

Green jobs and Just Transition policy readiness assessment in the agricultural sector

Case study in Mae Chaem District, Chiang Mai –
Specific focus on the Khok Nong Na Model

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Contents

Acknowledgement	i
Abbreviations and acronyms	iii
1. Introduction	1
1.1. Background	1
1.2. Objectives	2
1.3. Methodology	2
2. Policy readiness for supporting green jobs and a Just Transition in the agricultural sector	4
2.1. Green jobs and a Just Transition in agriculture	4
2.2. Policies and financial support for green jobs in the agricultural sector	5
2.3. Labour force impacts of COVID-19 on the agricultural sector	8
2.4. Skills development for greening the economy in the agricultural sector	9
3. The Khok Nong Na Model and key findings	10
3.1. The “Khok Nong Na Model”	10
3.1.1. Monitoring and coordination system	12
3.1.2. Process for the development plan approval at local level	13
3.1.3. Overall implementation of Khok Nong Na Model project in Chiang Mai Province	14
3.2. Khok Nong Na Model implementation in Mae Chaem District	16
3.2.1. Khok Nong Na skill training in Mae Chaem	18
3.2.2. Marketing channels	18
3.3. Implementation and Just Transition challenges	18
4. Analysis of the case study	22
4.1. Policy coverage, policy coherence and the coordination system	23
4.2. Green jobs potential and opportunities in the agriculture sector	24
4.3. Knowledge and skills gaps in greening agriculture	25
4.4. Linkages to other sectors such as tourism	26
5. Conclusion and recommendations	27
5.1. Conclusion	27
5.2. Recommendations	28

Abbreviations and acronyms

CDD Community Development Department (Ministry of Interior)

DSD Department of Skills Development (Ministry of Labour)

MOAC Ministry of Agriculture and Cooperatives

MOU memorandum of understanding

NESDC National Economic and Social Development Council

PAGE Partnership for Action on Green Economy

SEP Sufficiency Economy Philosophy



1. Introduction

1.1. Background

Thailand joined United Nations (UN) programme the “Partnership for Action on Green Economy” (PAGE) at the end of 2019 to facilitate its transition toward an inclusive green economy. The Royal Thai Government expects the country to achieve the targets set in the National Strategy (2018–2037), which has embraced green economy principles under its “Sufficiency Economy Philosophy”.¹

This assessment is part of the ILO’s support for the PAGE Thailand Green Recovery project – a collaboration between five UN agencies – United Nations Environment Programme (UNEP), the ILO, the United Nations Industrial Development Organization (UNIDO), the United Nations Institute for Training and Research (UNITAR) and the United Nations Development Programme (UNDP) – that aims to accelerate progress towards inclusive, green and sustainable development in partner countries, with the National Economic and Social Development Council (NESDC) serving as the government focal point for Thailand.

This case study report examines the experience of green jobs and a Just Transition to environmental sustainability (hereafter, a “Just Transition”) in the Thai agricultural sector with a specific focus on the Khok Nong Na Model in Mae Chaem District, Chiang Mai Province. It is drawn from one of the Thai Government’s six 400 billion baht Rehabilitation Fund recovery projects on agriculture that are the subject of wider PAGE

¹ For more information, please refer to: <https://www.un-page.org/thailand>.

Green Recovery work, for example, the fiscal stimulus support evaluation by UNDP and UNIDO. The study assessed local stakeholders to better understand their needs regarding decent work, green jobs and a Just Transition through guided questionnaire-based interviews that aimed to better understand priority sectors (in this case, agriculture) for green jobs promotion among local stakeholders, their role in promoting green jobs and participating in a Just Transition, and current gaps and challenges associated with greening and green jobs policies in the agriculture sector.

This report will therefore contribute to more evidence-based green policymaking and implementation with a focus on decent employment in the agricultural sector. This report also provides information for the development of training materials as part of a capacity-building green jobs knowledge study tour, which will utilize the Khok Nong Na Model as an example for in-depth evaluation and will operate as a knowledge-intensive activity where participants journey to a specific site and learn through experience and narrative explanation.

1.2. Objectives

The objectives of this analysis of green jobs and Just Transition readiness in the agricultural sector in Chiang Mai include:

- i. assessing policy coverage and policy coherence;
- ii. identifying and assessing skills gaps;
- iii. identifying linkages to other sectors, such as tourism; and
- iv. providing recommendations for further supporting green jobs and a Just Transition in the agriculture sector.

1.3. Methodology

The case study was undertaken through desk-based research and interviews with government officials, community leaders and farmers. The research applied a case study approach focusing on the implementation of the Khok Nong Na Model for harnessing the green job potential of the agricultural sector. Specific efforts were deployed to ensure a strong voice and representation of women and their representative organizations in all consultations. Ten government officials (6 women, 4 men) and 13 farmers (5 women, 8 men) were interviewed for data collection. Data for the case study was collected through:

Document analysis – This started with a review of secondary documents/research to identify elements of green jobs and a Just Transition in the agricultural sector at all levels. The document analysis clarified the framework of the data assessment, which entailed the development of questionnaire sets and topics for discussions related to the objectives of the Green Jobs and Just Transition Policy Readiness Assessment and the findings of the research note.

Interviews with local government officials were conducted using a structured questionnaire (see Annex 1) and a strengths-based approach, where stakeholder discussions start by identifying existing activity in green employment and a Just Transition. The site visits and face-to-face interviews with key stakeholders were conducted in Maung District and in Mae Chaem District to highlight and characterize specific issues/hotspots as well as to capture the thoughts of these stakeholders on the opportunities and challenges for enhancing capacity for green jobs and Just Transition policy settings and investments.

The procedure for contacting stakeholders included submitting letters and organizing initial interviews/discussions with the Chiang Mai Provincial Community Development Office, Provincial Labour Office Chiang Mai, Chiang Mai Institute for Skills Development, Community Development Office in Mae Chaem, and District of Office in Mae Chaem.

The focus of these interviews was:

- The status of implementation of the Khok Nong Na Model project, challenges that exist in the implementation, and quality assurance at all levels.
- How implementing organizations and institutions are expected to progressively support the sustainability of green and decent jobs in the agricultural sector.

Interviews with local stakeholders in Mae Chaem District focused more on their:

- understanding of readiness for and participation in green jobs in agricultural sector; and
- capacity and knowledge before and after the project started; and
- relationships with governments and institutional bodies.

The case study location is pinpointed in figure 1 below.

Figure 1. The study site in Mae Chaem District, Chiang Mai Province



2. Policy readiness for supporting green jobs and a Just Transition in the agricultural sector

Thailand has a total area of 321 million *rai* (or about 51.4 million hectares)² and 41 per cent of the land is used for farming (Singhapreecha 2014). The agriculture sector in Thailand employs around 30 per cent of the total labour force, covering 6.4 million households (UN Thailand 2020). Between 2008 and 2017, the agricultural economy in Thailand continued to grow at an average of 4.74 per cent per year. However, agricultural production accounts for only 10 per cent of the gross domestic product (GDP) (Nuchmorn 2019), and it has decreased by 3.6 per cent due to the COVID-19 pandemic (Thailand, NESDC 2021). Thus, loss of income and food inflation have substantially hit lower- and middle-class communities, which has created tensions in the market and increased food security risks (Sinha and Swain 2022).

2.1. Green jobs and a Just Transition in agriculture

A “green job” in agriculture is an environmentally friendly job that helps prevent toxic run-off, soil contamination, and water pollution from chemicals by using organic methods of farming; reduces mono-crop plantations; and/or restores natural resources – while also providing a reasonable income.³ Thus, a “green transition” in agriculture means making jobs better for the environment and for human health.

² A *rai* is a traditional unit of land area in Thailand. One *rai* is equal to 0.16 hectares.

³ This definition is based on the data collected through the interviews and from the Capacity-Building Workshop for government and farmer communities on Green Jobs and a Just Transition in Thailand, 24 November 2022.

However, a job associated with an economic activity that is more environmentally sustainable than the norm or which contributes to such improvement in concerned sectors might not be considered a “green job” if it does not meet conditions of the ILO’s Decent Work Agenda. Decent work means dignity, equality, a fair income and safe working conditions (ILO, n.d.). Examples of “green but not decent jobs” include low-wage jobs, jobs with inadequate occupational safety, or jobs that involve child labour (Jarvis, Varma, and Ram 2011).

A “Just Transition” is a process of change that leads to a better quality of life for everyone, improves environmental protections, applies new innovations towards a green economy, including green skills development, without leaving anyone behind, and is achieved through social dialogue.⁴ The transition to more sustainable agriculture can deliver more employment opportunities and better working conditions (Bianco 2015). Sustainable agriculture for small-scale farmers in Thailand means an agricultural system that will lead farmers to self-sufficiency and provide for ecological balance in farm communities. It can therefore be seen as an alternative solution, with different farming methods being used by small-scale farmers, rather than them being engaged in mainstream agriculture based on market forces. In addition, sustainable agriculture must be adapted to the different contexts involved, such as local rural culture and traditional wisdom (Jitsanguan 2001). However, making the transition toward sustainable agriculture requires a high level of investment in the initial phase. Along with technological changes, demography and other drivers, changes to agriculture work will have a pronounced impact on employment and the demand for skills. To achieve sustainable agriculture, awareness-raising and knowledge sharing on green jobs and a Just Transition and the integration of the Sufficiency Economy Philosophy (SEP) concept into livelihood improvement should be provided.⁵ Therefore, measures such as green skills training, debt payment and the provision of green credit at lower interest rates may be required to provide incentives and opportunities for farmers in Thailand to transition to sustainable agriculture (WWF 2019)

Box 1. What are “green jobs”?

Green jobs are jobs that are good for people, good for the economy, and good for the environment. They are a mechanism to achieve both sustainable development as well as quality employment, in that they can provide the double dividend of just and decent employment creation with reduced environmental impacts. Developing and implementing policies to promote green employment is the ambition of governments around the world as well as the subject of many international and multi-lateral commitments (for example, the Paris Agreement, the Sustainable Development Goals (SDGs), the Climate Action for Jobs Initiative (CA4JI)).⁶

2.2. Policies and financial support for green jobs in the agricultural sector

Thailand has placed increased focus on the digitalization of its food and agriculture supply chain in recent years since the introduction of the 20-year National Strategy (2018–2037) and the Thailand 4.0 strategy. In 2022, four major subcommittees were formed within the Ministry of Agriculture and Cooperatives (MOAC)

⁴ Information from the Capacity-Building Workshop for government and farmer communities on Green Jobs and a Just Transition in Thailand, 24 November 2022.

⁵ Information from the Capacity-Building Workshop for government and farmer communities on Green Jobs and a Just Transition in Thailand, 24 November 2022.

⁶ This definition is based on the ILO PAGE Thailand Green Recovery Workplan, 9 February 2021.

for the transition, individually focusing on: (i) big data and government technology; (ii) smart agriculture; (iii) e-commerce, and (iv) agribusiness. It is expected that innovations in these areas and better use of technology for marketing will improve the agri-food sector (Neo 2022). The MOAC also allocated 851 million baht to support 94 projects related to organic food products. Within this budget, 122.2 million baht will go to 25 projects to improve marketing, services and organic farming standards (Bangkok Post 2022). In addition, the Agriculture Department is planning to establish a research team on economic crop breeding and genomic technologies to ensure the sustainability of Thailand's agriculture (The Nation 2022). See Annex 2 for more details on strategies and policies to improve the competitiveness of the agricultural sector in Thailand.

The policies to promote the greening of the agricultural sector are linked to the 20-year National Strategy, with a recent draft of the 13th National Economic and Social Development Plan (NESDP) stating: "Thailand will become one of the world's leading producers of agricultural products and high-value processed agricultural products." This goal in relation to the agricultural sector is also linked to three of the overall aims of the National Strategy: (i) enhancing competitiveness to ensure consistent economic growth; (ii) broadening opportunities to improve social equality; and (iii) promoting environmentally sustainable growth with improved quality of life (Thailand, NESDC 2021). In 2018, the Royal Thai Government launched the National Organic Agriculture Development Strategy (2017–2021) and the 20-year Agricultural and Cooperative Strategy with the main goal of achieving a per capita income for farmers of more than 416,000 baht per year (FAO 2018). In addition to financial support, the Thailand Board of Investment (BOI) – via the Investment Promotion Act of 1977 as amended in 2017 and the Competitive Enhancement Act 2017 – provides tax incentives for the agriculture, bio and medical industries (PWC 2023).⁷

As part of the 20-year National Strategy, two measures to encourage investments in agriculture include the creation of a digital trading centre and the promotion of an agricultural industry based on the Bio-Circular-Green (BCG) economic model to promote competitiveness and growth, especially in the herbal sector (NNT 2022). Moreover, the BOI has been supporting the production of modern farming or so called "smart farming" systems, which incorporate the design and use of software to manage the farming process. Smart farming systems also help farmers reduce costs, optimize production processes and standards, and control production quality in line with market demand. To this end, investment project applications for agricultural businesses and production of agricultural products reached a value of 30,230 million baht in the first half of 2019, a 96 per cent increase compared to the same period in 2018 (Thailand, BOI 2019).

The Government's measures in response to the COVID-19 crisis also included a focus on agriculture and food support. In April 2022, the Cabinet approved a budget of 2,054 million baht to support projects by four government higher education institutions, namely Mahasarakham University, Rajamangala University of Technology, Maejo University and Mahasarakham Rajabhat University. The aim of these projects is to restore the economy in the agricultural sector and to assist community enterprises that were impacted by the COVID-19 pandemic. Five sub-projects under this budget consists of:

- i.** an action research project to promote the development of professional skills in the agricultural sector and to strengthen community-based economies, targeting a network of 3,500 community enterprises;
- ii.** the potential development of products by community entrepreneurs to restore local economies and communities, targeting 1,200 groups of local community enterprises in the North-east;
- iii.** a technology transfer and innovation project to add value and strengthen economies in the agricultural sector amid the COVID-19 crisis, targeting 3,700 groups of farmers and community enterprises;

⁷ For more details on the List of Activities Eligible for Investment Promotion Section 1: Agriculture and Agricultural Products, please visit https://www.boi.go.th/upload/section1_en_wt_link.pdf.

- iv. a career development and promotion project to increase income and reduce the expenses of modern agriculture/BCG technology during the COVID-19 pandemic, targeting 5,001 groups of community enterprises in the North; and
- v. a jobs creation and development project aimed at local economic recovery from the COVID-19 pandemic and movement towards sustainable development, targeting 3,300 groups of community enterprises, community volunteers, agriculture cooperatives and One Tambon One Product groups in the South and North-east (Thailand, Royal Thai Government 2022).

Table 1 below shows some of the policies and projects for promoting environmentally friendly agriculture developed by government agencies and the private sector.

Table 1. Policies and projects for promoting environmentally-friendly agriculture in Thailand

Ministry/agency/bank	Department/group	Agricultural policy/project
Ministry of Interior	Community Development Department	Khok Nong Na Model
Ministry of Interior	Department of Provincial Administration	Green agricultural market
MOAC	Land Development Department	Green agriculture city model
MOAC	Department of Agriculture Extension	One Tambon One New Theory Agriculture Group
MOAC	Sustainable Agriculture Development Committees	Sustainable Urban Agriculture Development (SUAD) Project
MOAC	n/a	Special Agricultural Products (SAP)
MOAC	Office of Agricultural Economics	Organic rice products
MOAC	n/a	Agriculture and Cooperatives 20-year Strategy
MOAC	n/a	National Organic Agriculture Development Strategy (2017–2021)
NESDC	n/a	Organic Agriculture Action Plan 2023–2027 (draft)
NESDC	n/a	Master Plan under the National Strategy (3) Agricultural Issues (2018–2037)
Ministry of Labour	Department of Skill Development	Value added to the processing of agricultural products with technology and innovation
Electricity Generating Authority of Thailand	n/a	Renewable Energy Credit
Bank for Agriculture and Agricultural Cooperatives	n/a	Green credit; Green bonds

n/a = Information not available. Source: Compiled by the author, 2022.

Under the 20-year National Strategy, in 2019 the Ministry of Interior, through its Community Development Department (CDD), started to carry out the **Model Area Development Project for Quality-of-Life according to the New Theory Applied to the “Khok Nong Na Model”** together with the King Mongkut’s Institute of Technology Ladkrabang and network partners, including in government, academia, the religious sector, the media sector, and the private sector. The Royal Thai Government expects that this project will provide solutions to sustainable development challenges due to the COVID-19 crisis, and that it could become an example of successful policy implementation at the local level (Thailand, Ministry of Interior, CDD n.d.).

2.3. Labour force impacts of COVID-19 on the agricultural sector

Employment in the Thai agricultural sector decreased by 20.44 per cent between 2010 and 2019 (Thailand, DEPA 2020). According to the National Statistical Office of Thailand, the labour force participation rate of young people (ages 15–24) in the agricultural sector has decreased over decades, from 35.3 per cent in 1987 to just 12.1 per cent in 2011 (NSO, n.d.). Conversely, the proportion of older workers aged 40–60 years increased from 39 per cent in 2003 to 50 per cent in 2020, and during the same period, the proportion of elderly workers over 60 years of age increased from 13 per cent to 20 per cent (Puthsri 2022). In addition, many labourers migrated back to the villages after failing to secure employment in cities, adding to the pressure placed on natural resources and spurring deforestation (Sinha and Swain 2022). However, the agricultural potential of Thailand is not in itself a limiting factor for young people to start farming as their main occupation, but rather the lack of a welfare support system for agriculture work, along with relatively low incomes and a lack of financing opportunities for land ownership.⁸ Although almost 30 per cent of the Thai population work in the agricultural sector, there are serious and continuing labour shortages in the sector in particular segments and regions (ILO 2022).

The COVID-19 pandemic has impacted people’s income and jobs.⁹ Farmers in Thailand have suffered greatly from being unable to sell their agricultural products due to travel restrictions. There have been more examples of oversupply of agricultural products in the market, as well as declining demand and exports. According to a survey by Manakitsomboon (2020), around 33.4 per cent of the agricultural households in 2020 stated that they distributed fewer agricultural products through intermediaries during the pandemic. Another survey on agricultural issues faced by community farming showed sales of agricultural products decreased by 64.6 per cent as of March 2021 (Manakitsomboon 2021). Further the study highlights that COVID-19 has caused uncertainty in Thailand’s agricultural trade flows and caused a disruption of the supply chain in Thai agriculture. Nationally, this has resulted in a 39 per cent reduction in farm household income, as well as a reduction of smallholder income of around 40.3 per cent due to oversupply and the inability of farmers to plant seeds as of the onset of the pandemic (UN Thailand 2020). Therefore, the Government, farmers and international organizations will need to work together to keep a balance between business operation efficiency and promoting trade facilitation for farmers (Thammachote and Inthisang Trochim 2021).

In 2020, the Ministry of Labour promoted an employment scheme in the agricultural sector, starting with 41,000 job openings in the Royal Irrigation Department’s 208 projects. These jobs, including maintenance and construction work on irrigation systems, water quality management, and water disaster prevention and mitigation, are reserved for registered persons receiving irrigation support who cannot farm their off-season rice (NNT 2020). As part of its package for the economy to recover from the COVID-19 pandemic, the Royal Thai Government also anticipated the Khok Nong Na Model to be one of the mechanisms for job creation and to generate income for 9,188 migrant workers and for new graduates who return back to rural communities (Thailand, NESDC 2021b).

⁸ Interview with Farmer 10, 21 June 2022.

⁹ Interview with Provincial Labour Office Chiang Mai representative, 17 June 2022.

2.4. Skills development for greening the economy in the agricultural sector

The Department of Skill Development (DSD) has conducted a training programme on the development of labour potential to meet international organic standards and to manage the requirements of such a system (Thailand, Ministry of Labour, DSD, n.d.). The project aims to increase the value added of agricultural products by processing them using technological innovations, and it has been introduced to all 77 provinces by the DSD as of the 2022 fiscal year (see Annex 3 for more information) (Thailand, Ministry of Labour, DSD 2022). This project also aims to improve the skills and capacity of farmers, the related labour force and other people impacted by the COVID-19 pandemic by integrating technology and innovation into the processing of agricultural products (Bangkokbiznews 2022). The Cooperative Promotion Department (CPD) has allocated 2.5 million baht for the Occupational Skills Development project under the Returning Children and Farmers Home 2022 project to improve agricultural skills in order to generate more income for farmers. The CPD expects that farmers' income will increase by 3 per cent compared to 2021 and expects to have 884 farmers participating in the project in 2022. One of the training plans for 2022 will be focused on skills development for production planning and the extension of agriculture marketing channels (*Technology Chaoban* 2022).

At the provincial level, in 2021, the Provincial Labour Office Chiang Mai has supported employment and skills development in the agricultural sector through the Model Farm Project in Chom Thong District. A total of 60 farmers were paid 300 baht per day for 60 days of working on the farm. The farmers were trained by the Chiang Mai Institute for Skills Development and the Agricultural and Cooperative Office on how to apply the Sufficiency Economy Philosophy (SEP) concept on the farm, as well as soil improvement, irrigation systems, terrace cultivation and integrated farming. This support also aims to help people who have been impacted by the COVID-19 pandemic.¹⁰ In addition to providing skill improvement support in the agricultural sector, the Chiang Mai Institute for Skills Development has provided training support to farmers on how to produce effective micro-organisms (EM) fertilizer and how to use the internet of things (such as temperature and humidity sensors, soil pH checks, automatic watering, watering timers, and so on) to reduce costs related to crop production as well as to reduce the use of water and chemical fertilizers. Moreover, the Institute was also invited to train soon-to-be-released prison inmates in organic farming skills and the Khok Nong Na Model at the Chiang Mai Central Prison, under the budget of the project of His Majesty King Maha Vajiralongkorn Phra Vajiraklaochaoyuhua. Most of the people trained have expressed an interest in how to apply digital technology on their farms. However, this was not directly part of the Khok Nong Na Model project implementation under the 400 billion baht Rehabilitation Fund.¹¹

¹⁰ Interview with Labour Specialist, Senior Professional Level, Provincial Labour Office Chiang Mai, 17 June 2022.

¹¹ Interview with Chiang Mai Institute for Skills Development representatives, 17 June 2022.



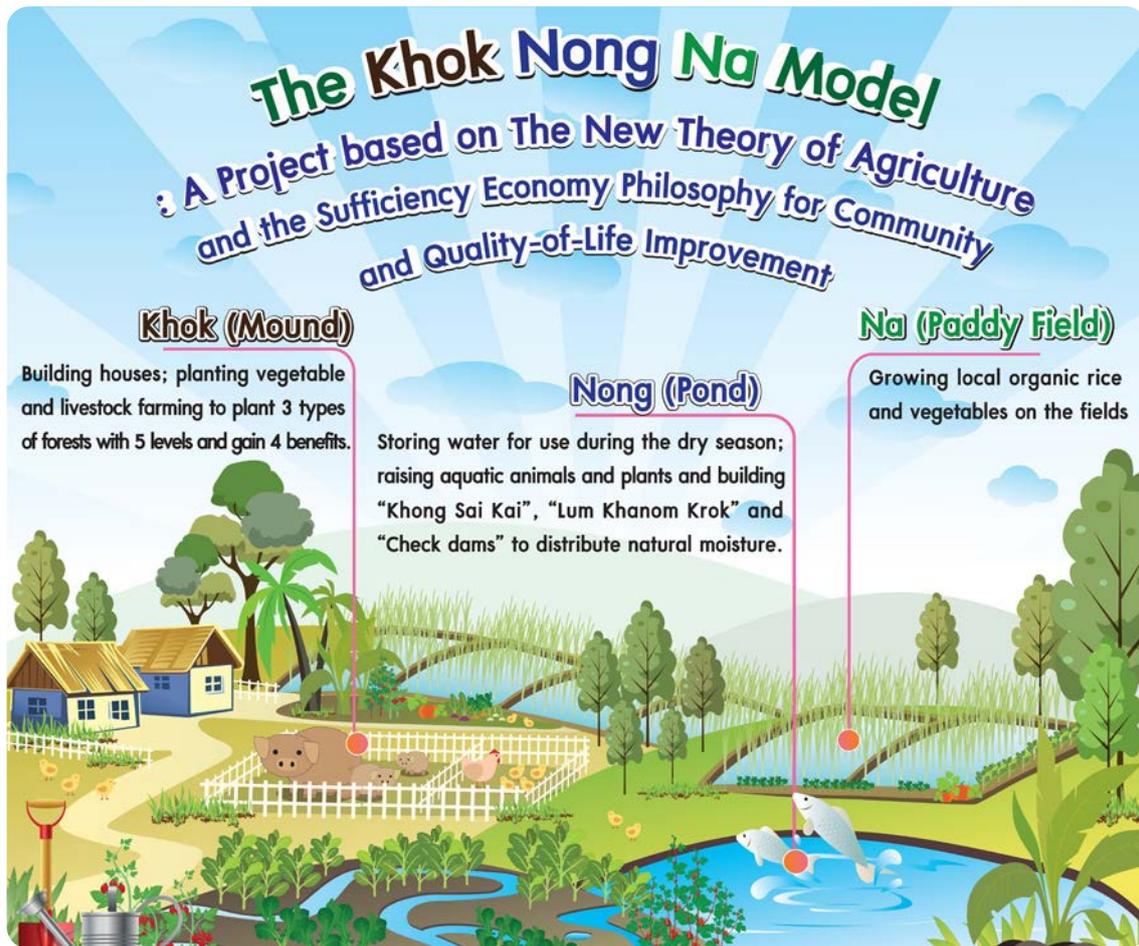
3. The Khok Nong Na Model and key findings

3.1. The “Khok Nong Na Model”

Under the first COVID-19 Loan Act, the Royal Thai Government approved 400 billion baht (total 4,787,916,000 baht) for economic recovery projects (Thailand, NESDC 2020). As part of the economic relief measures under this Act, on 8 July 2020, the Cabinet approved a total budget of 240,632,200 baht for the development of the **Model Area Development Project for Quality-of-Life according to the New Theory Applied to the “Khok Nong Na Model”** for improving the quality of life of local people, which was to be operated by the Community Development Department (CDD) of the Ministry of Interior. The CDD has emphasized the importance of the Model to 73 provinces and issued letters to the provincial agencies concerning Khok Nong Na Model project implementation in 575 districts, 3,246 subdistricts, and 25,179 households across the country (Ministry of Interior et al., n.d.).

The **Khok Nong Na Model** project is a new agricultural concept based on local wisdom and the Sufficiency Economy Philosophy (SEP) initiated by His Majesty King Bhumibol Adulyadej. The key principle of the Khok Nong Na Model is for the utilization of land consisting of 3 components:

1. “*Khok*”, or mound, refers to mounds for cultivating three different types of plants that provide four different types of benefits;



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2. “Nong”, or marsh, refers to the excavation of swamps, canals, or ditches that is called “Khlung Sai Kai”; and
3. “Na”, or rice field, refers to a farm for cultivating organic rice, which includes soil rehabilitation management and sustainable organic farming to allow tiny life to survive on the land (Dhammahaso et al. 2022).

The Khok Nong Na Model project is a solution to problems related to water and farming area management, according to the Sufficiency Economy Institute (NNT 2021). The Khok Nong Na Model project is meant to serve as a source of food for communities or among farming groups, and also provides learning centres for exchanging farming experiences with other farmers in order to achieve the Sustainable Development Goals (SDGs) (Dhammahaso et al. 2022). Criteria for implementation include land subjected to repeated floods and/or repeated droughts and also areas where local people are willing to participate. Farmers who participated in this project had to sign a five-year contract to allow the Government to design the agriculture system together with the farmers on their land. For implementation, farmers are responsible for other farming expenses during the four or five years of the contract.

The objectives of project implementation are to:

- i. support the Khok Nong Na Model under the SEP concept;
- ii. develop learning centres of the Khok Nong Na Model at the Community Lab Model (CLM) and Household Lab Model (HLM) levels (see below); and
- iii. spur economic recovery and create jobs for farmers, workers and new graduates who return back to farming communities (Thailand, CDD n.d.a).

The areas for project implementation are divided into two groups:

1. The Community Lab Model for quality of life (CLM) is the learning area model at the subdistrict level in cultivation areas, in living areas, and in public areas of 10–15 *rai* (1.6–2.4 hectares). Each learning area contains nine learning stations – (i) natural farming; (ii) water conservation; (iii) Mother Earth conservation; (iv) *Mae Phosop* conservation; (v) down to earth; (vi) active; (vii) diligent; (viii) golden ridge; and (ix) patient – in addition to local learning media preparation.

2. The Household Lab Model for quality of life (HLM) is the learning area model at the household level, that is within an area of 1–3 *rai* (0.16–0.48 hectares).

Below are the seven activities to be implemented under the Khok Nong Na Model Project. Activities 1–5 are implemented in the local area and monitored with the support of budget allocation for project implementation by district and provincial agencies. Activities 6 and 7 are implemented by the CDD.

Activity 1: Training for short-term skills improvement in the agricultural sector and provision of knowledge on the development of the Khok Nong Na Model under the SEP model. Training lasts for five days and four nights.

Activity 2: Create the CLM at the subdistrict level and develop the HLM at the household level. There are budget allocations available to provide support for soil surface adjustments and for water storage creation.

Activity 3: Create green jobs and generate monthly incomes for new graduates for 12 months. These new graduate hires are designated as “community model developers” and are assigned to work on the CLM learning centre, ten persons at each centre.

Activity 4: Stimulate consumption at the household level (HLM). There is a budget allocation to support the purchase of farming equipment (hoes, spades, young plants, fish and so on) with a maximum of 20,000 baht per household for both CLM and HLM. This process was done through the government procurement system.

Activity 5: Integrate areas of development at the subdistrict level (at the CLM learning centres) under the SEP concept.

Activity 6: Development of production and marketing in compliance with Thai organic standards, and training on the processing of agricultural products under the CLM and HLM.

Activity 7: Create the database programme and digital technology systems to support the local economy.¹²

3.1.1. Monitoring and coordination system

The CDD developed a digital platform under the name of “Khok Nong Na for Community Development” as the main channel for joint policy administration and project monitoring. This platform can be accessed at the CDD website through the QR code for the Khok Nong Na for Community Development. It provides detailed information on the number of plots, area level, development status, and the land title documentation. This data is linked to the central government system, and it shows the real-time performance of the Khok Nong Na Model in each area.¹³ Moreover, the CDD signed a memorandum of understanding (MOU) with the Geo-Informatics

¹² Interview with the Chief of Community Development Office, Mae Chaem, 20 June 2022.

¹³ The Khok Nong Na for Community Development digital platform (in Thai) is available at: <http://cddata.cdd.go.th/apps/knn/>.

and Space Technology Development Agency (GISDA) to create the Geographic Information System for project monitoring in order to compare the green areas after completing project implementation at a macro level. The data is stored with the CDD, so the District Office has to issue a letter for sharing data.¹⁴

At the provincial level, the Community Development Office is assigned to be the responsible agency for coordination between the local government and the household group to advise and assist the household group to proceed with the Khok Nong Na Model project in each area.¹⁵

At the local level, the District Office is assigned to be the main responsible office for approving all budget allocations for implementing all activities after obtaining the central government policy order, but it has no authority to direct other line agencies. Therefore, the District Office has to request cooperation from other government line agencies and local authority offices in implementing the Khok Nong Na Model project. Volunteers from the Subdistrict Administrative Office conduct monthly meetings with the village committees and village heads to survey the needs of villagers. Three meetings are organized for knowledge sharing and to explain the Khok Nong Na Model project implementation and processes.¹⁶

3.1.2. Process for the development plan approval at local level

Figure 2. The budget approval processes for local development plans



Source: Interview with the Chief of Mae Chaem District, 20 June 2022.

1. District Office submits the proposal plan to the Provincial Office.
2. Request for land use is asked of and approved by the Royal Forest Department.
3. Provincial Office sends the proposal to the Department of Provincial Administration.
4. Department of Provincial Administration send the proposal to the Ministry of Interior for plan/project approval.
5. Final approval is granted by the Provincial Governor.

According to interviews with local stakeholders in Mae Chaem, these processes take at least one year for approval. Most of the time the budget requirement is rejected at the first stage due to the issue of lands being located in forest conservation areas. In addition, according to interviewees, a large share of the budget has

14 Interview with the Chief of Community Development Office, Mae Chaem, 20 June 2022.

15 Interview with the Community Development Office, Chiang Mai, 17 June 2022.

16 Interview with the Chief of District and farmers, June 2022.

been allocated for provincial level use (for meetings, projects) and only a small share of the budget has been allocated to the local level.

3.1.3. Overall implementation of Khok Nong Na Model project in Chiang Mai Province

In Chiang Mai Province, the Khok Nong Na Model project, operating under the Government’s 400 billion baht Rehabilitation Fund, has been put into operation in four districts, namely Doi Tao, Mae Chaem, Kalyaniwattana and Sarapi. The CDD allocated a total budget of 67,627,874.54 baht for project implementation in these four districts (table 2). Across a total of 1,079 *rai* (172.6 hectares), there are 11 CLM learning centres as well as 824 HLM created at the household level (tables 3 and 4).

Under Activity 1, a total of 953 persons have participated in the trainings, including 118 community model developers and 835 CLM and HLM developers. The use of the Khok Nong Na Model project in Chiang Mai has created jobs and generated monthly income for a total of 118 community model developers, consisting of newly graduated people and workers who migrated back to their community due to the COVID-19 pandemic (ten

Table 2. Budget allocation for Khok Nong Na Model in Chiang Mai Province

No.	Activities	Number of project participants	Allocated (baht)	Disbursement result (baht)	%
1	Activity 1	953 persons (CLM 11+ HLM 824 + community model developers 118)	5,908,585	5,908,585	100
2	Activity 2	CLM 11 households HLM 824 households Total 835 households	18,665,602.46	18,665,602.46	100
3	Activity 3	118 persons	12,432,687.08	12,432,687.08	100
4	Activity 4	HLM 824 households	16,480,000	16,480,000	100
5	Activity 5	CLM 11 areas	14,141,000	14,141,000	100
Total allocated budget			67,627,874.54	67,627,874.54	100

Table 3. Khok Nong Na Model implementation at the CLM level

No.	Districts	Sub district	Moo	Area size (<i>rai</i>)
1	Kalyaniwattana	Chaem Loung	3	15
2	Doi Tao	Tha Dduea	3	15
3	Doi Tao	Pong Tung	9	15
4	Mae Chaem	Kong Kaek	2	15
5	Mae Chaem	Chang Kerng	10	15
6	Mae Chaem	Tha Pha	6	15
7	Mae Chaem	Ban Tab	1	15
8	Mae Chaem	Pang Hin Fon	10	15
9	Mae Chaem	Mae Na Chon	17	15
10	Mae Chaem	Mae Seuk	17	15
11	Sarapi	Koua Mung	7	15

Note: 1 *rai* = 0.16 hectares; *Moo* is a subdivision within a subdistrict.

Table 4. Khok Nong Na Model implementation at HLM level.

No.	Districts	No. of HLM households		
		1 <i>rai</i>	3 <i>rai</i>	Total (<i>rai</i>)
1	Mae Chaem	558	–	558
2	Doi Tao	139	45	184
3	Sarapi	14	–	14
4	Kalyaniwattana	68	–	68
Total		779	45	824

– = nil; 1 *rai* = 0.16 hectares.

persons per CLM). The community model developers received 9,000 baht per month from 1 December 2020 to 30 November 2021.

The Khok Nong Na Model project implementation in Chiang Mai resulted in the adoption of the SEP to be applied in the daily lives of local communities; it created area-based teachers and promoted the self-learning of skills in remote areas; and it created 382,000 cubic meters of rainwater storage capacity to be used throughout the year.¹⁷

The Khok Nong Na Model project, together with the organic farming system and smart farming, are linked to the green economy. And all of these activities were decided upon and implemented based on the policies and decisions of community leaders. The agricultural learning centres have applied the Khok Nong Na Model system on farms in Mae Rim and other districts.¹⁸



¹⁷ Calculated based on 60 per cent of the total volume of excavated soil of HLM areas, which came to 363,822 cubic meters. Data shared by the Provincial Community Development of Chiang Mai, 2022.

¹⁸ Interview with Chiang Mai Institute for Skills Development representative, 17 June 2022.

3.2. Khok Nong Na Model implementation in Mae Chaem District



Mae Chaem District is located in the high hill area in Chiang Mai Province, with the Mae Chaem River serving as the main water source for irrigation systems. Within a total area of over 1,700,000 *rai* (272,000 hectares), forest conservation areas account for approximately 1,400,000 *rai* and around 300,000 *rai* are national park areas. Only around 20,000 *rai* of land has received land ownership title deeds. Mae Chaem has seven subdistricts and 104 villages, with a population of more than 60,000 people in approximately 20,000 households.

Roughly 70 per cent of people in Mae Chaem are from indigenous hill tribes (Lawa, Karen, Hmong), and the livelihoods of many are based on unlicensed agricultural activities in forest conservation areas. Currently, the area of forest encroachment is over 500,000 *rai*. Therefore, the challenges in this area are:

- i. forest encroachment;
- ii. land rights;
- iii. natural resources degradation;
- iv. debt;
- v. inequality in development; and
- vi. health issues deriving from chemical use on farms.

In Mae Chaem, shifting cultivation is being transformed into monocrop agriculture, such as corn production, which now covers an area of 104,000 *rai*. This has become a large problem because farmers burn corn residues during the cultivation season, creating massive amounts of smog and haze. Monocrop farming (such as for

corn) needs only rainwater for growing, but it also requires a lot of chemical fertilizer.¹⁹ This economic model has fallen under considerable strain lately because dependence on corn production has resulted in unstable incomes due to fluctuations in corn prices, mixed with the aforementioned problem of pollution due to the local custom of burning corn stalks after harvest (Open Development Thailand 2019). These issues have occurred due to insufficient irrigation systems and pumping systems in the upland areas leading to a lack of water during the dry season.²⁰ Therefore, the Government expects that the Khok Nong Na Model will be the mechanism for creating water storage and stopping farmers from intruding into forest areas in Mae Chaem District.



The Khok Nong Na Model process in Mae Chaem started with the District Office inviting farmers to participate in the training and encouraging them to transform their lands according to the Model. Some farmers decided to join the project because they believe that the new theory of agriculture under the SEP will improve their quality of life, and that this model can improve their agricultural knowledge as part of a green transition in the sector.

Farmers who participated in Khok Nong Na Model consisted of both men and women, aged between 35 and 65 years old. Some of them worked together full-time within the Khok Nong Na Model as a farming family, with both the husband and wife earning income. They grow a variety of crops including fruits, vegetables and herbs, and also raise animals such as cows, pigs, chickens, fish and frogs. Some basic green technology systems, such as small solar electricity panels, solar water pumps, and greenhouses for processing farm products were operating on their farms.

Table 5. Areas of Khok Nong Na Model implementation in Mae Chaem District.

No.	Subdistrict	HLM (1 rai)	CLM (15 rai)	Total
1	Tha Pha	47	1	48
2	Mae Seuk	167	1	168
3	Kong Kaek	35	1	36
4	Chang Kerng	140	1	141
5	Mae Najorn	95	1	96
6	Ban Tub	50	1	51
7	Pang Hin Fon	24	1	25
Total		558	7	565

¹⁹ Interview with the Chief of Mae Chaem District and farmers, June 2022.

²⁰ Interview with the Chief of Mae Chaem District, June 2022.

There are 558 farmers at the HLM level and seven learning centres at the CLM level, as shown in table 5. According to the interviews, the average total monthly income for farmers from Khok Nong Na implementation is approximately 9,900 baht per month, with the lowest being 2,000 baht/month and the highest 32,000 baht/month.

3.2.1. Khok Nong Na skill training in Mae Chaem

Under Activity 1, the training in Mae Chaem was held for five days and four nights by the trainers or area-based teachers. A total of 641 CLM and HLM developers participated in the training. Under Activities 4 and 5, there was joint practice for Khok Nong Na Model learning activities called “Aow Mue Samukki”, which can be explained as a traditional community practice of farmers helping each other without any payment for labour. These activities were conducted three times per plot, with 20 participants each time in all 558 HLM plots.

3.2.2. Marketing channels

In general, farmers sell their crop products in the community market at low prices. In some areas, farmers created their own marketing group using the Line app, such as in Mae Pan San Keang village, Chang Kerng Subdistrict. More than 140 farmers who implemented the Khok Nong Na Model joined this marketing channel. The group was subdivided by type of crop or animal, such as a pigs group (63), an eggs group, a vegetables group (91), a fish group, an enterprises group (85), and so on. They are 24 committees managing this marketing group and they have established a centre for organic farm production. At least one or two committees stay at the centre to receive farm product orders. Their main customer groups are the boarding schools within the Mae Chaem area. The schools signed an MOU with this marketing group and provide orders two days in advance. However, this system cannot be applied in all communities, because in some places, the schools already have commitments to other local farmers. As such, these other local farmers consider this new group of Khok Nong Na Model farmers as their competitor.

The private sector plays an important role in supporting organic farming product marketing from the Khok Nong Na Model in Mae Chaem. The Earth Safe Foundation and Tops supermarket are the main buyers and marketing supporters of Khok Nong Na products at the CLM level. An example of this marketing channel can be found in Khong Khak Subdistrict. The total number of members who joined this marketing channel group is about ten households that have a community leader as a trainer to provide knowledge on quality control and monitoring systems for farm products.²¹

Nevertheless, interviews with farmers in Mae Chaem confirmed that the marketing development strategy for the Khok Nong Na Model had not been included as a direct focus of the project implementation plan, nor is it supported by the Government.

3.3. Implementation and Just Transition challenges

- **Land-based limitations.** During the project application phase, over 1,000 farmers applied to join the Khok Nong Na Model project in Mae Chaem District. However, some of the farmers had to cancel their applications because their lands are located in upland and forest conservation areas. Upland areas presented a challenge in general because it was difficult (and potentially dangerous) to bring an excavator to the high hill areas to create water storage. In addition, soil erosion due to water flowing down the hills during the rainy season could lead to the degradation of earthen reservoirs. One suggestion by the Chief of Mae Chaem District and farmers to solve this issue is to build the reservoirs using cement, but this would require more budget support, which is not in accordance with public procurement laws. Another issue is the overall lack of water resources in upland areas of the district. The farmers also suggested

²¹ Interview with Farmer 10, 21 June 2022.

that the Government should consider the source of the water for water retention/storage in upland areas when selecting areas for project implementation.²²

- **Time constraints for project implementation.** The period of time for project was too short, both in regard to recruiting participants and in overall duration. This resulted in having beneficiaries who are located in areas that are ultimately not suitable for project implementation. In addition, the overall duration of the project was too short, making it so that outputs and outcomes cannot be clearly observed and evaluated, as agricultural work takes time to obtain outcomes and for profits to be gained from these outcomes.²³
- **Delay in issuing land use permits.** Priority areas in Mae Chaem are mostly forest lands located in national forest conservation areas, which requires permission to implement the project from the Royal Forest Department. The overall process for obtaining permission took more than six months. This caused a delay in the whole project implementation in Mae Chaem area.²⁴
- **Inflexible procurement laws and regulations.** The public procurement regulatory framework for the Khok Nong Na Model implementation in Mae Chaem presented significant challenges because of the nature of upland-based agriculture. The procurement regulations and the method of calculating the price for creating reservoirs are based on the situation in lowland areas where there is no need to move the excavator into the hills. Many contractors refused to work because it was an unsafe job and was not worth the money being offered. As a result, many farmers cancelled their participation in Khok Nong Na Model implementation due to this challenge.

“ The payment to the contractor was calculated from the amount of soil – 12 baht/cubic meter – which was considered as a very low price for working in the upland area. The excavation was done many times, but the soil kept flowing down to the reservoir with rainwater because it was in the rainy season. The contractor received less than half compensation they should have received. I had to pay separately to take roots out of my land.

(Farmer 12)

“ The main challenge for project implementation was the government procurement regulations. The project design was all good, but the problem appeared in area/plot design processes due to the strict regulation of the government procurement regulations. Many farmers cancelled their application due to the fact that these farms are located in upland areas. It was difficult for the contractors to reach their areas and they think that the compensation is not worthwhile. This regulation might be suitable for the lowland areas, but not for the upland agriculture areas. So, I would suggest the Government be more flexible on the procurement regulation or adjust regulations to be suitable to the area of project implementation for the next project plans.

(Farmer 15)

22 Interview with the Chief of Mae Chaem District, 20 June 2022.

23 Interview with the Chief of Mae Chaem District, 20 June 2022.

24 Interviews with the Chief of Mae Chaem District, farmers in Mae Chaem, and the representative from the Provincial Community Development Office, Chiang Mai, June 2022.

- **Delay in plot design.** The area plot has to be designed by the households themselves, which took a long time because different households demanded different mound sizes. As aforementioned, most of the district's farmlands are in upland areas, and therefore, large machines could not enter the area because it is too risky and costly. This caused a misunderstanding between the government officials and the farmers. One of the farmers mentioned that he was told that he was to allow to design the water storage on his land, but when the subdistrict administrative organization entered the land, they did not agree with his design. So, the water storage was not completed as planned.



The size of water storage designed by the Government is too large for a farm of 1 rai. If we follow their design, we will have no space left to grow anything.

(Farmer 03)

- **Changing the mindset** of ageing farm operators with regard to their use of chemical fertilizers and pesticides is one of the challenges. The farmers are not aware that excessive use of chemical fertilizers causes negative environmental impacts and is harmful to human health. They are only concerned with increasing farm production to generate more income and with securing a cheap price when buying farming inputs from the market.



Mae Chaem is the area of agroindustry production for sale which requires chemical use for a quicker production process. It is not easy to change the mindset of old generation people. My father can be one of the examples.

(Farmer 01)

- **Inadequate budget support.** Most of the respondents indicated that budgetary constraints were the main challenge for continuing implementation. Some farmers have to borrow money from the Bank of Agriculture and Agricultural Cooperatives to invest in their farms. Recently, the price of fertilizer has increased by 50 per cent or more (for example, the price of urea increased from 450 baht to 1,500 baht per sack) and so have the wages of farm labourers (from 120 baht to 300 (F)/400 (M) baht).²⁵
- **Costs related to logistics and lack of marketing support.** Mae Chaem is about 110 km from Chiang Mai city. It takes 4 hours to transport farm products to consumers in the city along the mountainous road. Therefore, the farmers in this area are very dependent on middlemen for both farming and marketing activities. This has resulted in oversupply of and low prices for agricultural products due to the travel restrictions during COVID-19 pandemic and upland area limitations.
- **Lack of proper marketing skills and support.** Farmers in Mae Chaem sell organic products in the community market for low prices, and some exchange or give organic farming products to people for free simply so it does not go to waste.



There is no market to sell organic products from my farm and I don't have knowledge on marketing. I give what I grow to people for free.

(Farmer 06)

25 Interview with Farmer 02, 20 June 2022.

- **Insufficient skills and knowledge on agriculture and innovation.** Developers were recruited without screening their agricultural skills. Most of them were new graduates and young people who returned back to villages due to the impact from COVID-19 pandemic. Therefore, their expertise was not in agriculture.



Some developers were hired with no skills in farming and construction.

(Farmer 11)

- **Lack of monitoring and evaluation system at local level.** One of the major challenges to policy implementation perceived by participants was a lack of a monitoring and evaluation system at the local level. One interviewee mentioned that there was no further support for continuation of the Khok Nong Na implementation after the budget approval. There should be a committee to be responsible for project monitoring at the subdistrict level (learning centres) or a MOU related to monitoring and evaluation should be signed to authorize this being handled by the local government authority.
- **Ineffective coordination and an insufficiently coherent system.** It was mentioned by an interviewee that some relevant government line agencies are not proactive. They follow orders from the Central Government (a top-down system) but do not try to understand or report on issues related to the local context. As a result, coordination between line agencies was not coherent.²⁶
- **Lack of organized groups of farmers.** It was suggested by government officials and farmers that farmers should create strong organizations to influence policies and help themselves to receive benefits by creating markets for organic farming products.²⁷

26 Interview with Farmer 09, 21 June 2022.

27 Interview with Provincial Labour Office Chiang Mai representative, and Farmers 02, 09, and 11, June 2022.



4. Analysis of the case study

The analysis in this paper indicates the Khok Nong Na Model – as demonstrated through its implementation in Mae Chaem – offers net positive national policy benefits concerning promoting a shift to more environmentally friendly sustainable activities and alternative green technology. Greening agriculture development has been highlighted in the Khok Nong Na Model implementation at the local level, particularly in relation to the organic farming system. However, the study shows that a lack of production planning and management appears in almost every stage of the supply chain. This is a factor that can trigger other problems in the supply chain, including low productivity and high production costs.

The case study confirms that the value-added share of the agricultural sector in Thailand is at a low level. Lack of market channel support and low prices for crop products clearly create issues for local communities dependent on the trade of a limited number of agricultural commodities. This has resulted in low wages in the agriculture sector.

In terms of gender equality in the agricultural sector, the finding of the case study in Mae Chaem showed that agriculture in this area is usually a venture among household members and involves various aspects that are difficult to readily assign to either gender because husbands and wives always share responsibility and income from farming production. It is observed that women's voices are heard in household decision-making regarding crop production, packaging and sales; while men's voices are stronger regarding coordination and management. However, after all consultations, both women and men would make the final decision together.²⁸ Therefore,

²⁸ Interviews with Farmers 13 and 15, June 2022.

the study indicates that women's participation in decision-making in the agricultural sector is associated with positive development of gender equality.

However, evidence from the interview also shows that knowledge at the local level of the policy frameworks related to the agricultural sector and green jobs in agriculture is insufficient. The level of education in farming regions and the complexity of the policies (including unclear explanations) may both play a role in the knowledge gaps related to policy information at the grassroots level.

4.1. Policy coverage, policy coherence and the coordination system

Although, the policy frameworks reach down to local implementation levels, there is a lack of standardized mechanisms across jurisdictions as well as ineffective systematic inter-agency coordination measures. As mentioned by interviewees, it takes a long time for information and data to be shared between government line agencies, and sometimes they received incorrect information from these agencies or there was no cooperation or feedback.²⁹

The Khok Nong Na Model is focused on understanding how to integrate the SEP concept to encourage a balanced way of living and to improve the quality of life of farmers. However, the weak point of this concept may come from an ineffective coordination system among government line agencies when implementing projects at the local level. The Khok Nong Na in Mae Chaem involved cooperation with many government line agencies, such as the Royal Forest Department, the Agriculture and Cooperative Department, the Community Development Department, the Provincial Community Development Office, and the District Office. Coordination processes involved substantial amounts of time to secure approvals and permissions.³⁰ As an example, interviewees mentioned the time-consuming process of securing land use permits, which has caused delays in project implementation.³¹ This shows that policy implementation would benefit from more consistent coordination and communication between relevant agencies.

In Thailand, not all ministries have a line agency working in community areas. Most agencies do not have human resources at the community level. This causes issues with regard to budget allocation and the accountability structure of those government line agencies involved in project implementation. The Government may need to restructure its activities and accountabilities to be more consistent with a bottom-up system to enable more streamlined work. It is therefore suggested that the structure of departments in various ministries should be reformed to operate in local areas in order to improve agricultural productivity at local level.³²



²⁹ Interview with Chiang Mai Institute for Skills Development representative, 17 June 2022.

³⁰ Interview with the Chief of Mae Chaem District, 20 June 2022.

³¹ Interview with farmers in Mae Chaem and with the Chiang Mai Community Development Office representative, June 2022.

³² Interview with the Community Development Office, Mae Chaem representative, 22 June 2022.

4.2. Green jobs potential and opportunities in the agriculture sector

Green jobs – as part of a transition to the green economy in the agricultural sector – can be an opportunity to bring young farmers back to agriculture, with the Royal Thai Government having started implementation of a policy to develop local farmers into “smart farmers”. However, lack of budget support for farm investment would be the main challenge hindering young people from implementing smart farming techniques and processes.

“ I think Khok Nong Na is for retired people or people who do not have any other responsibility, such as expenses for child’s education, car/house payments. Production from a 1 *rai* farm is not enough to generate income or for people who have debts. However, this could be a model for people who have bigger farms. They can expand this system in their areas.

(Farmer 09)

The implementation of the Khok Nong Na Model can be considered as a source of potential green jobs in the agricultural sector, as it the model promotes the use of organic farming methods and creating green jobs at both the HLM and CLM levels. Farmers have improved their knowledge through the Khok Nong Na Model training on how to make the bio fertilizers and pesticides for use on their farms. With support from the CDD, farmers are also producing sustainable and environmentally friendly plates and bowls from fresh leaves to replace plastic ones, to reduce causes of forest fire smog and to generate income for villagers within the Khok Nong Na area (this is happening at the CLM level in Mae Ki Mook village in Ban Tab Subdistrict).

However, according to the interviews, most young farmers are implementing the Khok Nong Na Model as their secondary job, because non-farm jobs provide more income. Therefore, the Khok Nong Na Model implementation may not be considered as a mechanism for poverty reduction unless full support on smart farming systems and marketing channels is provided by the Government.

“ Farmers consider that it’s too difficult and takes too much time to follow the quality control standard. They also said that there are too many steps/ processes to follow and they don’t have any motivation to change.

(Farmer 10)

The marketing gap and insufficient financial incentives are key challenges in greening agriculture to ensure sustainability. Farmers are able to develop more sustainable production systems when there are sufficient financial incentives and marketing systems. One such example was found in Khong Khak, where a farmer had paid off his debts within four years as a result of marketing and financial support received from private organizations. In addition, green agriculture needs to take specific steps and requires systematic production, which necessarily involves agricultural innovations such as use of the internet of things and renewable energy technologies (micro-hydroelectricity, solar-powered irrigation pumps, wind energy). Thus, significant changes in farming practices a required for a true



transformation to take place. Production control is also essential to green agriculture, but the interview results found that farmers have no intention of following a quality control system for crop production. The main reasons cited are lack of understanding of the system and the time-consuming nature of the process involved, which causes delays in production.

Thus, improvements in production cost planning and value-added management may be solutions for unlocking the potential for green job development in the agricultural sector and for improving the local green economy. Additionally, linking more productive green agriculture to opportunities created by tourism development may be an alternative solution to create green jobs, reduce poverty and achieve an inclusive green economy.

4.3. Knowledge and skills gaps in greening agriculture

Numerous trainings related to the agricultural sector provided by the Royal Thai Government have played a crucial role in capacity-building for Thai farmers. However, green jobs in agriculture and the environmentally friendly aspects of green agriculture need to be addressed further in the training programme. As one interviewee noted, many of the young farmers who returned back to their communities due to the COVID-19 pandemic simply lack comprehensive knowledge of agricultural practices, including environmentally friendly agriculture. Therefore, further training on how to integrate what existing knowledge they have into innovative and green agriculture is needed to be provided with continued support by the government.³³

Moreover, according to the interviews, farmers (both youth and older) are wary of spending substantial amounts of effort on incorporating new technology and green farming innovations, and expressed a preference for the traditional methods they have known throughout their lives. Improvement in knowledge and skills such as installation of solar cells for water pumps, soil improvement, seeding skills, production of bio/organic fertilizer, renewable energy installation to be used in farms, agro-processing, and integrated agriculture are required by farmers. Thus, the skills and knowledge required for greening agriculture should be taken into consideration when approving policy for project implementation.

4.4. Linkages to other sectors such as tourism

Agritourism can be incorporated into Khok Nong Na Model as means of generating extra income for green farmers. An example can be found in Pang Hin Fon Subdistrict, Mae Chaem. Within 15 rai of the CLM learning centre, one farmer has linked the Khok Nong Na Model into a form of agritourism by building guest houses, a restaurant as well as growing organic crops. In an interview the farmer said that this has helped to provide employment opportunities among tourism-related enterprises and demand for agriculture services, as well as building direct marketing opportunities for farmers. It is clear that there is a room to further explore the link between the agriculture and tourism sectors, as income generation could reach 10,000 baht per day during high season.

Therefore, the sustainability goals related to a green and inclusive economy can be expanded upon by specifying how tourism – both domestic and international – might interact with rural territories and agricultural value chains (ADB 2021).

³³ As suggested by the Chiang Mai Skill Development Institute representative, 17 June 2022.



Agritourism in Pang Hin Fon Subdistrict © Somchai Yangsantiwong, 2022.



5. Conclusion and recommendations

5.1. Conclusion

From a practical perspective, the present study provides evidence that there is a need for improvement in the readiness and effectiveness of policy on green jobs and a Just Transition in achieving more sustainable practice in agriculture at the local level. The interview results show that most respondents lack knowledge on policy frameworks related to green jobs in the agricultural sector. This includes the lack of green jobs indicators in the agriculture sector, which emerged as a weakness for data analysis. Therefore, policy measures need to include a green jobs plan, green agriculture indicators, and a road map that leads to decent work for all as part of policy development in greening the agricultural sector. Areas of action include improvement of institutionalization and restructuring of cooperation and coordination mechanisms (including through the establishment and strengthening of farmers' organizations as well as government inter-departmental coordination mechanisms) to increase the efficiency of project implementation at the local level.

In addition, the Khok Nong Na Model provides positive outcomes in line with the ILO's Decent Work Agenda in terms of equality, dignity and the improvement of working conditions for farmers. However, the Model has not fully addressed the Decent Work Agenda in terms of "a fair income and sustainability" at the household level. Evidence from the interviews indicated that farmers at the household level could not generate a high enough income due to lack of knowledge and lack of support on marketing. At present, sustainable agriculture cannot be achieved through this model due to insufficient financial incentives and an insufficient timeframe, as sustainable agriculture requires a long time to be properly implemented. Therefore, the ILO's decent work standards in the agriculture sector should be further introduced to key stakeholders and relevant agencies for

the improvement of sustainable agriculture development and plans.

In Thailand, lack of skills and knowledge on new technology and innovation is one of the barriers to sustainable economic growth. In connection with the Khok Nong Na Model implementation in Mae Chaem, local wisdom has been rooted in community farming, and the respondents could clearly explain their knowledge of agriculture and organic fertilizer production. However, knowledge and skills on green technology systems in farming operations have not been developed among farmers due to a lack of financial resources and, admittedly, the conservative attitudes of farmers. It was suggested by the interviewees that skills on the green agriculture and innovation should be strengthened with continued support by the Government.³⁴

In conclusion, implementation on green jobs as part of making a Just Transition towards sustainable agriculture still requires supports in developing balance in many areas such as land rights, agricultural production structures and systems, marketing knowledge, and financing for investment.

5.2. Recommendations

- **Government to support greater access to market channels for organic crop production.** The development of markets for sustainable agricultural and organic farming products should be promoted and supported by the Government to improve local economies in the green agriculture sector. It was suggested by a farmer that the Ministry of Commerce and the Department of Internal Trade together with the MOAC should create a central market to control the price of crops, as farmers have been depending too much on middlemen who generally undervalue crop prices. This farmer believed a central market system would help farmers generate more income and become less reliant on middlemen, which would contribute to the improvement of Thailand's economy.³⁵ Thus, it is important to create a government-focused marketing plan and develop marketing system for organic farm products.³⁶
- **Support on skills training and knowledge on green jobs and a Just Transition, marketing, processed products, and finance for new innovation in the agricultural sector,³⁷ including decent work standards, should be provided to all stakeholders.** It was suggested that the Government initiate and participate in comprehensive greening of agriculture programmes as well as provide more support on knowledge and skills training on marketing, methods and technology to local communities.³⁸ Farmers should be trained on how to integrate their existing knowledge (including traditional wisdom) into innovative agricultural processes. It was recommended by an interviewee that the planning and actual implementation should be focused less on academic areas and more on local knowledge as well as practical knowledge for selected target groups.³⁹ Marketing skills should also be added to the skill training curriculum.⁴⁰
- **Financial support by the Government** to assist young farmers in smart farming investments, as well as to assist small- and medium-sized enterprises (SMEs) and migrant workers impacted by COVID-19 pandemic, so that these parties can all engage in productive activities in agriculture as well as to support green jobs and a Just Transition.

34 Interview with the Provincial Labour Office Chiang Mai, representative, 17 June 2022.

35 Suggested by Farmer 04, 20 June 2022.

36 This was also suggested by community leaders and farmers during green jobs knowledge tour on 25–26 November 2022.

37 Information from the Capacity-Building Workshop for government and farmer communities on Green Jobs and a Just Transition, 24 November 2022.

38 Information from the Tripartite Consultation on Validation of Green Jobs Policy Readiness Assessment in Thailand, 21 November 2022.

39 Interview with the Chiang Mai Skill Development Institute representative, 17 June 2022.

40 Information from the Tripartite Consultation on Validation of Green Jobs Policy Readiness Assessment in Thailand, 21 November 2022.

- **The procurement law should be reformed and be more flexible.** The procurement law for the project implementation should be revised to better take into account different local contexts.
- **Survey of local contexts and the needs of local people prior to approving implementation.**⁴¹ It was suggested that the local context needs to be properly ascertained before a policy or intervention is selected and implemented for rural areas, in order to increase the efficiency and effectiveness of project implementation. A greater understanding of policies among local people should also be provided.⁴²
- **State reform to decentralize power to local authorities/local government organizations.** For instance, it was suggested by an interviewee that the Central Government should allocate more budget (function based) to the local authorities for sustainable community development. The Central Government and Provincial Administration Offices should discuss how to adjust the role of local authorities to directly develop their communities and local areas.⁴³
- **Strengthen policy coherence and coordination systems.** Coherent policies require improvement of coordination between different line agencies and relevant stakeholders in regard to implementation in order to achieve Thailand's development goals.⁴⁴ Policy coherence would help to guide the transition to a green agricultural sector and address the necessary changes in economies at the local level; while strong coordination between line agencies and stakeholders such as local authorities, workers, employers and training institutions would foster the cooperation needed to effectively translate measures for a Just Transition into sustainable local economic development, particularly in the agricultural sector (ILO 2015).
- **Research and development in environmentally friendly agriculture** should be supported for improvement of agricultural productivity and to discover suitable new technologies for local conditions.
- **Provide support and develop water management plans** (access to clean water, irrigation systems) in upland agricultural areas to resolve the issues of deforestation, chemical use and insufficient water sources.
- **Establish organic farmer groups to strengthen sustainable agriculture.** Farmers should work together cooperatively as a group in the production of crops rather than producing crops individually and essentially competing against themselves. By creating organic farmer groups, producers will be able to negotiate or increase the price of crops with enterprises or middlemen as well as more effectively participate in relevant policy design and implementation processes.⁴⁵
- **Improve monitoring systems at the local level.** The Government should create a Geographic Information System or provide drones for project monitoring at the provincial and local levels to support project implementation.⁴⁶
- **Develop a road map and action plan for greening agriculture.** The road map and action plan should be developed to promote the sustainable development of the agricultural sector at the local level, and local farmers and other stakeholders should be involved throughout the process to promote a Just Transition.

41 Suggested by interviewees, June 2022.

42 Information from the Capacity-Building Workshop for government and farmer communities on Green Jobs and a Just Transition, 24 November 2022.

43 Suggested by Chief of Mae Chaem District, 20 June 2022.

44 Information from the Tripartite Consultation on Validation of Green Jobs Policy Readiness Assessment in Thailand, 21 November 2022, and the Capacity-Building Workshop for government and farmer communities on Green Jobs and a Just Transition, 24 November 2022.

45 Suggested by interviewees, June 2022.

46 Suggested by interviewees, June 2022.

- **Support for agritourism.** Agritourism has been proposed as an alternative solution for the recovery of local economies by adding an additional revenue stream for farmers and farming communities. It is therefore suggested that sustainable development through agritourism activity be supported by the Government.
- **The Government should consider budget allocation for farmers located in forest conservation areas** to enable quality of life improvements in such local communities with the dual aim of enhancing livelihoods and providing incentives for environmentally sound practices that will actually enhance forest conservation.⁴⁷

⁴⁷ Information from the Capacity-Building Workshop for government and farmer communities on Green Jobs and a Just Transition, 24 November 2022.

References

- ADB (Asian Development Bank). 2021. *Developing Agriculture and Tourism for Inclusive Growth in the Lao People's Democratic Republic*.
- Bangkokbiznews. 2022. "พลิกโฉมแรงงานภาคเกษตร สู่เกษตรอัจฉริยะ". 10 December.
- Bangkok Post*. 2022. "Organic Farming Gets Boost." 28 January.
- Bianco, Adele. 2015. "Green Jobs and Policy Measures for a Sustainable Agriculture." *Agriculture and Agricultural Science Procedia* 8: 346–352.
- Daily News*. 2021. "พช. มุ่งมั่นนำ 'โคกหนองนา' หนุนเศรษฐกิจพอเพียง", 21 October.
- Dhammahaso, Phramaha Hansa, Phrakrupalad Adisak Pimnon, Sakchai Sakabucha, and Nadnapang Phophichit. 2022. "Concept of Khok Nong Na Model for Sustainable Development." *Journal of Arts Management* 6 (1): 419–434.
- FAO (Food and Agriculture Organization of the United Nations). 2018. "Thailand: Socio-Economic Context and Role of Agriculture", FAO Country Fact Sheet on Food and Agriculture Policy Trends, February.
- ILO. 2017. *Just Transition, Decent Work and Climate Resilience*.
- . 2015. "Guidelines for a just transition towards environmentally sustainable economies and societies for all".
- . n.d. "Decent Work", available at: <https://www.ilo.org/global/topics/decent-work/lang--en/index.htm>.
- . 2022. "Working and employment conditions in the agriculture sector in Thailand: A survey of migrants working on Thai sugarcane, rubber, oil palm and maize farms".
- Jarvis, Andrew, Adarsh Varma, and Justin Ram. 2011. *Assessing Green Jobs Potential in Developing Countries: A Practitioner's Guide*. ILO.
- Jitsanguan, Thanwa. 2001. "Sustainable Agricultural Systems for Small-Scale Farmers in Thailand: Implication for the Environment". FFTC Agricultural Policy Platform.
- Manakitsomnoon, Hansa. 2020. "Impact of COVID-19 on Agricultural Products Distribution in Thailand as of May 2020, by Channel." Statista, October.
- . 2021. "Impacts of the COVID-19 Pandemic on Farming Households in Thailand from March to May 2021", Statista, July. Available at <https://www.statista.com/statistics/1301266/thailand-covid-19-impacts-on-farming-households/>
- Matichon*. 2021. "การพัฒนาพื้นที่ต้นแบบ การพัฒนาคุณภาพชีวิต รูปแบบ โคก หนอง นา พัฒนาชุมชน.", 11 June.
- The Nation*. 2022. "Government to Focus on Agricultural Research for Sustainable Growth." 19 May.
- National Statistical Office (NSO). n.d. "ทิศทางการทำงานของแรงงานไทย".
- Neo, Pearly. 2022. "Thailand's Hi-Tech Food Future: Government Pledges to Step Up Transformation of Food

and Agri Sector.” FoodNavigator-Asia, 18 April.

NNT (National News Bureau of Thailand). 2020. “Thailand Eyes Food Export Opportunities Amidst COVID-19 Pandemic.” 18 March.

———. 2021. “Khok Nong Na Model Builds Sustainability.” 12 April.

———. 2022. “BOI Now Supports 2 New Types of Investment in Agricultural Sector.” 4 February.

Nuchmorn, Nondh. 2019. “ภาคเกษตรไทย บนเส้นทางของ เศรษฐกิจสีเขียว และการพัฒนาที่ยั่งยืน”. Thammasat University and Pro-Green Center.

Open Development Thailand. 2019. “The Mae Chaem Development Model”, available at: <https://thailand.opendevelopmentmekong.net/stories/the-mae-chaem-development-model/>.

Puthsri, Somkid. 2022. “ตั้งหลักใหม่ภาคเกษตรไทย: เกษตรกรไทยพร้อมปรับตัวมากกว่าที่รัฐคิด – วิษณุ อรรถวานิช.” The 101.World, 11 March.

PWC. 2023. “Thailand Corporate - Tax credits and incentives”. Board of Investment (BOI) tax incentives. Worldwide Tax Summaries.

Singhapreecha, Charuk. 2014. “Economy and Agriculture in Thailand”. FFTC Agricultural Policy Platform.

Sinha, Shweta, and Mrutyunjay Swain. 2022. “Response and Resilience of Agricultural Value Chain to COVID-19 Pandemic in India and Thailand.” In *Pandemic Risk, Response, and Resilience: COVID-19 Responses in Cities Around the World*, edited by Indrajit Pal and Rajib Shaw. 363–382. Amsterdam: Elsevier.

TDRI (Thailand Development Research Institute). 2019. “Competitiveness Adaptation of Thai Agriculture in Response to the ASEAN Economic Community.” *TDRI Quarterly Review* 34 (1): 2–19.

Technology Chaoban. 2022. “โครงการนำลูกหลานกลับบ้าน”, 23 February.

Thailand, BOI (Thailand Board of Investment). 2019. “BOI Promotes Modernization of Agricultural Business to Upgrade Thai SMEs”, available at: <https://www.bangkokpost.com/sponsored/boi/agriculture/>.

Thailand, DEPA (Digital Economy Promotion Agency). 2020. *Agriculture Landscape in Thailand*.

Thailand, Ministry of Interior, CDD (Community Development Department). n.d.-a “รายงานสถานะความก้าวหน้าโครงการพัฒนาพื้นที่ต้นแบบการพัฒนาคุณภาพชีวิตตามหลักทฤษฎีใหม่ประยุกต์สู่ โคกหนองนา โมเดล ภายใต้พระราชกำหนดให้อำนาจกระทรวงการคลังกู้เงิน เพื่อแก้ไขปัญหา เยียวยา และฟื้นฟูเศรษฐกิจและสังคมที่ได้รับผลกระทบจากการระบาดของโรคติดเชื้อไวรัสโคโรนา 2019 พ.ศ. 2563”.

———. n.d.-b “แนวทางการดำเนินงาน โครงการพัฒนาพื้นที่ต้นแบบ การพัฒนาคุณภาพชีวิตตามหลักทฤษฎีใหม่ประยุกต์สู่ “โคก หนอง นา โมเดล”. กรมพัฒนาชุมชน.

———. 2021. “เอกสารประกอบการดำเนินงาน โครงการพัฒนาพื้นที่ต้นแบบการพัฒนาคุณภาพชีวิตตามหลักทฤษฎีใหม่ประยุกต์สู่ โคกหนองนา โมเดล”.

Thailand, Ministry of Labour, DSD (Department of Skills Development). 2022. “รายละเอียดข้อมูลผลการดำเนินโครงการเพิ่มมูลค่าผลิตภัณฑ์แปรรูปเกษตรด้วยเทคโนโลยีและนวัตกรรม ประจำปีงบประมาณ พ.ศ. 2565”, available at: http://202.139.202.144/~agricultural_products/dashboard.php.

- . n.d. “หลักสูตรยกระดับฝีมือแรงงานสาขา การพัฒนาศักยภาพแรงงาน เข้าสู่มาตรฐานเกษตรอินทรีย์สากล จำนวน 30 ชั่วโมง รหัส หลัก สูตร 3720016260104”.
- Thailand, NESDB (National Economic and Social Development Board). 2018. *National Strategy 2018-2037 (Summary)*.
- Thailand, NESDC (National Economic and Social Development Council). 2020. “รายชื่อโครงการที่คณะรัฐมนตรีมีมติเห็นชอบ (8 กรกฎาคม 2563)”, available at: <http://nscr.nesdc.go.th/thaime-approved/>.
- . 2019. แผนแม่บทภายใต้ยุทธศาสตร์ชาติ (3) ประเด็น การเกษตร (พ.ศ. 2561 - 2580).
- . 2021a. “(ร่าง) แผนพัฒนาเศรษฐกิจและสังคมแห่งชาติ ฉบับที่ 13 ”, draft.
- . 2021b. Journal of economic and social. การฟื้นฟูเศรษฐกิจและสังคมไทย ก้าวข้ามวิกฤตโควิด 19.
- . 2022. “Thai Economic Performance in Q4 and 2021 and Outlook for 2022”, NESDC Economic Report, 22 February.
- Thailand, Royal Thai Government. 2022. “Press Release on ครม. อนุมัติ 2,054 ล้านบาท ฟื้นฟูเศรษฐกิจฐานรากและชุมชนในภาคเกษตร วิสาหกิจชุมชน จากผลกระทบจากสถานการณ์ โควิด-19”, 19 April 2022.
- Thammachote, Pasakorn, and Jirapa Inthisang Trochim. 2021. “The Impact of the COVID-19 Pandemic on Thailand’s Agricultural Export Flows”, USAID Feed the Future Research Paper No. 4.
- Thailand Plus. 2022. “กระทรวงเกษตรและสหกรณ์ ชู “พืชผักสมุนไพร” สำหรับพัฒนาเป็นสินค้าเกษตรชนิดพิเศษสีเขียว (SAP – Special Agricultural Products)”. 10 May.
- UN Thailand (United Nations Thailand). 2020. “Press Release on Agriculture Sector: From Problems to Solutions”, 2 December 2020.
- WWF (World-Wide Fund for Nature). 2019. “Press Release on Measures to Support Thailand’s Transition Towards Sustainable Agriculture”, 25 February 2019.

Annex 1. Consultation questionnaire templates

Stakeholder consultation questionnaire (government officers in Muang, and Mae Chaem Districts):

1. I would like to understand more about your role in supporting the implementation of the Khok Nong Na Model.
 - 1.1 Have you ever heard about “green jobs”? If yes, please explain your understanding of it.
 - 1.2 How do these activities link to the green economy transition and/or green jobs creation in the agricultural sector?
2. How does knowledge sharing and coordination happen between the initiatives in these project activities?
 - 2.1 Which areas do you identify as having strong coherence?
 - 2.2 Which areas are still lacking coherence?
3. How does the current policy framework perform in supporting and addressing green job creation in the agricultural sector?
 - 3.1 What are the positives?
 - 3.2 Are there any best practice examples of the mechanism?
 - 3.3 What else needs to be in place?
4. Has your organization been supporting marketing channels for agricultural products?
5. What do you think would be the ideal institutional arrangement to support employment in the agricultural sector (labour market policy, skills and training) in the context of the COVID-19 pandemic in Thailand?
 - 5.1 What is going to be the most challenging aspect?
 - 5.2 What is the most immediately required action?
6. What are the key skills required in order to succeed in making a transition towards sustainable agriculture, for example, smart agriculture or climate-resilient agricultural practices?

Local stakeholder consultation questionnaire (farmers and relevant stakeholders in Mae Chaem District – Khok Nong Na Model):

1. I would like to understand more about your role and the main reason you are involved in supporting the implementation of the Khok Nong Na Model.
2. Have you ever heard about “green jobs”? If yes, please explain your understanding of it.
3. What have you known until now about the policy frameworks related to the agricultural sector and green jobs in the agricultural sector?
 - 3.1 How does this activity link to the green economy transition and/or green jobs creation in the agricultural sector?
4. What are the main challenges in implementing this activity?
5. What kind of crops are you growing?
6. How much do you earn from producing crops per month?
 - 6.1 How much does your wife/husband earn per day?
 - 6.2 Where do you sell these crops?
 - 6.3 Is there any marketing system for the Khok Nong Na Model?
 - 6.4 Are there any supporting marketing channels for agricultural products from the Government?
7. Do you have any workers on your farm? If yes, how many and how much is their daily wage?
8. What is the system for waste management on your farm?
9. Have you installed any green technology systems in your farming operations?
10. What are the key skills required to succeed in making a transition towards sustainable agriculture, for example, smart agriculture or climate-resilient agricultural practices?
11. What do you think would be the ideal institutional arrangement to support employment in the agricultural sector in the context of the COVID-19 pandemic in Thailand?
 - 11.1 What is going to be the most challenging aspect?
 - 11.2 What should be the most immediate action required?

Annex 2. Objectives, strategies, and policies to improve competitiveness of Thai agriculture

Sub-strategy	Policy	Prioritization	Duration	Responsible agencies
1. Compliance with the ASEAN Economic Community agreements.	1.1 Reduce the use of non-tariff measures. Set examples for other state members.	Secondary	3–5 years	Ministry of Commerce
	1.2 Promote investments that link low-value agriculture with high-value food industry sector. Reduce import quota to support food industry's growth.	Secondary	3–5 years	Ministry of Commerce, Ministry of Industry
	1.3 Shift the role of the Department of International Trade Promotion to provide business intelligence for Thai businesses, similar to Japan External Trade and Research Organization, Australia and the United States Embassy.	Secondary	3–5 years	Ministry of Commerce, the Board of Investment of Thailand
2. Restructuring of the agricultural research system.	2.1 Increase and stabilize research funding	Urgent	Long-term	National Research Council of Thailand, the Thailand Research Fund, and the Agricultural Research development Agency
	2.2 Shift research funding from being project-based to 3 – 5 years long, program-based ones	Very urgent	Long-term	National Research Council of Thailand and special research committee composed of experts from different fields
	2.3 Reform the agricultural research system to include incentives for researchers	Very urgent	1–3 years	Related departments in the Ministry of Agriculture and Cooperatives
	2.4 Reform the agricultural data system and launch a data initiative	Very urgent	1–3 years	Related departments in the Ministry of Agriculture and Cooperatives, and the Ministry of Commerce
	2.5 Create funding mechanisms to promote the use of scientific knowledge, technologies, and social engineering to solve problems in agricultural production and marketing	Within 2 years	1–3 years	Office of the Prime Minister, Bureau of the Budget, the Thailand Research Fund, Ministry of Agriculture and Cooperatives and Ministry of Commerce

Sub-strategy	Policy	Prioritization	Duration	Responsible agencies
3. Provision of scientific knowledge and technology extensions	3.1 Study breeding and genetics to match market demand and preferences, research, development and extension to farmers	Within 3 years	3–5 years	Rice Department, and private associations
	3.2 Monitor and select the use of technologies in other countries, adopt or adapt to local specifications	Within 3 years	3–5 years	National Research Council of Thailand, the Thailand Research Fund in collaboration with universities
	3.3 the cost of using precision agriculture technologies	Within 3 years	3–5 years	National Research Council of Thailand, the Thailand Research Fund in collaboration with universities and IT businesses
	3.4 Shift the role of governmental units to become facilitators. Employ the private sector, universities, and NGOs to do extension services aimed at using scientific knowledge and modern technologies. Governmental units provide funding and evaluation	Within 3 years	Long-term	Related agencies that provide agricultural extension services, and Bureau of the Budget
4. Standardization and traceability	4.1 Create an ecosystem for private businesses to provide GAP certification and other standards as services. Related governmental units provide accreditation to private businesses.	Very urgent	1–3 years	Department of Agriculture
	4.2 Support NGOs, private businesses, and the public sector to build consumer trust in Thai food.	Very urgent	1–3 years	Food and Drug Administration, Department of Agriculture, Office of the Consumer Protection Board, NGOs, and retail businesses
	4.3 Provide financial support to the Thai GAP Institute, provide training for farmer groups on standardized production and harvesting.	Very urgent	3–5 years	Thai GAP, local universities, and Department of Agriculture
5. Establishing a steering and funding institution	5.1 Establish a steering committee aimed at improving competitiveness.	Urgent	1–3 years	National Research Council of Thailand, and the Thailand Research Fund under the Office of the Prime Minister
	5.2 Establish a steering committee aimed at promoting the use of scientific knowledge and modern technologies.	Urgent	1–3 years	Ministry of Agriculture and Cooperatives, the private sector, universities, NGOs, and the public sector
	5.3 Create new capability of governmental units to evaluate extension programs provided by the private sector, academia, and NGOs.	Urgent	1–3 years	Related governmental units

Sub-strategy	Policy	Prioritization	Duration	Responsible agencies
5. Establishing a steering and funding institution	5.1 Establish a steering committee aimed at improving competitiveness.	Urgent	1–3 years	National Research Council of Thailand, and the Thailand Research Fund under the Office of the Prime Minister
	5.2 Establish a steering committee aimed at promoting the use of scientific knowledge and modern technologies.	Urgent	1–3 years	Ministry of Agriculture and Cooperatives, the private sector, universities, NGOs, and the public sector
	5.3 Create new capability of governmental units to evaluate extension programs provided by the private sector, academia, and NGOs.	Urgent	1–3 years	Related governmental units
6. Support mechanisms for farmers' adaptation	6.1 Limit/ban market intervention, such as price fixing	Very urgent	Long-term	The government under constant scrutiny by academia, the private sector, and the media
	6.2 Create adaptive mechanisms for less competitive farmer groups. Structural shift in the production of palm oil, dairy products and maize, among others.	Secondary	3–5 years	Office of Agricultural Economics and related governmental units
7. Reducing income disparity	7.1 Development of secondary cities	Secondary	5–10 years	Office of the National Economic and Social Development Council, Ministry of Education, and Ministry of Labour
	7.2 Improvement of education and retraining of rural labour for high-value non-agricultural jobs	Secondary	5–10 years	
8. Natural resource conservation and sustainability	8.1 Comply with ASEAN Economic Community's environmental agreements, and promote sustainable production and investment in Thai agriculture	Secondary	5–10 years	Office of Agricultural Economics, and Ministry of Natural Resources and Environment

Source: TDRI 2019.

Annex 3. MOAC and MONRE air pollution resolution projects/ programmes under the National Strategy

No.	Training programmes	Provinces
1	Smart greenhouse for planting	Bangkok, Nonthaburi, Burirum, Khon Khan (3), Loei, Nan (2), Kam Peang Pet, Pitsanulok, Petchaboon, Nakornsrihammarat, Pang Nga, Songkla
2	Professional entrepreneurs in smart agriculture	Samut Prakan, Saraburi, Srisaket, Payao (3), Pitsanulok
3	Installation of automatic water pump	Pathum Thani, Ang Tong, Singburi, Chainat, Chonburi, Rayong, Chanthaburi, Trad, Prachinburi, Nakorn Nayok, Nakorn Rachasrima, Srisaket (2), Ubonrachathani (5), Yasothorn, Aumnat Charoen, Beungkan, Udonthani (5), Nong Khai, Maha Sarakam, Roy Et, Kalasin, Sakon Nakorn, Nakorn Phanom, Mukdahan, Chiang Mai, Lumpang, Utaradit, Phrae, Nan, Chiang Rai, Mae Hong Son, Nakorn Sawan, Uthai Thani (4), Kam Peang Pet, Tak, Pi Chit, Rachaburi (4), Kanchanaburi, Supanburi, Samut Sakorn, Samut Songkram, Petchaburi, Prachoub Kirikan, Nakornsrihammarat, Krabi (2), Phuket, Surat Thani, Chumporn, Songkla (4), Satul (3), Pattalung Pattani (2), Narathiwat
4	Development of innovative products to meet customer demand	Ayutthaya, Lopburi, Chanthaburi (2), Prachinburi, Sra Kaew, Ubonrachathani (2), Burirum, Chaiyaphum, Nong Bualumpu, Udonthani (2), Utaradit, Sukothai, Nakornsrihammarat, Surat Thani, Ranong, Songkla (2), Yala (2)
5	Embedded control system for agriculture sector	Cha Choeng Sao, Surin
6	Installation of soil quality testing	Lumpun, Nakorn Prathom, Trang
7	Professional farmer creation with smart control system	Satul (2)

Source: Thailand, Ministry of Labour, DSD 2022.

Annex 4. Photos of Khok Nong Na implementation in Mae Chaem District







PAGE PARTNERSHIP FOR ACTION ON GREEN ECONOMY

This report presents the findings of a case study focusing on green jobs and a Just Transition to environmental sustainability in Thailand's agriculture sector, specifically with respect to the Khok Nong Na Model in Chiang Mai Province's Mae Chaem District. This research forms part of the ILO's support for the PAGE Thailand Green Recovery project with an aim of facilitating inclusive, green and sustainable development among partner countries.

The case study used desk research and interviews with government officials, community leaders and farmers to explore the Khok Nong Na Model's capacity to harness the agriculture sector's green jobs potential. The analysis assesses policy coverage and coherence and identifies skills gaps and potential linkages with other sectors, such as tourism. Finally, recommendations are made to further support green jobs and a Just Transition in the agriculture sector.

This report will help foster evidence-based green policymaking and implementation, with particular attention paid to employment within the agriculture sector.

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