



Building a Climate Resilient Potato Supply Chain Through a Whole-Farm Approach (RePSC)

Background

Climate change is threatening the livelihoods of farmers in Thailand at an increasing rate. The economic impact of climate change on Thailand's agriculture sector could be up to US\$420 million.¹ It is expected that the yield of major crops, such as rice and maize could fall by at least 3.6% by 2050. Unavoidably, farmers are facing challenges of more extreme weather patterns, and risks to their agricultural land, businesses, and communities.

Thailand is already experiencing the impact of climate change. Situated in Southeast Asia, the temperature of land surface in the region has increased by approximately 1°C over the past century.² The average temperature is increasing more rapidly, resulting in drought and severe negative impacts on the agricultural sector and farmers' livelihoods. These impacts of climate change also present a substantial threat to potato farming, particularly in the northern provinces of Chiang Mai and Chiang Rai.

Potato is an important crop for PepsiCo in Thailand, and our contract farming model supports the livelihoods of over 3,000 farming families across Thailand.

Studies showed that within the next 10 years climate changes forecast for Thailand could reduce potato productivity, increase risk of pests and diseases and increase costs of production.

Without substantial efforts towards climate change adaptation, the livelihood of these smallholder farmers will be at risk. Furthermore, a focus on a single crop

(e.g. potato) is unlikely to be sufficient. Farmers will need support across the entire farming cycle if they are to adapt successfully. Adaptation and mitigation opportunities identified through the International Center for Tropical Agriculture (CIAT) to maximize the benefits of rotations through a whole-farm approach includes both adaptation measures which increase the adaptive capacity of farmers as well as mitigation techniques which lead to an abatement of GHG.

1 International Centre for Tropical Agriculture, 2012

2 The Intergovernmental Panel on Climate Change (IPCC), (2014)

Information

A project of: develoPPP

Implemented by: Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)

On behalf of: Federal Ministry for Economic Cooperation and Development (BMZ)

Country: Thailand (Chiang Mai and Chiang Rai)

Project Partners: PepsiCo Services Asia Limited & Pepsi Cola (Thai) Trading Project

Duration: 10/2021-09/2024

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Objectives

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in cooperation with PepsiCo recognise that business sustainability depends on climate change resilience from upstream to downstream. Smallholder farmers are encouraged to adopt farming practices that promote improved livelihoods while adapting to climate change.

The project aims to strengthen the climate resilience of potato farmers in the Chiang Mai and Chiang Rai provinces. Regenerative agricultural practices are adopted throughout a whole-farm approach leading to capacity enhancement mitigation techniques among farmers and reduction of greenhouse gas emission. As a result, small-scaled potato farmers in northern Thailand are equipped with knowledge on climate resilience and adaptation essential for sustainable farming management.



Approach

The project leverages a farmer-centered design to build a multi-stakeholder and year-round solutions to accelerate adaptation and mitigation efforts while increasing market linkages and developing community adaptive capacity.

Activities in partnership with local and national governments, agronomic advisors, rotational crop off-takers and community groups will be carried out across the following approaches:

- ◆ **Crop Focused:** Introduce key climate change adaptation and mitigation actions that will both increase yields and efficiency and reduce the carbon footprint of potato production, such as drip irrigation, integrated pest management and higher seed rate.
- ◆ **Whole Farm:** Build partnerships to develop a climate-resilient crop rotation approach for rice and maize and provide technical assistance outside of the potato season to influence adoption of best practices at the farm level such as compost from crop residue, and rational fertilizer management.
- ◆ **Community Centered:** Build demonstrations farms, managed by lead farmers that are well respected in the local communities and that host farmer field schools in potato, rice and maize throughout the year. Additionally, facilitate farmer business trainings to provide training on farm economics and access to information, inputs and other services. The farmer field school training will also be gender-inclusive.
- ◆ **Regenerative and Climate-smart Practices:** Disseminate knowledge, educate and demonstrate sustainable agricultural practices that have both positive impacts on soil health and on the climate resilience of farmers; certain practices also reduce GHG emissions from agriculture. Such practices may include for example optimised crop rotation, Integrated Pest Management (IPM), fertiliser management, drip irrigation management, alternative wetting and drying for rice, straw and stubble management, composting and other.

Expected Results

- ◆ 2,100 out of 3,000 targeted farmers including at least 25% female farmers have increased their net farming income by at least 15% through adopting climate resilience practices.
- ◆ The targeted farmers are ready to adopt new regenerative agricultural practices for increasing soil health.
- ◆ GHG emissions have been reduced by 20% per tonne produced from participating farmers.
- ◆ New water use efficiency practices and technologies are implemented in at least 70% of irrigated areas engaged through the project.