EVALUATION & LEARNING FACTSHEET SERIES

Key Learnings from the Thai Rice Project

PROJECT NAME	CO2 MITIGATION	PROJECT DURATION	SECTOR	LOCATION
Thailand Low-Emission Rice (Thai Rice)	1,867,112 tCO_2e	2018-2024	cross-sectoral	

Mitigation Action Facility

On behalf of

Supported by:

Federal Ministry for Economic Affairs and Climate Action

on the basis of a decision by the German Bundestag

IKI INTERNATIONAL CLIMATE INITIATIVE

UK Government

Danish Ministry of Climate, Energy and Utilities

European Commission

CIFF CHILDREN'S INVESTMENT FUND FOUNDATION

The Project

OBJECTIVE

The objective of the project was to transition the Thai rice sector towards a low-emission trajectory. This was achieved by offering technical and financial support to farmers and service providers, as well as introducing policy change measures that promote low-emission rice production.

CONTEXT

Rice production has been responsible for nearly 55 percent of all emissions from Thailand's agricultural sector, the country's second largest greenhouse gas (GHG) emitting sector. Rice cultivation with traditional irrigation techniques like flooding of paddy fields causes large amounts of methane emissions, a greenhouse gas with a global warming potential 28 times higher than carbon dioxide.

APPROACH

The Thai Rice project initiated a transformation of Thailand's rice sector through low-emission production techniques. It offered technical training and financial assistance (a 50% subsidy) to farmers to implement a set of four mitigation techniques:

- **Alternate Wetting and Drying** (AWD) – reduces water consumption as well as GHG emissions through periodic draining of the rice fields.
- **Laser Land-Levelling** (LLL) – facilitates the levelling of rice fields, thereby enhancing crop yield and conserving energy.
- **Machine-based straw and stubble management** (SSM) – avoids burning rice straw and using it for livestock feed or bioenergy production instead.
- **Site-specific nutrient management** (SSNM) – helps to optimise fertiliser use and avoid nitrous oxide (N2O) emissions.

The project also supported service providers to enhance the market availability of these mitigation techniques. It provided training and established a national green credit programme to increase capital investment. It also introduced policy change measures to promote low-emission rice production at the national level, for example by supporting the development of the GAP++ standard for higher market value.

THE FACTS

Project Name
Thailand – Low-Emission Rice (Thai Rice)

Funding Volume Provided
EUR 14.9 million

Project Duration
2018-2024

Leveraged Funding
EUR 14 million

Call
4th Call (2016-2018)

Partner Ministries
Ministry of Agriculture and Cooperatives (MoAC); Ministry of Natural Resources and Environment (MonRE)

Implementation Organisations
Ministry of Agriculture and Cooperatives; Ministry of Natural Resources and Environment

Project Partners
Bank of Agriculture and Agricultural Cooperatives (BAAC); Sustainable Rice Platform (SRP); International Rice Research Institute (IRRI); OLAM International; National Community Rice Center (CRC) Network

Status
Completed

The Results

The project has effectively promoted basic low-emission farming practices in Thailand's rice sector.

1,867,112
tCO_2e

reduction until end of 2024.

319,526
HECTARES

of rice plots in Central Thailand have been farmed with low-emission practices.

2,544
VILLAGE FARMER GROUPS

have adopted low-emission farming techniques.

79,275
FARMING HOUSEHOLDS

increased their income by 20% through application of low-emission rice farming.

99,094
FARMERS

were directly and indirectly trained on low-emission and sustainable rice production in cooperation with the Rice Department and the Department of Agricultural Extension.

4,599
"SMART"-FARMERS

were trained as multiplicators, turning them into technical assistance and transformational thinking.

144
GOVERNMENTAL INSTITUTIONS

on the local and national level received capacity-building related to Monitoring, Reporting and Verification (MRV) for GHG emissions in the rice sector.

276
SERVICE PROVIDER MEMBERS

have received technical training.

14
MILLION EURO

have been mobilised from the private sector and the Royal Thai Government for carbon-neural investments and development.

GAP++
STANDARD

The project has developed the GAP++ standard, which has become a national voluntary standard and enables farmers to distinguish their low-emission rice from conventionally cultivated rice and sell it to higher-value markets.

The Legacy

"When you adapt the water supply to the rice plants, it is possible to achieve a substantial reduction in methane emissions."

Duangporn Vithoonjit, Agronomist at the Rice Research Center in Chai Nat.

"It is an extremely efficient method that leads to a higher yield and better rice quality, and it requires a lot less water and energy for the pumps. Our standard of living has improved quite a bit."

Chaleo Noisang, a rice farmer in Chai Nat, introduced LLL and AWD to his rice paddies.

The project has resulted in a shift in behaviour and the adoption of sustainable practices among rice farmers in the six provinces of the Central Plains of Thailand. This was accomplished by proving the economic benefits of low-emission cultivation practices and offering technical and financial support for their implementation. In interviews, rice farmers pointed out the positive impacts of a shift towards low-emission practices and in particular the continued use of Alternative Wetting and Drying as well as Laser Land-Levelling. They noticed a reduction in water consumption, pumping costs, and nutrient usage.

The positive accounts of farmers have led to a demonstrative effect and an increased adoption of low-carbon techniques in the region. This trend was accelerated by the project's „smart farmer" multiplicator program. Service providers have received requests from other provinces, highlighting the potential for scale-up.

The project has build up a knowledge base for technology development for government stakeholders as well as a series of open source training modules for service providers especially in Laser Land-Levelling, thus contributing to the sustainability of the project beyond its lifespan.

There is continued political commitment of national and provincial governmental institutions to keep up the goal of a transition towards a low-emission rice sector. Based on the GAPP++ standard, and supported by the project, the National Bureau of Agricultural Commodity and Food Standards (ACFS) and the Rice Department have developed and published a Thai Agricultural Standard for Sustainable Rice (TAS). ACFS is now developing a certification scheme for the Thai Agricultural Standard for Sustainable Rice (TAS) and the Rice Department pushes for low-emission rice research.

New multi-donor partnerships are deepening the transformation of the rice sector using the Thai Rice project as a baseline and upscaling its approach. The Green Climate Fund (GCF) project Thai Rice: Strengthening Climate-Smart Rice Farming aims for upscaling in 27 provinces and includes additional mitigation and resilience measures. Thus, a transformational effect of the Thai Rice project for the entire Thai rice sector is likely.

ACHIEVING TRANSFORMATIONAL CHANGE

The project sparked transformational change in Thailand's rice sector by piloting low-emission practices that reduced GHG emissions, establishing a solid Monitoring, Reporting and Verification (MRV) system, and strengthened national and local capacities to inform future climate, agricultural, and sustainable development policies.

The Learnings

The evaluation of the Thai Rice project has identified several lessons that can help shape future interventions and inform replication efforts. The most important learnings are:

LESSON 1

Combining mitigation and adaptation in agricultural climate action

Addressing climate change in agriculture requires a holistic approach that bridges both adaptation and mitigation. Initially, conceptualised as a mitigation-focused initiative, the project helped shift rice sector thinking towards setting emission reduction targets. However, as the project progressed, it became evident that there is also an urgent need to better equip farmers to cope with climate-related risks. A more integrated approach is needed – one that links sustainable practices to both cost savings and livelihood protection. Future efforts should place greater emphasis on communicating how such practices can improve farmers' resilience and reduce the impacts of extreme weather events.

LESSON 2

Institutionalising GHG emissions monitoring

The project successfully demonstrated the feasibility of measuring GHG emissions in the rice sector at the provincial level. This work, complemented by efforts from related initiatives by the International Rice Resource Institute (IRRI), laid the groundwork for building robust measurement frameworks for sustainable agricultural practices. To sustain and scale these efforts, it is essential to embed GHG monitoring into national policy frameworks. This includes continued training of technical staff, investment in measurement infrastructure, and institutional commitment to mainstreaming emissions tracking as part of agricultural planning and reporting processes.

LESSON 3

Strengthening market linkages for sustainable rice

To ensure that sustainable rice cultivation becomes economically viable for farmers, building and strengthening market linages is critical. The availability of differential product pricing for rice certified under the Sustainable Rice Platform (SRP) or the Thai Agricultural Standards for Sustainable Rice can create meaningful incentives for farmers to adopt and maintain climate-smart practices. Stakeholders across the agricultural sector should prioritise partnerships with buyers, traders, and certification bodies to enhance the visibility, demand and market value of sustainably grown rice. This is particually relevent for parters supporting the GCF-funded upscaling of the MAF Thai Rice project.

LESSON 4

Establishing a national cross-donor coordination platform

Thailand hosts a diverse range of donor-supported initiatives aimed at promoting climate-resilient agriculture and sustainable rice production. To maximise the collective impact of these efforts, there is a strong case for establishing a formal cross-donor working group at the national level. Such a platform would foster strategic collaboration, prevent duplication of efforts, and facilitate the exchange of knowledge, innovations, and good practices. It would also help align donor contributions with national priorities, ensuring more coherent support to the sector as a whole.

LESSON 5

Advocating for sustained policy alignment and national buy-in

As an early-stage model project, the Thai Rice Project had to invest considerable effort in mapping and navigating the policy landscape. Sub-national stakeholders emphasised the importance of national-level policy alignment to accelerate implementation on the ground. Future projects should prioritise continuous engagement with key institutions to ensure alignment with evolving policy agendas and sector priorities. Early and sustained advocacy at the national level will be vital to scale successful interventions and secure long-term institutional support.

MITIGATION ACTION FACILITY KNOWLEDGE & LEARNING HUB

A comprehensive list of all lessons can be found in the full final Evaluation & Learning Exercise (ELE) report available via the Mitigation Action Facility Knowledge & Learning Hub. Just select the filter "Report" and the country you are looking for in the pulldown menu of our digital library.

What Are the Evaluation & Learning Exercises (ELEs)?

The Mitigation Action Facility engages in a number of strategic efforts to extract lessons learnt from its project portfolio and create valuable resources for future implementations. All projects with an overall duration of more than three years are subject to both a mid-term and a final Evaluation and Learning Exercise (ELE). These evaluations are part of the Mitigation Action Facility's approach to catalyse transformational change through continuous monitoring processes that support fearless learning. The ELEs follow a theoretical framework that combines document reviews, participatory workshops, and stakeholder interviews to collect evidence for the in-depth analysis of project results and lessons. Mid-term ELEs are conducted halfway through the project to assess early progress, while final ELEs analyse the overall impact and lessons learned at the end of the project. All ELEs can be accessed through the Knowledge & Learning Hub on Mitigation Action Facility's website. This factsheet is based on the final Thai Rice ELE.

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