

Annex 23a

Knowledge management plan

GCF Funding Proposal

*Thai Rice:
Strengthening Climate-Smart Rice Farming*

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Version 1

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
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A. Knowledge Required and Created by the Project

A.1. What knowledge is required by the project during implementation?

The knowledge of, and practical ability to implement, climate-smart rice farming technologies and practices (LLL, AWD, SSNM, SSM, etc.) needs to be built among approximately 250,000 Thai rice farmers and agricultural service providers. This, in turn, requires the capacities of the agricultural extension system to communicate accurate and relevant information about climate-smart rice farming to be strengthened. Associated knowledge relating to sustainable agricultural standards (notably the TAS), climate insurance, basic financial literacy, carbon finance, gender-climate linkages and environmental & social safeguards must also be communicated to farmers.

Gender-disaggregated data relating to almost all aspects of climate-smart rice farming (e.g. with regard to training, to implementation of packages of climate-smart technologies and practices, to adaptation and mitigation impacts, etc.), including a detailed understanding of women rice farmers' particular needs and challenges.

The capacities of, and tools for, policy-makers to monitor and report GHG emissions from the rice sector, and to develop mitigation strategies accordingly, needs to be strengthened to ensure effective and efficient achievement of the NDC, the LT-LEDS, the NAP, the Climate Change Strategic Plan for the Agricultural Sector and other sectoral policies.

The capacity of Bank for Agriculture and Agricultural Cooperatives (BAAC) to design, implement and market financial products for climate-smart rice farmers needs to be strengthened. BAAC staff and credit officers are currently not knowledgeable on climate-smart agricultural technologies and their impact on cash flow patterns at the farm level. They are, therefore, unable to evaluate how the creditworthiness and financial situation of farmers and service providers may be affected by their adoption.

The capacity of the Environmental Fund Division (EFD) of ONEP to implement climate change projects needs to be strengthened in order to deepen national ownership of mitigation and adaptation interventions and to assist EFD in its efforts to become a GCF Accredited Entity.

New agronomic technologies that offer significant potential to support climate-smart approaches in the Thai rice sector require empirical validation because the magnitude and types of benefits generated are strongly influenced by the agricultural and socio-ecological context in which they are applied. Two key technologies in this regard are drones and Dry Direct Seeded Rice (DSR).

A.2. What processes and individuals will contribute to generating, processing and disseminating this knowledge?

Climate-Smart Capacity Building for Rice Farmers

The bulk of farmer capacity building will be implemented through the existing agricultural extension system infrastructure in close collaboration with the relevant government institutions and their sub-national structures – notably, the Rice Department (RD), the Royal Irrigation Department (RID), the Department of Agricultural Extension (DoAE) and municipality offices, as well as local farmer organisations. This existing infrastructure will be augmented by support from IRRI, relevant national scientific and technical organisations (such as Kasetsart University and King Mongkut University of Technology), the National Bureau of Agricultural Commodity and Food Standards (ACFS) and the Thailand Greenhouse Gas Management Organisation (TGO), as well as from non-government and private sector stakeholders.

The project will also facilitate private-sector participation in extension services, through: (i) sustainable rice off-takers such as Ebro Foods, MARS, Olam and PepsiCo, which will contribute, in particular, to integrating small-holder farmers into market-oriented sustainable rice value chains and facilitating off-taking agreements, including capacitating farmer groups on traceability and sustainability standards as well as accessing quality inputs; and (ii) additional climate-smart agriculture stakeholders, such as input providers and millers, associations and others.

At the national level, a group of agricultural extension officers, farmer organisations and technical experts will be established. This group will include RD, DoAE and – through the GCF-UNDP EWMSA project (FP170) – RID

staff, as well as specialists from IRRI, GIZ and Kasetsart University. Additional stakeholders will be invited to provide specialist inputs, as required – including NGOs and community groups that address environmental, social (e.g. migrant workers) and gender-related issues. They will develop the overall extension strategy and approach, as well as basic materials that can be adapted to local contexts at the provincial level. Together, these will form the backbone of the extension model manual. Also, a group of Master Trainers will be established to roll-out the national-level training to extension staff.

At the provincial level, provincial representatives from RD and DoAE, local farmer organisations and local service providers will facilitate the development of provincial-level extension strategies, in conjunction with RID, the Thai Meteorological Department (TMD) and other government institutions, as appropriate. Their work will include selection of the climate-smart technologies and practices most relevant to the provincial conditions and adaptation of the relevant (nationally-developed) training modules to the local context. They will also train a pool of provincial coordinators. The provincial coordinators will, in turn, train district extension staff and liaise with district extension staff and local farming communities to arrange local activities (peer-to-peer learning, training, field days, demonstrations, etc.).

Financial Literacy of Farmers

Sub-Activity 1.1.2.1 will develop a suite of training measures. Measures will include the development of a farmer-friendly financial literacy manual offering guidance on personal financial management (including insurance) and a training programme. The manual and training will be designed in a gender-sensitive manner under Sub-Activity 1.1.2.1 and will be delivered to farmers as part of the extension training under Sub-Activity 1.1.1.1. Additionally, more advanced, financial training materials, focused on investment calculation and planning, will also be developed for the sub-set of 50,000 advanced farmers who receive supplementary training under Sub-Activity 1.1.1.1. The manual, investment planning materials and training will be jointly developed by BAAC and the Thai Credit Guarantee Corporation (TCG), in coordination with RD and farmer organisations.

Validation of New Agronomic Technologies

Building on a number of baseline initiatives undertaken by the private sector as well as the GCF-UNDP EWMSA project, the project will work with farmer groups, entrepreneurs and IRRI to assess – and, if warranted, promote – the use of drones in conjunction with climate-smart rice agriculture as a precision farming technique: for monitoring of crop development; mapping water levels, irrigation systems and land elevation to guide LLL activities; and targeted pesticide spraying to reduce farm worker exposure to hazardous products as well as to reduce the overall amount of agrochemicals used. Where drone technology is found to be feasible and effective, training materials will be developed for the climate-smart training offered to farmers under Sub-Activity 1.1.1.1, to extension officers under Sub-Activity 1.1.1.2 and to service providers under Sub-Activity 2.1.1.2.

Verification of the suitability of DSR in the Thai context will be undertaken by IRRI in the first 2 years of project implementation, in cooperation with RD. Based on these findings, the technology will be rolled out to farmers – with appropriate geographical targeting and contextual user guidance – through the extension work under Sub-Activity 1.1.1.1.

Climate-Smart Capacity Building for Service Providers

Activity 2.1.1 will expand the pool of potential service providers by reaching out beyond the LLL market and the MSME sector hitherto targeted by the NAMA Support Project (NSP) to also include mega-farms, cooperatives, water usage groups and community rice centres, while making sure that women-led institutions are targeted specifically. These institutions typically attract high levels of trust from farmers (who are often co-owners) and have established track-records of jointly purchasing machinery and offering support services to their members. Whereas NSP technical assistance for service providers focused primarily on LLL, Thai Rice Project support will be broader, geographically and technically, and will encompass suites of additional climate-smart technologies that address climate change mitigation *and* adaptation, as well as more business-oriented support (how to build sustainable business models).

Agro-Met Service Provision

The project will link TMD with RD and DoAE so that TMD is able to reach out to farmers during the training under Sub-Activity 1.1.1.1 and to extension officers under Sub-Activity 1.1.1.2 to build relationships, raise end-user awareness and, ultimately, channel advisories to farmers. In order to expand the scope of existing agro-met advisories so that they can address the specific needs of climate-smart rice farmers, the project will support exchange of information and provide decision-support, as well as support data sharing, as appropriate. TMD will then (further) develop advisories tailored to the needs of farmers who are implementing AWD, SSNM, alternative rice varieties and the other climate-smart technologies and practices – for example, water management advisories for AWD practitioners and planting / treatment advisories for different rice varieties.

Climate Insurance

Sub-Activity 2.1.1.3 will develop, or build on existing, training manuals and materials that explicitly make the link – hitherto neglected in TRIS marketing and outreach activities – between climate change and insurance, and, specifically, the benefits available to farmers from transferring increasing (climate-driven) risk through insurance products, notably Tier 2 insurance. The benefits of an enhanced app for purchasing insurance, reporting damage and reviewing insurance information will also be assessed. These materials will be integrated into the financial training materials developed under Sub-Activity 1.1.2.1. In addition, Sub-Activity 2.1.1.3 will collaborate with the Geo-Informatics and Space Technology Development Agency (GISTDA), TMD, the Office of Agricultural Economics (OAE), universities and private sector insurers to support TRIS stakeholders to develop an index-based insurance model.

Climate-Smart Capacity Building for BAAC

Beneficiaries of the capacity building will be both corporate and provincial staff at BAAC who have been previously exposed to the Bank's farm lending activities and therefore have some pre-existing knowledge of agricultural lending. Capacity development will build on: (i) the finance training manual developed for farmers under Sub-Activity 1.1.2.1, which will have additional – more advanced, BAAC-oriented – chapters developed for it under Sub-Activity 2.1.2.2; and (ii) training workshops, each lasting up to 3 days and delivered by contractors appointed by the project in coordination with GIZ experts. The workshops will take place at BAAC offices throughout the project area and will be concentrated in the first 2 years of project implementation.

Strengthening Sustainable Rice Markets

The ACFS, with support from GIZ and the Management System Certification Institute (MASCI), is currently developing the Thai Agricultural Standard for Sustainable Rice (TAS) certification scheme. A training curriculum and materials for farmers will be designed for roll-out, jointly with RD and DoAE, to support advanced farmers and farm groups to achieve TAS compliance. A training curriculum and programme for auditors will also be designed and rolled out jointly with ACFS, to ensure that a pool of qualified auditors is available to provide services to farmer groups seeking TAS certification.

The project will engage with domestic and international off-takers, building their understanding of, and confidence in, Thai sustainable rice, and supporting linkages and channels of communication with farmers. The project will also partner with retailers, sourcers of sustainably produced rice and public agencies to launch consumer and public awareness campaigns to build Thai consumers' understanding of sustainable rice (and TAS-labelled rice in particular). Support will include marketing, communication toolkits for use by retailers / brands that procure / offer TAS-verified rice (or equivalent), off-taker / buyer support, and the development of a market development strategy for TAS-verified (or equivalent) rice. The project will also seek to develop more extensive – and deeper – links with value chain actors, including global food agribusinesses, input providers, technology providers, millers, traders, exporters, retailers and producer organisations active in the rice sector.

Policy Support

Policy support will focus on national-level linkages between agriculture and climate policy (primarily through the MoAC Climate Change Strategic Plan for the Agricultural Sector) and on linkages between the national and sub-national levels (such as provincial marketing strategies and provincial or district support schemes for climate-smart rice farming).

MRV Support

The project will work with RD, particularly its Division of Rice Research and Development (DRRD), to increase RD capabilities to lead MRV in the rice sector. This will be achieved through, inter alia: (i) expanding engagement and training on GHG emission sampling and seasonal farm activity data surveys to all Rice Research Centres within the project area; (ii) determining rice agro-ecosystem-specific EFs to support a Tier 2 approach; (iii) strengthening competencies of the 5 primary Rice Research Centres for data aggregation and analysis; (iv) providing tailored advanced training to DRRD on interpreting data, developing emissions scenarios and monitoring progress at national scale; and (v) providing technical advisory and facilitation support to consolidate the roles of stakeholders in operationalising the MRV system for the rice sector.

The project will also work with the MRV Committee to strengthen its institutional processes, to facilitate inter-agency exchange in line with the MRV Handbook and to build its technical capacities. The project will conduct a mid-term review of the Committee's structures and guidelines to ensure compatibility with (evolving) international standards.

Carbon Market Support

The project will support the Thailand Greenhouse Gas Management Organisation (TGO) to develop the T-VER Rice Scheme as a voluntary carbon market for rice farming. Under Sub-Activity 3.1.2.3, the project will work with TGO to develop a rice sector-specific offshoot of the T-VER Scheme – provisionally called T-VER Rice – that shares many of the same underpinnings as the T-VER Scheme but which generates a differentiated class of carbon credit – Rice T-VERs – and which is better suited to the realities of GHG mitigation in rice farming. The project will also work with the Thai carbon credit exchange, FTIX, to set up an online market for Rice T-VERs.

Thai Rice Facility

Under Activity 3.1.3, the project will create and operationalise the Thai Rice Facility, initially as a working group under the Project Management Unit (PMU). The Thai Rice Facility will be a coordination and peer-learning structure that brings together and coordinates the financial instruments supported by the project – the incentive payments for farmers (Sub-Activity 1.1.2.2), the BAAC Climate-Smart Loan (CSL) scheme for farmers and service providers (Sub-Activity 2.1.2.1), the Thai Rice Insurance Scheme (TRIS) products and evolutionary roadmap (Sub-Activity 2.1.1.3.), the T-VER Rice Scheme (Sub-Activity 3.1.2.3) and ThaiCI grant support to innovative climate-smart agriculture projects (Sub-Activity 3.1.3.2) – as well promoting alignment between key rice sector actors on broader policy issues, such as reorientation of rice subsidies to promote climate-smart farming, enhancing synergies between the TAS and index-based insurance, and harmonising and 'joining up' disparate farmer extension and outreach support services. Consultations will also involve private finance institutions that have previously expressed an interest in climate-smart agriculture, such as KasikornBank and Krungsri Bank as domestic actors and Rabobank as an international actor.

ThaiCI

EFD will implement ThaiCI with an additional (new) emphasis on, or potentially a dedicated window for, climate-smart rice agriculture, financed with GCF resources. EFD will also participate in the Thai Rice Facility management process, giving EFD exposure to climate finance and GCF project operations – thereby building its capacity to become a national GCF Accredited Entity, as well as providing a strong institutional link between the Thai Rice Facility and ThaiCI. In order to avoid overlaps with ongoing GCF readiness projects, which are mainly focused on the accreditation process and GCF project development, the EFD support provided by the Thai Rice Project will focus on GCF funds management, cooperation with the private sector, and monitoring, evaluation and reporting according to GCF standards and requirements.

A.3. Who are the key beneficiaries of project-created knowledge?

Key beneficiaries and producers of project-created knowledge include (non-exhaustive, presented in alphabetical order):

ACFS
BAAC

MASCI
MoAC

Chiang Mai University	MRV Committee
DoAE	OAE
Ebro Foods	Olam
EFD	ONEP
FTIX	PepsiCo
GISTDA	Rabobank
IRRI	RD
Kasetsart University	RID
KasikornBank	TCG
Mae Jo University	TGO
MARS	TMD

Additional beneficiaries of project-created knowledge will include farmers, service providers, insurance companies, NGOs, etc.

B. Knowledge Products

B.1. What knowledge products will be created/supported by the project?

Atingi Online Learning

In order to scale the training materials developed (manuals, presentations, etc.), the project will also develop a digital training toolkit on atingi, a free-of-charge, open-source digital learning platform that was developed by GIZ with BMZ support.¹ It is currently used in conjunction with more than 200 GIZ projects worldwide and over 100 public sector, private sector and CSOs. It can be accessed via computer, tablet or smartphone, in online and off-line settings. It represents an 'off-the-shelf' solution to ensure that the Thai Rice Project can scale-up its training materials – with required functionality such as progress reporting, scoring, issuance of completion certificates, data protection, etc. – quickly and cost-effectively. The decision on which contents to implement as digital training will be taken during project implementation.

Digital Apps and Tools

The project will support the use of mobile digital apps and tools in a number of contexts:

- Provision of training content for farmers (Sub-Activity 1.1.1.1)
- Capacity building of service providers on topics that rely heavily on digital tools (such as agro-met advisories and insurance) (content developed under Sub-Activities 2.1.1.2, 2.1.1.3, etc.)
- Reporting crop damage and facilitating rapid claim payments (Sub-Activity 2.1.1.3)
- Match-making between farmers and service providers (Sub-Activity 2.1.1.1)
- MRV of GHG emissions (Section E.7.2), including through digital, satellite-data-based and drone-based approaches, and also in support of Sub-Activity 3.1.2.3 for carbon market (T-VER Rice) implementation
- Monitoring and evaluation

Sub-Activity 1.1.1.3 will develop a digital solution to perform all of these functions. In order to save costs and reduce development time, the project will seek to build on and enhance an existing model. Emphasis will be placed upon technical simplicity from a user perspective, given the relatively low literacy / technical competencies of farmers and given the prevalence of basic smartphones in rural Thailand.

Farmers' Financial Literacy

Sub-Activity 1.1.2.1 will include the development of a farmer-friendly financial literacy manual offering guidance on personal financial management (including insurance) and a training programme. The manual and training will be designed in a gender-sensitive manner under Sub-Activity 1.1.2.1 and will be delivered to farmers as part of the extension training under Sub-Activity 1.1.1.1. Additional, more advanced, financial training materials, focused on investment calculation and planning, will also be developed for the sub-set of 50,000 advanced farmers who

¹ <https://www.atingi.org/>

receive supplementary training under Sub-Activity 1.1.1.1. The manual, investment planning materials and training will be jointly developed by BAAC and the Thai Credit Guarantee Corporation (TCG), in coordination with RD and farmer organisations.

Climate Insurance

Sub-Activity 2.1.1.3 will develop training manuals and materials on climate change and insurance. These materials will be integrated into the financial training materials developed under Sub-Activity 1.1.2.1.

BAAC Capacity Building

In addition to delivering the training programme, Sub-Activity 2.1.2.1 will also produce training materials and knowledge tools, for use during project implementation and also for re-use in future training sessions that BAAC may decide to run independently. Such tools will include documents, presentations and BAAC web pages.

Service Providers

Based on international practices and IRRI experiences, the project will detail different – geographically-differentiated – options for the usage of collected rice straw / stubble as alternatives to burning. Details for each alternative use, including using rice straw as fertilizer, as a building material, as an energy source, paper production from rice straw pulp, etc., will be itemised: for example, their required inputs, costs, regulatory considerations, potential markets and prices that can be achieved for the end-product. Thus, the economic viability of different straw uses will be clearly outlined to farmers and local communities through the respective materials.

The project will also introduce an easy-to-use, digital match-making platform / app for service providers.

Sustainable Rice Markets

The project will work with MoAC, other relevant government institutions (e.g. ACFS and ONEP) and the private sector to develop a market development (including export promotion) strategy for Thai sustainable rice, with a particular emphasis on TAS-certified rice and the linkages (and potential gaps) between TAS and other – more internationally-oriented – sustainable rice standards.

IRRI will, during the final year of project implementation, organise one regional conference and one side event at the International Rice Congress to share key lessons learned from the Thai Rice Project – on, for example, technology development and transfer, market development, enabling policy frameworks, the gender aspects of climate-smart rice farming, access to climate finance, GHG estimation and MRV in the rice farming sector, etc.

The project will organise a study tour for interested government officials and experts from ASEAN and other countries, as appropriate, to visit Thailand and experience first-hand how the project has transformed rice farming. This will foster peer-to-peer learning and allow the officials to apply elements of the project in their respective countries.

Key project implementation partners will promote project results through academic and non-academic publications and participation in international conferences.

Thai Rice Facility

The Thai Rice Facility will develop policy briefs / knowledge products on, among others: (i) a stock-take and recommendations relating to Thai climate-smart agricultural finance instruments developed, and (ii) international best practices and developments in climate-smart agricultural finance, and how they can be implemented in the Thai context. It will also develop a dedicated Climate Finance Strategy for the Thai rice sector and host a public-private sector forum on Thai rice.

B.2. How are the different needs of project beneficiaries (e.g. gender) addressed?

Stakeholder learning support and knowledge products will reflect beneficiary needs and constraints – for example, literacy levels, internet access constraints, low incomes, etc. Training curricula and materials will be developed to be farmer-friendly (e.g. in local languages, literacy-sensitive and written from the farmers' own benefit-oriented perspective), and will undergo constant quality improvement to meet farmer needs.

Particular emphasis will be placed on reaching women farmers, younger farmers (defined as being under the age of 42), ethnic groups and farmers who are, because of their socio-economic circumstances, particularly vulnerable to climate change – including those from women-headed households, skipped-generation households, and migrant farmers and farm workers. With regard to women farmers, for instance, the project will endeavour to schedule training workshops at times and places that respect women's unique constraints (e.g. relating to household chores and childcare) and may provide women-only training sessions to promote more active participation.

Through establishing gender policies and an action plan, conducting gender-oriented training to improve gender analysis capabilities and creating a forum to hear from both women and men (especially those who have difficulties participating in project activities due to care work responsibilities), the needs of vulnerable people will be highlighted and acted on.

C. Knowledge Mainstreaming and Sustainability

C.1. How is the project's knowledge management approach linked to complementary information channels (e.g. government, donors, CSOs)?

Where possible, the project's knowledge management approach utilises existing systems and infrastructure – most notably in the case of the national agricultural extension system. Not only is such an approach more efficient and cost-effective, it promotes national ownership, leverages existing stakeholder relationships and overcomes potential barriers (e.g. farmer risk aversion through information provision and support to peer-to-peer knowledge exchange).

The project builds on and will coordinate with a number of baseline projects – for example, with the UNEP-GEF ISRL-T baseline project (focused primarily on the North-East), which is improving local farming conditions through a landscape approach in order to reduce rural exodus. It will also support the conceptualisation of further initiatives on climate-smart rice. This includes the CRRL / SRLI baseline project that is currently under development:

the Thai Rice Project can serve as a front-runner initiative for FAO and others to lay the groundwork at the national level for the CRRL to build on and replicate at the regional (multi-country) level.

The project also explicitly seeks to combine and sequence a range of complementary information channels. The project will, for example, combine MRV data collection for GHG purposes with data collection for other climate-relevant applications – notably, monitoring the uses of, and impacts of, farmer incentive payments and climate-smart loans under the CSL scheme; ground-truthing of remote-sensing data and on-site damage assessment for insurance product development; monitoring and quality assurance of TAS-certified farmers and carbon market activities; and calibration of high-resolution agro-met data to improve the relevance and quality of farmer advisories. Not only does such an integrated data collection system offer obvious cost-saving benefits, it will also open up promising opportunities for new climate products and approaches – for example, insurance products that are calibrated for different rice varieties, insurance products that specifically target TAS-certified farmers, or carbon finance revenue streams linked to the TAS.

C.2. How will knowledge benefits be sustained beyond the lifetime of GCF funding?

Involving farmer organisations and the private sector in the provision of extension services will contribute to both the effectiveness of the intervention as well as the overall sustainability of the project. The private sector participants are committed to growing the sustainable rice sector in Thailand and have pre-existing partnerships in place with GIZ and other development partners. Extension activities and events that benefit from private sector support will not advertise or market individual products or brands, and all information provided will be fair and neutral. The project will ensure that training curricula across the public and private sector institutions are aligned.

The individual capacities of national institutions, including MoAC, MoNRE, EFD and BAAC, to implement climate- measures in the rice sector – including through an expanded and capacitated ThaiCI – will be strengthened, as will their ability to coordinate and 'join up' efforts through the new Thai Rice Facility.

Experiences and knowledge generated in Thailand will be disseminated throughout the region. The FAO Regional Office for Asia and the Pacific (FAO-RAP) and ASEAN – through contributions to relevant ASEAN Policy Frameworks / Guidelines, working groups / bodies / networks (e.g. the ASEAN Multi-Sectoral Framework on Climate Change: Agriculture and Forestry towards Food and Nutrition Security and Achievement of SDGs (2018), the ASEAN Integrated Food Security (AIFS) Framework and Strategic Plan of Action on Food Security (SPA-FS) 2021-2025, AMAF's Approach to Gender Mainstreaming in the Food, Agriculture and Forestry Sectors (2018), the ASEAN Sectoral Working Group on Crops (ASWGC), the ASEAN Climate Resilience Network (ASEAN-CRN), of which Thailand is the Chair, etc.) – will be engaged to disseminate and exchange knowledge and feed that knowledge into relevant processes.