moving from crop-burning to good practice farming can lead to promising carbon offsets. **Thailand’s 2030 GHG emissions reduction targets stand at 20% below its business-as-usual level.** One of the ways Thailand could achieve carbon reduction is **by incentivising farmers to translate their good crop management practices into carbon credits that can be traded within Carbon Offsetting Programmes.** Offsetting carbon is on the Thai national agenda and integrating farmers running good crop management practices can be used to incentivise this behaviour change at large. Therefore, *Three Zeros* is planning to develop a Carbon Credit Mechanism called *Defire*. It leverages existing satellite data, making use of tried-and-tested technologies to issue carbon credits for trading in the market.

Solution Overview

The Carbon Credit Mechanism *Defire* targets maize and sugarcane farmers who are moving away from crop-burning practices. Farmers join the mechanism by registering for an area of farming. Upon registration they receive an online wallet without needing to have a dedicated bank account. The mechanism leverages existing province and district-level data from the Forest Department, Department of Local Administration and Agricultural Extension Office combining it with satellite data to gather geographical information of the local area analysing the carbon sequestration aspects of the agricultural activity. Machine learning models calculate the reduced level of carbon in the registered area and automatically transfers carbon credits directly to the farmer’s virtual wallet. Farmers can choose to hold the credit or sell it. Selling the credits creates additional income which in turn improves their ability to pay back loans or helps them gain a better credit score for future loan requests.

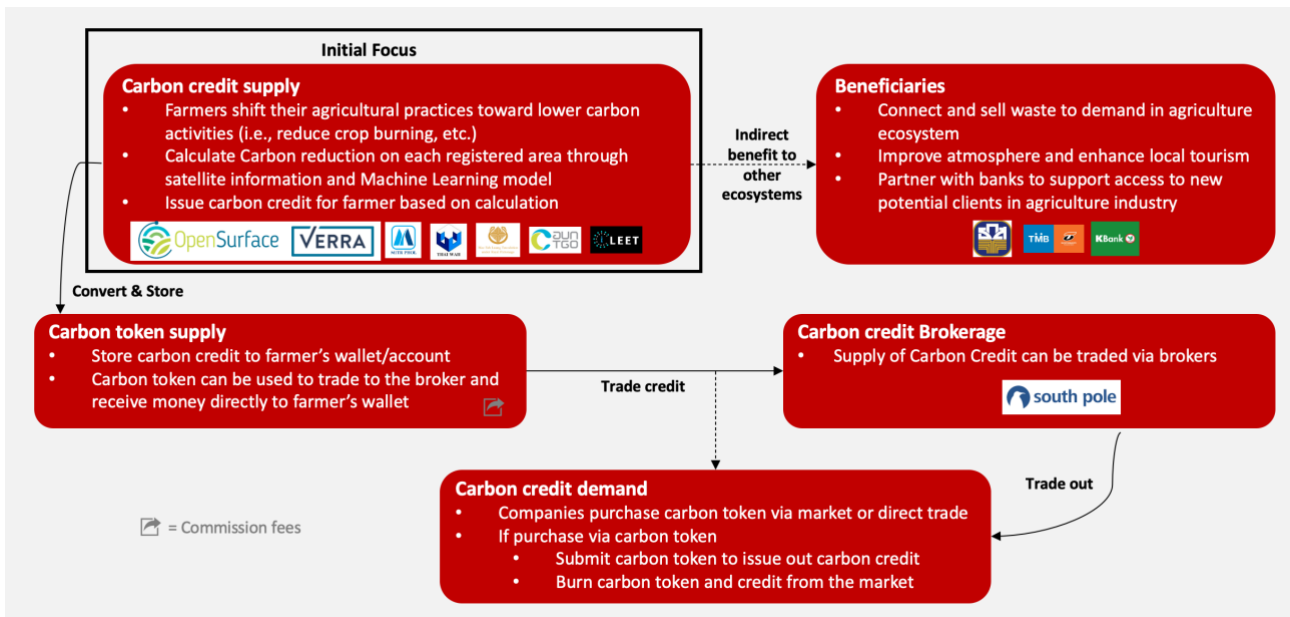
Focus:	Climate-smart Agriculture
Instrument Type:	Carbon Credit Mechanism
Lab Cycle:	Thailand 2021
Product Developers:	Three Zeros

Key Features

The solution enlists agricultural projects within a mechanism generating financing for farmers.

Defire supports farmers in becoming part of the carbon trade and provides a carbon verification system for agricultural activities with several key features:

- 1) Engaging and rewarding selected farmers** that are implementing proper crop management practices - supporting them to expand climate-smart agricultural practices
- 2) Leveraging existing satellite data and heatmaps** to analyse and calculate the amount of carbon reduced based on carbon calculation models
- 3) Seamlessly issue Carbon credits based on farmer’s registered land areas** and trade to selected brokers before transferring funds to farmers’ wallets directly



Target Market

The Carbon Credit Mechanism leverages the existing potential of selected Southeast Asian farmers practicing proper crop-management. Building on existing agricultural networks, the mechanisms will be piloted in Northern Thailand to generate the critical supply of carbon credits.

The issued carbon credits will be sold to private sector companies that are looking to purchase carbon credits globally.

Impact Potential

Three Zeros 3-year plan is to cover farming projects across 46,000 hectares with a view to reducing carbon emission of up to 12,000 tCO₂eq and mobilising finance for small-holder farmers of up to USD 9.8 million.

With increased income, small-holder farmers will be in a better position to access finance. Improving their ability to repay the debt, supports them in their livelihood creation and reduces inequalities overall.

In addition to carbon sequestration, proper crop management reduces air pollution and improves the overall air-quality, generating health benefits for Thai and Southeast Asian communities. Indirect benefits of a better atmosphere includes the encouragement of tourism to those areas.

Solution Developer



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SEED Practitioner Labs Climate Finance supports participants in a hands-on and collaborative Labs process to turn major financing challenges into finance instrument prototypes. SEED Practitioner Labs Climate Finance are part of the implementation of “Financing and capacity building for micro and small climate-smart enterprises: Filling the gap of the missing middle”, a project supported by the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety.