Climate Smart Farming Deployment Model for ERP

Full Description

Proposed Structure of this Public Private Partnership (PPP) Model

The project will be leveraging a **Existing-Bulk-Tariffs** model. An experienced farm operator is provided the concession to convert and transform the agricultural area by the government or state-owned entity grantor, which in turn will provide the financing to the project company for implementing climate-smart farming in said area. The grantor will be aggregating the land area for this undertaking, including the stakeholder management and permitting to ensure that the project company is able to complete its undertaking. The private sector entity will be generating revenues from the sale of emission reduction credits (ERCs), part of which may go to the government or state-owned entity for its own targets.

Table 1: Model Attributes

Dimension	Attribute	Description
Business	*New* *Existing*	This model assumes that the government or state-owned entity grantor will be granting a concession to an experienced farm operator to support the transformation of the agreed agricultural area to climate-smart farming practices.
Construction	*Build* *Refurbish*	The project involves only technical and operational support
Private Funding	*Finance*	The government or state-owned entity grantor will be providing financing to the project company to undertake the activities of the firm
Service	*Bulk* *User*	Services will be provided to the government or state-owned entity grantor, in exchange for the funding provided
Service	*Fees* *Tariffs*	Revenues in this model for the project company will be driven by the ERCs generated and sold in the voluntary carbon markets.

Proposed risk allocation of the Public Private Partnership Model

Risk allocation	Public	Private
Design		●
Build		●
Financing	●	●
Operations and maintenance		●
Demand/Revenue Upside	●	●

Key features of PPP structure

- Private sector entity to design, finance, operate and maintain agriculture in collaboration with local farmers and association (where applicable) area through a special purpose vehicle (SPV) or project company via a long-term concession agreement with the government or state-owned entity
- The private sector entity acts as the implementation partner, and is responsible for all activities related to the implementation, management, monitoring and reporting of the project over the project crediting period
- Potential to include financiers in this PPP structure in exchange for a portion of the ERC revenues earned in this project

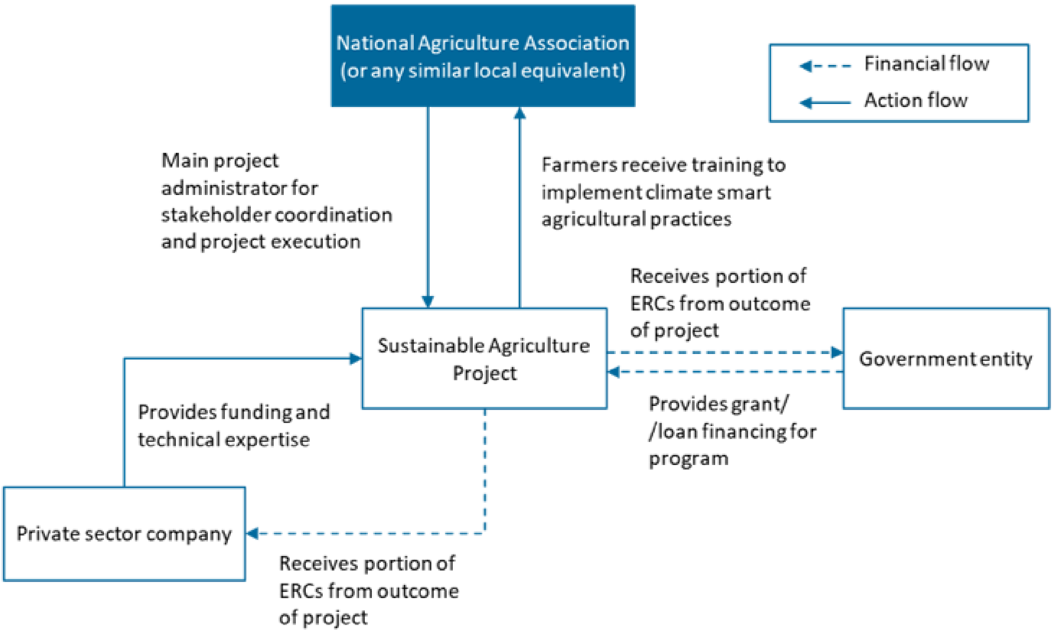
Key considerations/risks for proposed project

- Extensive stakeholder engagement required to ensure buy-in from local/indigenous communities to implement sustainable agricultural practices
- Need to ensure adequate technical local expertise in day-to-day execution and monitoring to prevent carbon leakage
- Co-benefits are accounted for to ensure that local/indigenous communities' economic and social wellbeing are taken for and to avoid disruptive lifestyle changes
- Partnering with a service provider for the project's marketing, sales and pricing is needed to identify potential offset buyers, negotiate contracts, and secure good target price per tonne to enable the financial viability of ERC generation
- Contracting a monitoring, verification and reporting (MRV) service provider with experience in conducting MRV and preparing the necessary documents for generating ERCs in a voluntary carbon market standard will reduce risk of registration and issuance delays or bottlenecks, and strengthen credibility of project's carbon integrity quality

Expected ERC end use

- End use can belong to project developer as part of revenue stream as well as government or state-owned entity for providing financial support

Figure 1: Financing and Activity Flows for the Model



Case study: Charting A New Course – Carbon Insetting Program, USA

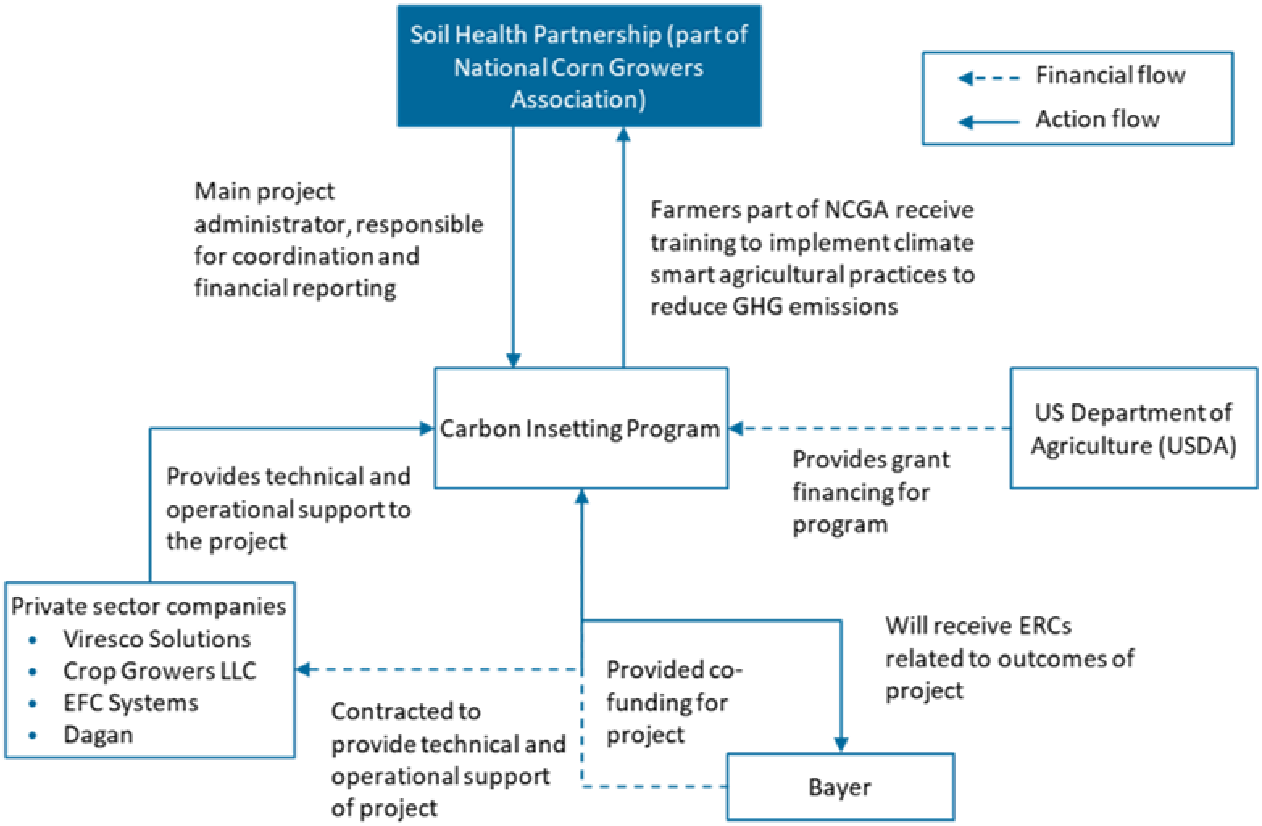
Project description

Bayer, National Corn Growers Association, and partners are developing a comprehensive intervention for corporate carbon emissions reduction with funding from the United States Department of Agriculture (USDA). The project focuses on promoting climate smart agricultural practices in key areas and verifies their impact, with a focus on creating management practice systems that reduce corporate emissions as well as improve economic outcomes for farmers. In this project, participating companies partnered with farmers in their supply chain who took steps to reduce their GHG emissions on their farms. Bayer has already extended this program to 16 states in the US.

Targeted results

No estimated annual emissions reduction available but expected socioeconomic benefits such as improved economic outcomes for farmers.

Figure 2: Structure of Case Study PPP



There are multiple project partners involved in this project each with a distinct role. USDA provided financing support through its Natural Resources Conservation Service's (NRCS's) Conservation Innovation Grants (CIG) Program. Soil Health Partnership (SHP) coordinated and reported finances for the project and used grower-cooperator sites to evaluate climate smart agriculture practices. Bayer co-funded the project and was involved in all aspects related to its GHG insetting program and reported on verified environmental benefits.

Viresco Solutions provided project management, technical support, and created the carbon accounting and insetting framework, while Crop Growers LLC used Satellogic constellation data to test and develop a low-cost verification system.

Dagan tested and developed another low-cost verification process using AG's Operational Tillage Information System and the DeNitrification-DeComposition (DNDC) model. EFC Systems provided precision business planning services, environmental analysis, and evaluated economic and environmental performance using precision agriculture data sources.

Summary of the model financials

Assuming similar case context and practices as described 'Assessing agroforestry practices and soil and water conservation for climate change adaptation in Kenya' (2020)', The project's Net Present Value (NPV) without ERC in- and outflows – only considering non-ERC inflows through other revenue streams or cost savings enabled by the project – is negative at $0.5 million (M)[12]. With ERC cashflows, the project will improve to have a positive NPV of $2.4M, demonstrating the effectiveness of ERCs to enable these types of projects. Besides that, the high upfront investments costs also necessitate finding additional revenue streams in order to justify the execution of such projects. Moreover, NPV of project may improve beyond project period as income from agricultural products recurs.

Table 2: Summary of sources of inflows and outflows and key assumptions

Value component	Assumptions	Sources
ERC revenues or inflows	• Four issuances across the project's 20-year crediting period, at year 5, 10, 15 and 20 • $4.10 per tonne today for 495,022 estimated tonnes of ERCs likely generated in the first issuance • 10% price increase to $4.6 per tonne, $7.30 per tonne and $11.80 per tonne for each subsequent issuance of 495,022 estimated tonnes of ERCs	Average price of Agriculture project in Asia, Verified Carbon Standard (VCS) and Gold Standard (GS)
Non-ERC revenues or inflows	• Estimated incremental income: $104.40 per hectare (ha) • Land area covered: 45,000 ha • Non-ERC revenue calculated beyond ERC project period to year 30	'Assessing agroforestry practices and soil and water conservation for climate change adaptation in Kenya' (2020)
Investment cost	• Costs associated with adoption of terraces: $310 per ha	'Assessing agroforestry practices and soil and water conservation for climate change adaptation in Kenya' (2020)
Project implementation	• Annual maintenance cost: $26 per ha	'Assessing agroforestry practices and soil and water conservation for climate change adaptation in Kenya' (2020)
ERC generation	• $10,000 for the project's registration and first issuance • $15,000 for each verification process across four issuance cycles • $0.105 per tonne for subsequent three issuances	VCS Program Fees

Table 3: Net cashflows summary (in USD)

Components	Sum of initial outlays	Sum of in- or outflows from crediting period	Total cashflow
ERC Component			

Revenues/Inflows	0	33,288,634	33,288,634
Costs/Outflows	-10,000	-267,909	-277,909
Net value	-10,000	33,020,725	33,010,725
Primary/Non-ERC Component			
Revenues/Inflows	0	79,866,000	79,866,000
Costs/Outflows	-13,950,000	19,890,000	5,940,000
Net value	-13,950,000	99,756,000	85,806,000
Net Present Values			
NPV	$1,769,641		
NPV (ERC Component)	$2,452,178		
NPV (Non-ERC Component)	-$527,428		

Related Content

[Guidance for Countries in Assessing ERC Projects (Download PDF version) - coming soon!]()

Additional Resources

[Climate-Smart PPPs]()

[Finance Structures for PPP]()

[Financing and Risk Mitigation]()