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NATIONAL PROGRAM FOR ORGANIC RICE FARMING IN THAILAND

To what extent the program strengthens the organic agricultural sector?

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ABSTRACT

The Thai agricultural sector is currently weakened due to the ageing of its population, the desertification of rural areas and the difficulty of farmers to get decent incomes. The organic sector started in the 1980s with local initiatives by NGOs, private organizations and initiatives from province governors. In 2017 the Thai government set the objective of expanding the organic sector at national level thanks to the National Program for Organic Farming. The ambitious goal of 1,000,000 rai registered in the program has been reached in 2019. This program provides trainings, the Organic Thailand certification and subsidies for farmers' groups. Our main research question is the following:

To what extent the National Program for Organic Farming strengthens the organic sector in Thailand?

With the aim to address this research question, our study has been organised along 4 axes of analysis: the access to learning opportunities and learning process, the farmer's collective action, the organic control exerted by several stakeholders and markets, including value chain and prices. Nine case studies have been analysed (58 farmers, rice mills and Rice Research Centres) through interviews carried out in Thailand during a period of 4 months mainly in Isaan (Roi Et, Yasothon, Surin) and Chiang Mai provinces.

At the time of the interview (mid-2019), the respondents reported their satisfaction with the learning process through which farmers enhanced their knowledge about organic techniques and organic certification's norms. Nevertheless, their knowledge of organic farming is still insufficient due to the limited training provided by the Rice Research Centres and the lack of linkages between farmers and other organic supporters and trainers. Loopholes in the governance of this program prevent the establishment of a stable and complete learning framework.

The program provides the opportunity to farmers to gather as a group and create a community. In several groups that were analysed, collective action between farmers was caused and/or reinforced by the program. Farmers developed the sense of belonging to a group and carried out their organic transition and farming development as a group.

This program strengthens farmers in their conversion by pushing them to create groups and by giving them organic knowledge; however, the after-conversion's support is still disorganized. Within the program, the control is managed by the government but also by the groups. Both of them are criticized by several actors because of their lack of rigor in organic practices and the certification process. These limits are causing a lack of trust towards the Organic Thailand certification.

Moreover, the program does not pay much attention to the marketing aspect of the transition towards organic farming at a national scale. The Organic Thailand certification enables farmers' groups to get higher prices from their crops, especially from rice mills that get demand from this specific certification, however it was seldom the situation in our case studies. Organic markets are dubious because of the low prices got by rice mills and farmers, and the lack of demand caused by the inappropriate certification in relation to the markets' needs. The lack of demand hampers the strengthening of the organic sector as part of this program.

Despite being a positive and ambitious initiative taken by the government, this program poses limits which hamper the strengthening of the organic sector**.** A country, such as Thailand, that launches a program

with the aim to expand the organic sector at national scale should develop a holistic outlook taking into account: actors needed and their relationships, type of support, market demand and control reliability in order to get a complete, trustful and sustainable organic transition.

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INTRODUCTION

To date, rice farming occupies 53% of the total farmland and it employs 70% of the total labour force in Thailand, 50% of the total production is dedicated to the export market (Wareerat, 2017). Rice farming has been transformed over the past century. The green revolution reduced cultivated rice varieties from 300 to 30, buffalos have been traded for machines, and organic manures have been replaced by chemical inputs (Poupon, 2010). Intensive agriculture first raised farmer's incomes, however, soon after, production costs increased and soil fertility gradually diminished. The agricultural population is ageing and public policies are leaving farmers in a difficult market position. Rice farmers always had to cope with price fluctuations due to market instability, economic crises and public policies. Since 2015 the price of rice has fallen by about 60% when the Thai government withdrew the rice subsidy scheme; a price-support program for rice farmers (Ricks, 2018; Phiboon and Faysse, 2018).

In 2017, the government launched the National Program for Organic Farming addressed to rice farmers in the whole country. The main motivations concern the country's competitiveness on international markets, farmers' health and incomes and the protection of the environment. The Thai government invested about 25 million dollars in 2018. This ambitious program aims to help farmers' groups to convert to organic farming providing technical and financial support. In 2015, 168,310 rai of rice were certified organic, representing 0.55% of the domestic market in Thailand (GreenNet, 2019). The final objective of this program is to convert 1,000,000 rai (around 160,000 ha) by 2021, which represents 3,3% of the domestic rice consumption in Thailand. This program aims to produce an increase of 500% of the total organic rice area and will increase by six times the organic rice for domestic supply. This is the first program with such a scope in Thailand but also in Southeast Asia, where most initiatives come from non-governmental organizations or local governments (districts). In this context, the following question can be relevant:

To what extent the National Program for Organic Farming enables the strengthening of the organic sector in Thailand?

The aim of this research study is to explore the relevance of the program in terms of access to learning opportunities and learning process, the farmers' collective action, the organic control and the marketing aspect, including value chains and prices. A four months research and fieldwork in Thailand enabled an in-depth analysis of the program's implementation based on interviews with the main stakeholders. After a literature review on important concepts and a contextualization of rice farming in Thailand and organic farming in the world, the methodology is explained hereinafter, followed by the results of this study. The last chapter analyses the results in reference to the concepts described on the first chapter and addresses the main research question mentioned above.

CHAPTER 1: LITERATURE REVIEW

I Concepts

Several countries are implementing organic farming policies since few decades ago, however each country has their own organizations and strategies. In this first part, we will explain the concept of *organic transition* in general, the structure of the organic agricultural sector and the involvement of the government in this transition towards organic farming in different countries.

I.1 Organic transition concept

By definition, a transition - or conversion - is a process involving a change of state. An organic transition is a change of state of the farm practices; from conventional to organic production based on the non-use of chemicals, synthetic inputs and GMO, the reuse of organic matter and crops rotation. Livestock farming uses organic food, natural healing and the respect of animal welfare (Agence bio, 2018). The transition to organic farming is an adaptation process including a modification of technical practices, frame of reference (knowledge), and the relation with nature, food and consumers (Bellon and Lamine, 2009). The conversion can be partial, for instance, a farmer can decide to convert only 50% of his land area, or total.

The transition process usually takes up to 2 to 3 years, however it is from the second year that the farmer can adopt the concept of "in transition to organic agriculture" which increases the value its production. According to GAB-FRAB network in France (2009), the organic transition should be done in 4 steps:

1) Assist to trainings in order to learn organic farming techniques and learn about economic incidences. Getting informed, create relationships with the nearest organic farmers and read about policies and regulations. An organic transition involves a good understanding of farming techniques and a learning of agronomic principles.

2) Know the economic environment of the farm by getting familiar with the new supply chain (direct sales in local markets, organized sectors…). Getting informed about the supply of organic matter for example.

3) Getting information about specific support for organic farming (from governmental or non-governmental organizations). According to GAB-FRAB network in France, a farmer who aims to convert to organic has to be in good financial situation in order to be able to bear the decrease of revenues and yields during the transition years. Subsidies from government can be helpful to deal with this financial issue.

4) Start the mandatory administrative procedure.

A transition towards organic farming could follow different pathways regarding the organic standards chosen, which determines the future certification and label. The main global organization in terms of organic

standards is IFOAM (International Federation of Organic Agriculture Movements), created in 1972 in France. IFOAM's aim is to "gather the organic world", and by 2019, 108 countries were using this organic certification. IFOAM's mission is to "lead, unit and assist the organic movement in its full diversity." IFOAM's goal is "the worldwide adoption of ecologically, socially and economically sound systems that are based on the principles of organic agriculture". These four principles are health, ecology, fairness and care (IFOAM's website, 2019).

Any farmer that wishes to produce organically has to adapt his farming practices to specific rules in terms of production, pest and diseases control, harvesting and storing. The entire production process has to comply with the rules for organic production defined by the chosen organization (such as IFOAM, Ecocert in Europe, Nature et Progrès in France, COR in Canada, Organic Thailand in Thailand…).

Farmers have to proof their compliance of their practice by submitting themselves to an assessment by a certified body. Examples: having a buffer zone to protect the crop from contamination, using organic seeds or non-GMO seeds, prohibition to use synthetic substances or others substances listed, implement practices to increase soil fertility….

Figure 2 - Organic transition process's scheme. By the author

I.2 The Actor-Network Theory used in agricultural transition

Wyatt (2009) called into question the commodity chain structure by refuting the linear network where the farmer sells to the wholesaler who sells to the retailer who sells to the consumer. The actor-network approach built by Bruno Latour, Michel Callon and John Law is now privileged by authors. Influences are everywhere and innovation involves a bunch of actors with different interests working together towards the same aim.

Nowadays, innovations are characterized by distance of relationships and operations influencing the territory planning (Bertacchni, 2012). The Actor-Network Theory (ANT) is based on a combination of humans and non-humans actors, also called actants. Actants are acting for the network and are able of enacting changes. An Actor-Network is a heterogeneous network in terms of interests and actants but also a sociotechnical production's process (Mahil and Tremblay, 2015). The ANT is structured on 4 phases underlined by Quiédeville and al. (2018):

1. Problematization: Identify and formulate a problem, led by a central actor who becomes an "obligatory passage point (OPP)" of the process, others actants have to pass by this actor to take part of the network.

2. Interessement: The central actor gives an identity and a role to others involved actants. Actants have to negotiate and then accept their defined identity and interests. At this point, the network should reach a sociotechnical consensus (Mahil and Tremblay, 2015).

3. Enrolment: Accomplishment by the actants of what was planned by the central actor.

4. Mobilization: Ensure that all actors are represented by spokespersons in the network

The Actor-Network theory can be used to analyse the emergence of an innovation, and the agricultural transition is one of them. Here's an example of scheme to represent the ANT during an agricultural innovation:

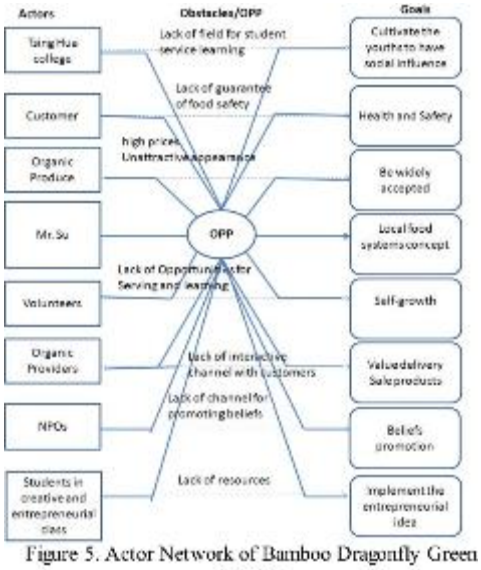


Figure 5. Actor Network of Bamboo Dragonfly Green Market

Figure 3 - Examples of scheme representing an actor network theory. From Fu-Ren Lin, Szu-Yun Wang, 2014

Quiédeville and al. (2018) evaluated the transition to agroecological systems by the ANT. During an agricultural transition, farmers become actant of a production process. The problematization phase is important to researchers in order to understand the challenges and strategies of the network. They analyse the enrolment process, the persuasion mechanisms, the network structure, the interrelationships, the impacts on the development of the network, the adoption and diffusion of innovations… According to Noe and Alroe (2003), a farm is a social communicative system, a heterogeneous system composed by different kinds of entities: soil, machinery, animals, persons, knowledge, regulations, enterprises… Involving different kinds of relations (physical, biological, intellectual, self-reflexive…). Lamine and Bellon (2009) highlighted the importance of extension services, collective actions and learning processes to make farming practices' transition. Processes of change can be done at individual, collective and institutional levels.

I.3 Collective action and norms production

The study of the collective action in a farming transition could be considered relevant. According to Gerdal (1984), it intends "*to understand how farmers, practitioners, play a role in the design and evolution of their activities; how is the confrontation of the forms of knowledge between them, the researchers or experts, and the agents of development, in the processes of innovation*".

The collective action focuses on two main groups of actors: farmers and actors who are helping them. Measures taken by supportive organizations aim to increase the farmers' autonomy. The Gerdal is a group of researchers formed in 1984 by Jean-Pierre Darré working on research-development-local action based on experiments conducted in France. The aim is to "*give back the power to lead actions of development to farmers, increasing their capacity to take initiatives and make decisions to solve their problems*" (Gerdal, 1984).

Modifications on the farm activity could be initiated by farmer's groups (new activities, reduce costs, land development, production's improvement…). Analysing changes by this approach gives meaning to local initiatives and local social dynamics. It is essential to understand how farmers feel in their activity according to several factors (external and internal factors): such as the lack of development of their village, the ageing of the population, the lack of services in their area; at the farm level, the low possibility of farming diversification, the natural characteristics not always favourable to farming, an increasing competition, a market situation more and more difficult, difficulties to maintain incomes… (Ruault, 1996).

To cope with the new difficulties of the agricultural world, farmers develop strategies to adapt the agricultural systems to changes. It can be through new farming practices or through bigger changes such as diversification processes or a shift to a new way of production. According to Darré (1984), the evolution of practices is the result of a fight between the past and the future, or between farmers acting as brake to change and some innovative farmers. Technical transformations arise from social interactions, forming part of relations systems in a Local Professional Group (LPG)[1]. "*The implementation of a new technique is accompanied by an adaptation of ideas. (...) It is an activity of knowledge production*" (Darré JP, 1999). Changes of farming practices do not necessarily come out from research, as it is often perceived that farmers act as subordinates to the research, but also from the decisive importance of local social actions (Darré et al., 1988).

Analysing a change by the collective action's approach sheds light on a new understanding: how they act within a group, how they organize themselves, discuss, think with other people to solve a problem, how to make good use of a diversity of ideas and experiences to make action. The following questions can help the study of collective action in farming activity: To what extent the local scale is a relevant level of action to rural development? What are the place and role that farmers can play in this rural development? How interactions occur with other social groups, whether it is with farmers' groups or with public or private organizations? How farmers come together to reach the same goal? How to explain that in the same area, some groups manage

[1] According to Jean-Pierre Darré, the *professional and local group* or "technical community" brings together farmers with common conditions for the norms' production. The group is located in the same village which is regarded the place of development. Regulation of standards is a matter of survival for the group because it is the condition of the conformity desire among its members. Individuals of the *professional and local group* have the same way of seeing things, a common language and move forward in the same direction. The group is formed according to the local culture, current and previous experiences and influences and information from outside.

to solve problems while others don't? What are the factors influencing the problem's solution?... (Ruault, 1996).

According to Darré (1984, 1999), the material transformations in a farm come from a reflection and a motivation carried out by farmers. Somebody's action can be explained thanks to the sense of this action to this specific person and each behaviour is influenced by social interactions and collective ways to think. Transformations are made possible by the change of norms within the social group. First, there is a loss of control because the current way to see things is not adapted to the future practice to be implemented. Then, the most important part of the change's implementation is the discussion. Groups are using a common language thanks to the creation of norms coming out speeches. Language is a part of the technical system such as objects, tools, value chain or task's organizations, but language is the practice from where others practices result from.

Norms affect the way of looking at things, of identifying and judging situations and actions. To a member, the Local Professional Group is his framework and the reason of initiatives, a sharing network to improve his capacities but also the reason of eventual ban: norms are so important for a group that the non-respect of them can be a threat to be expelled from the group. Norms' stability and regulation is essential to the group's survival. Adopting a norm is both material and ideological. Thanks to ideas confrontation in the group in order to transform their agricultural system, materially and ideologically, they produce norms.

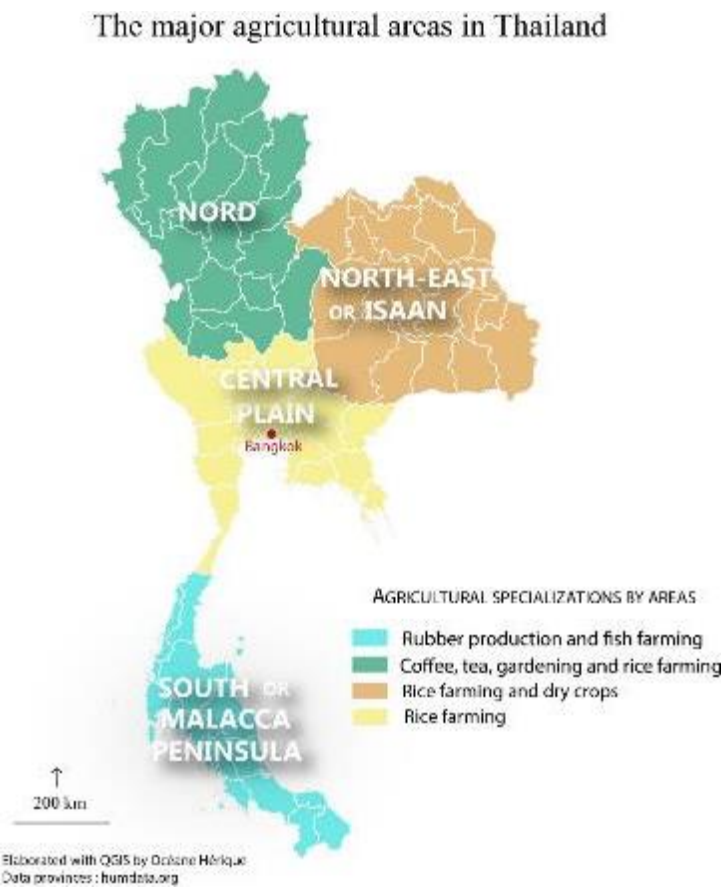
II Organic farming transition in Thailand

II.2 Agricultural sector in Thailand: regional power

II.2.1 Natural characteristics favourable to agriculture

Thailand is divided into 4 big areas: North, Northeast (also called Isaan), the Central Plain with Bangkok and the South (also called Malacca Peninsula). The main agricultural production in Thailand is rice, fruit, vegetable, livestock farming, aquaculture and fishing and cash crops. Over time, cultivated areas and yields have increased, however the labour force has reduced (Poupon, 2010). In the 1990s, the government encouraged crops diversification (Kawasaki and Fujimoto, 2009), therefore rice crops were transformed and replaced by vegetables, corn, sorghum or millet and later on meat and wheat. Thai farmers are adapting quickly according to researchers. The 4 main regions in Thailand have been divided into sectors according to agricultural activities.

- The most rural area is **Isaan (or Northeast**), with relatively poor and hardly irrigable lands. Farms are generally below 5 ha and 50% of the region is dedicated to dry crops: cassava and sugar cane. Isaan lands dependent on climatic conditions facing shortages during dry season. Notwithstanding rice farmers can grow high quality aromatic rice (jasmine rice for example) (Poupon, 2010).



Map 1 - Major agricultural areas of Thailand

- The **northern region** is especially home to the Hmong and Karen ethnic groups who cultivate opium poppy. Thanks to the government programs of the 1980s, has been abandoned to give way to crops of fruits, vegetables and coffee or tea. In Chiang Mai province, in 15 years, the area under crops of fruits and vegetables has increased by more than 300% from 777 farms in 1992 to 3,348 farms in 2007 while rice crops have decreased by 20% (Kawasaki and Fujimoto, 2009). The North has richer and more watered land than the Northeast.

- The **central plain** is an alluvial basin that receives little rain but has developed fluvial facilities: irrigation canals existed since the 13th century, and dams were built in the 1960s. Farmers can grow rice twice a year, the region is known as the country's "rice basket" (Guilvout and Burnet, 1983).

- In the **South**, rubber production and fish breeding are well developed. Cash crops are the country's main agricultural production, mainly rubber for making latex (850,000 small farmers in 2010), sugar cane, cassava and maize mainly for animal feed and biofuel but also oil palm, mung beans or fibre plants like cotton (...).

Agriculture is embedded on Thai people's way of living, culture, tradition and values, especially for the rural population. It is also a main source of natural capital for the entire nation (resources, biodiversity, environment). The ancient knowledge and wisdom of the peasants are part of the social capital of farming and can be used to build new production models according to Jitsanguan (2001).

II.2.2 Agricultural public policies in Thailand since the Green Revolution

Thailand has experienced very rapid socio-economic growth, accompanied by the modernization and industrialization of its agricultural sector. Before the Green Revolution, the agricultural system was based on self-subsistence farming and the sale or exchange of surplus produced at a village level. In 1954, the Law of the Soil formalized the land tenure regime after centuries of free land use. The 1961 National Economic and

Social Development Plan authorized not only the purchase of land by foreigners, giving way to Japanese domination (Guilvout and Burnet, 1983), but also introduces the Green Revolution in Thailand.

II.2.3 From Green Revolution to agribusiness

The green revolution took a long time to be spread throughout the country, until 1974 when the government started a chemical fertilizer business. The prices of chemical fertilizer dropped while its use increased from 5.9 kg of fertilizer/ha in 1970 to 76.5 kg of fertilizer/ha in 1995 (Dubus 2011, Poupon 2010).

The intensification of agriculture by the green revolution has led to the development of a new agri-food model driven by the government and influence from abroad. National policies paid more attention to the export market and multinational firms were welcomed in the country. The main industries, mainly led by Sino-Thai, were those of rice refining, canned fruits and vegetables, and canned seafood products (Poupon, 2010). The rural exodus increased and Thailand became the "hub of Asian trade" (Dubus, 2011).

The economic crisis of 1997, due to foreign debt and the devaluation of the Thai currency, was tackled by the government and foreign investors, committing themselves to the development of the agricultural sector in order to make it more competitive, especially through commercial agriculture (Jitsanguan, 2001). The goal was to transform Thailand into the "kitchen of the world". In 2010, agribusiness accounted for 30% of the country's workforce. Thai agriculture moved from subsistence farming to mass production in order to meet the global demand. The main agribusiness companies in Thailand are Charoen Pokphand and Betagro. These giants spread "contract farming" among Thai farmers. The manufacturer puts all means at the disposal of the peasant who produces according to the specifications of the company. The intermediary buys all the peasant's production and then sells it on the market (Poupon, 2010).

The private sector is progressively taking over agriculture. Agribusiness is gaining ground with processing industries and the production of food products for export. However, the gradual abandonment of extensive agriculture for intensive land use and agribusiness development has a strong environmental impact: 67% decrease of the forest cover, soil erosion, soil and water pollution and decrease in biodiversity ... (Poupon, 2010). The environmental, health and debt problems of farmers appeared from the 1980s. According to a farmer interviewed by Ittiphon (2009), the use of chemical inputs explains the poverty of rice farmers in his village. After a strong increase of productivity during the first years, the yields start to decrease while the quality and fertility of the soil reduces. More chemical inputs are needed which increases the production cost leading farmers into a cycle of indebtedness.

II.2.4 The evolution of agricultural interventionist policies

According to Ricks (2018), the challenge of agricultural policy is to give farmers a decent standard of living on the one hand, to offer acceptable prices to consumers on the other hand, and to provide price stability

on both sides; and all this while maintaining competitiveness at the international market. Since the beginning of the twentieth century, attempts to address these issues have increased without success. Ricks (2018) reviews government measures since the 1970s:

In the late 1970s, the policy of Paddy Pledging was enacted. This measure is similar to a credit allocated by the government to farmers in order to maintain price stability. In theory, farmers sell their production and repay the loan, or they must leave their stocks to the government. Prior to this measure, national rice prices were much lower than world market prices, thus peasants had to increase production to maintain revenues. This policy secured the price of rice. Taxation of peasants began in the 1980s to develop the agricultural sector through farmer subsidies, land irrigation schemes, credit development, industry and market support, or to limit rural exodus (Poupon, 2010).

After various measures by the government and zero-rate loans, a financial crisis broke out in 1997. Relations between the government, millers and rice farmers collapsed due to the dependence on financial subsidies. 40% of millers went out of business between 1997 and 1999. In 2001, stability returned with new subsidies. The new government (led by Thaksin Shinawatra) bought rice at 20% to 30% above market prices, giving farmers a good reason to put their production in the hands of the government, becoming the largest buyer of rice with almost 38% in 2004-2005. But in 2008, a new crisis of the price of rice emerged. Farmers were left with no option but to sell their rice at a lower market price. The Paddy Pledging Scheme was replaced by a program that directly subsidized farmers. When prices fell, the government would pay the difference up to 20 tons of paddy per family. But prices fell again in 2010 and this new measure did not work. In 2011, the new government (led by Yingluck Shinawatra) subsidized rice farmers at 150% of the market price. However, this policy being very expensive for the state, could not continue. Since 2015, support for the price of rice in the domestic market has been removed. The price of conventional rice decreased from 15,000 - 20,000 THB / ton in 2014 to 6,000-7,000 THB / ton in 2017 (Phiboon and Faysse, 2018).

Since the 21st century, the government intervention in the regulation of the price of rice has been disputed. During crises, subsidies collapsed and the situation was even more difficult for farmers and processors to manage. According to Ricks, since the 1980s, farmers' wages have increased but the country has more farmers than it needs for its current level of development. These agricultural crises explain why more young people are moving to cities in search of employment and less are interested to work at their parent's farm.

II.2.5 Organic farming policies before 2017

The "new green revolution" began, according to Vandergeest (2009), in the mid-1980s in Thailand with the uprising of activists and NGOs. Organizations condemning chemicals inputs emerged such as the Alternative Agriculture Network in 1990 (Ittiphon, 2009).

Since 1992, the Thai government promote sustainable agriculture. The 7th National Plan (1992-1996) aimed to convert 20% of agricultural land (about 4 million hectares) into sustainable agriculture (Amekawa, 2010). In 1997, the ministry launched a Sustainable Agriculture Development pilot project that supported sustainable agriculture and smallholder farmers for food security. One year later, 1,005 ha were grown organically, i.e. 0.02% of the agricultural land. In 2005, another 5-year program promoting organic agriculture was launched, one of the ambitious goals was to convert 13.6 million hectares to organic farming to reduce chemicals inputs importation and boost the organic export. Only 21,701 ha were converted in 2005 with 2,498 organic farms and chemicals inputs importations continued to increase (Data: Becchetti et al, 2011; Ong Kung Wai, 2007). With the cancellation of the Paddy Pledging Scheme in 2015, the price of general paddy dropped. Certified organic production areas in Thailand increased from 235,523 rai (37 683 ha) in 2014 to 284,918 rai (45 586 ha) in 2015 (increase of 20.97%). At the end of 2016, the price of paddy was at its lowest for almost 10 years, pushing rice growers to become organic (GreenNet, 2018). In 2015, organic certified rice represented only 0,28% of rice area.

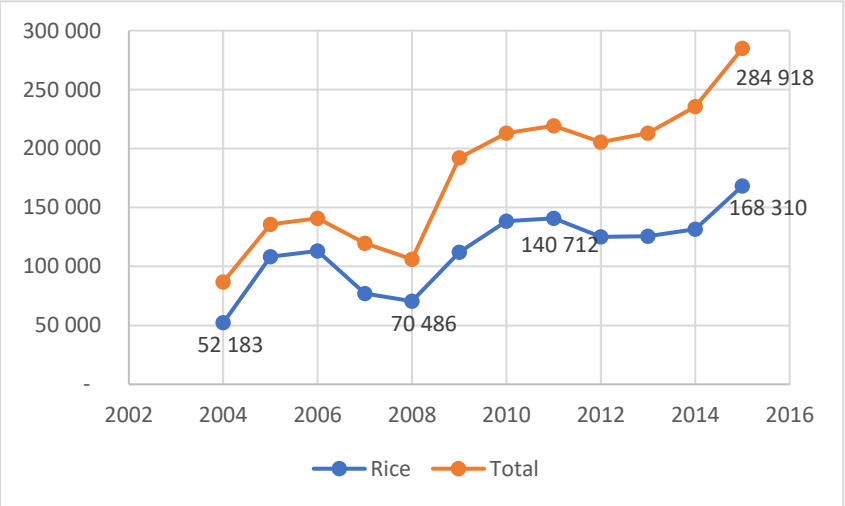


Figure 1 - Evolution of the total certified organic area and the certified organic rice area in Thailand between 2004 and 2015. Data: Vitoon Panyakul, GreenNet, 2018

In 2017, rice plantations occupied 70% of the active agricultural population; it covered 60 million of rai, and produced 20 million tons of milled rice. 85% of this rice is produced in rainfed land, called “in-season rice” while 15% is an “off-season rice”, using irrigation (north and central regions). Thai people consume 10 million tons of rice, i.e 50% of the annual production. The export market is growing and the competition about export market with others Asian countries is increasing (Waareerat Petchseechoung, 2017).

II.3 Organic commodity chain and certifications

II.3.1 Actor's role play within the organic agricultural sector

Organic farmers have developed collective actions and strengthened their network with supportive organizations. Support groups can be composed of farmers, farmer groups, NGOs, governmental organizations and certification bodies (Itthiphon, 2009). The collective dimension is an important part of the transition process (Phiboon and Faysse, 2018). Cooperatives know the key of sales, the high quality of organic products allows producers to expand their sales opportunity. Certification bodies play an important role because they are connected with organizations of Northern countries. Obtaining certification is essential in order to have access to the organic market.

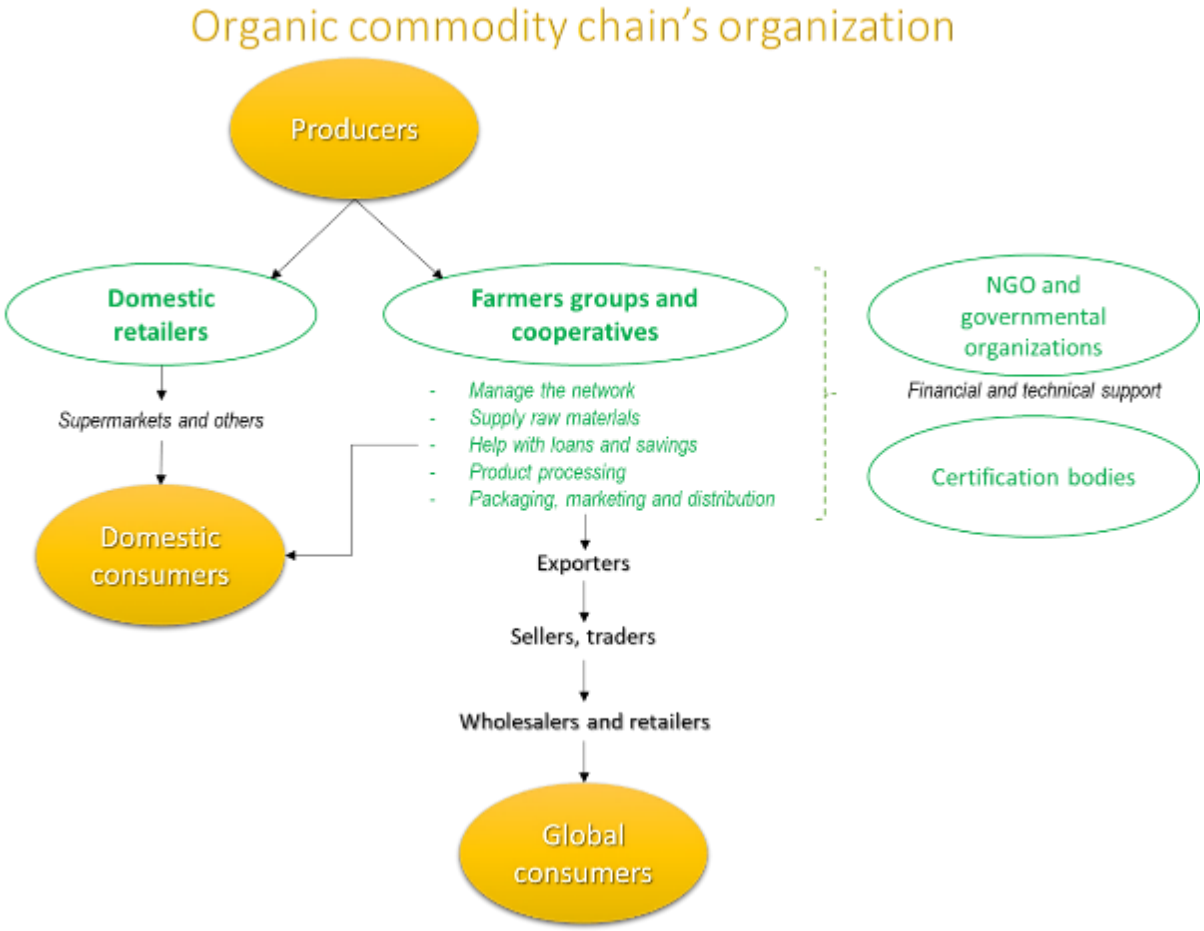


Figure 2 - Organic commodity chain in Thailand. Adapted from Itthiphon scheme (2009).

According to Vitoon Panyakul (2011), Green Net's president (an organic cooperative), organic operators are: individual / family farms, farms working for a company (responds to a large-scale demand under the contract farming model), government organizations such as the Royal Project Foundation (RPF), groups with private companies and groups with cooperatives or NGOs. Below is a summary of the organization between the actors in organic farming:

Organic farmers can sell their products directly to regular resellers or joining a cooperative. Within a cooperative, farmers can improve the quality of the final product and sale the product easier. The relations between the actors of the chain can formalize through contracts. Farmers need to register as a member of a farmer group to facilitate the access to credit, learning, knowledge and buy organic fertilizer in large quantities with lowers prices (Itthiphon, 2009).

Agricultural cooperatives are businesses but also social groups of farmers. The first one, created in 1916, had the objective to ease the access to loans and savings. Then, the development of cooperatives in the 1970s was encouraged by the state. The government made loans, supervised savings, provided seeds and organic inputs, managed the processing of the product, encouraged the extension of the structure, marketing ... The quality and quantity of organic seeds is an important factor for the development of organic production, they are purchased either domestically or imported from Japan or Europe at high price (Kawasaki and Fujimoto, 2009).

The Green Net Cooperative was established in 1993 by a group of producers and consumers to promote organic farming. Farmers sought to build national legitimacy by not conforming to international standards. The Green Net Cooperative is the pioneer of organic farming movements in Thailand and received the FairTrade label in 2002. The cooperative buys the production from the farmers' groups, manages the stocks and then sells them on the domestic or international market. Cooperatives make it possible to sell the products at a better price because they have a big amount of production, also, farmers don’t have to manage the marketing part. They organize courses on organic production, help farmers to obtain certification and organize the marketing of organic products. Some cooperatives encourage and assist young farmers to build their structure and business (Faysse and Wattanai, 2018).

Cooperatives work with government organizations (GOs) to obtain financial and technical support. The Royal Project Foundation (RPF) plays an important role in the progressive adoption of organic farming. RPF started the promotion of organic farming in the 1970s as an economic added value for farmers and as a mean to tackle pollution. The RPF provides a market and a fixed price for production, and strengthens the management of the marketing chain from the farmer to the consumer. Some organic farmers in Chiang Mai province are under contract with the Royal Project Foundation. The production is sold directly to the foundation that supplies supermarkets in Chiang Mai (63.3%) but also Bangkok and other distribution centres (36.7%) (Kawasaki and Fujimoto 2009, Vidyarthi 2015).

Farmer groups can work with GOs as well as NGOs. Governmental organizations play a facilitating role and provide technical support, while NGOs act as coordinator between farmers and GOs. The NGO Earth Net Foundation was created in 2000 by Green Net Cooperative to expand the network by providing support through trainings and technical management. Farmer groups make it possible to create places of storage,

exchange and to improve the social conditions of farmers. Organic farmers in Thailand have therefore created groups with strong beliefs that allow them to move forward together; thus when someone does not comply with the rules, s/he is excluded from the group (Itthiphon, 2009).

II.3.2 Certification

Organic Certification has recently increased in Thailand since farmers have to comply with European organic standards to be able to export to Europe (Panyakul et al., 2006). The first international buyer was in Italy and wanted to certify rice in 1989. The Department of Agriculture provides certification services and plays the role of quality assurance with the Q symbol (Vandergeest, 2009).

Several types of certification exist: first-party, second-party and third-party. Phiboon and Faysse (2018) explain them.

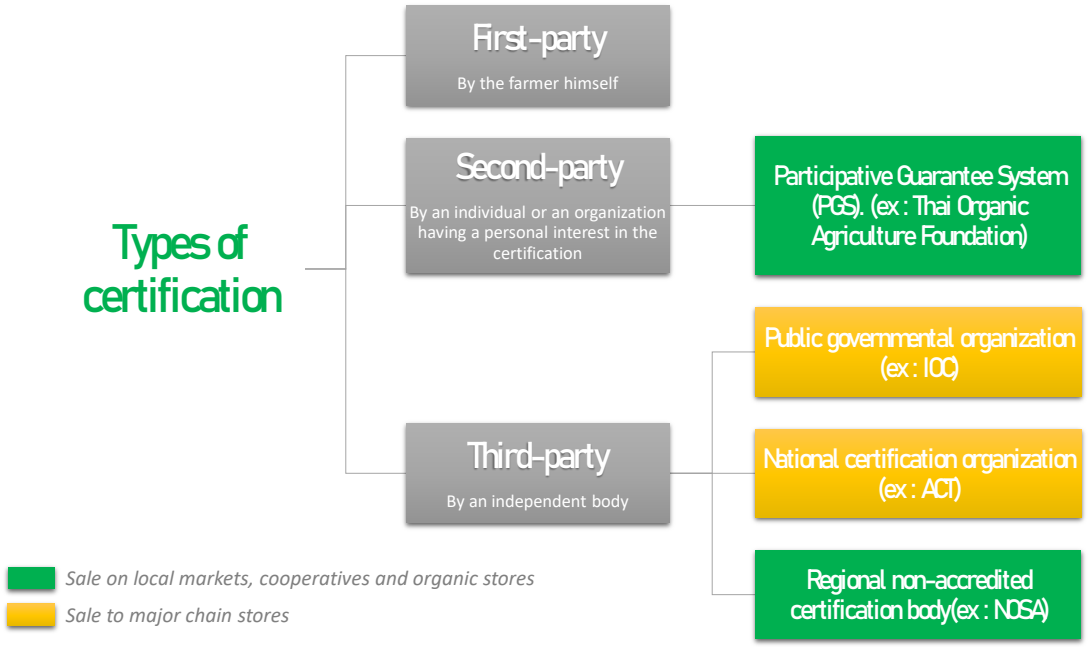


Figure 3 -The different certifications in Thailand. Elaborated by the author. Source: Phiboon and Faysse, 2018

First party certification refers to a self-certification made by the farmer who qualifies himself as an organic farmer.

The second-party certification indicates a compliance given by a person or an organization having a personal interest in the certification, however conflict of interests may exist. This type of certification is illustrated by the Participatory Guarantee System (PGS) based on farmer's participation and trust-based networks, which is an alternative approach to acquire certification for smallholders. In Chiang Mai Province, self-assessment is done through certification groups and individual farms such as the Thai Organic Agriculture

Foundation or Maejo University (2015), which aims to provide university restaurants with organic products. These organizations help farmers to meet requirements, contribute to bear costs and help with marketing and sales. This certification costs 500 BHT / year for the farmer.

The third-party certification is the strictest and is managed by an independent body that supervise the compliance of agricultural practices to organic standards. This type of certification allows international export. The independent body can be:

- A public government agency. Ex: The Institute for Organic Crops created in 2002 does not require taxes.

- A national certification body. Ex: ACT (Organic Agriculture Certification Thailand) was created in 1995 by NGOs, producer groups and other private organizations. Being certified ACT costs 17,000 BHT / farm / year but the group certification gives lower prices: 2,700 BHT / farm / year. ACT follows its own standards but has obtained IFOAM accreditation.

- A non-accredited regional certification body. Ex: NOSA - Northern Organic Standard Association created in 1994. This association helps farmers up to 90% of the costs of certification, the final price is 1000 BHT / year.

ACT and IOC both sell to chain stores. NOSA and the PGS sell on the local markets and sometimes to the cooperatives and organic stores but the quantities are lower, the diversification of the productions is thus essential.

Many sustainable agriculture labels exist in Thailand including GAP (Good Agricultural Practices). According to the farmers interviewed, the GAP certification (Q Label), created by the Department of Agriculture, became a minimum requirement to export to Europe (Thapa and Rattanasuteerakul, 2010). Many different labels as shown in the illustration can certify organically grown products. The study by Huang and Sangkumchaliang (2012) shows that consumers get confused with all these labels.

Figure 4 – Several sustainable and organic farming logos of Thailand. Figure from a slideshow of Vitoon Panyakul - Green Net (2011)

III The National Program for Organic Farming: 1,000,000 rai project (2017-2021)

This research work is particularly interested in this new program launched in November 2017 by the Thai government. This section is based on the official documents from the Rice Department about the program. These documents are not available online and are in Thai so there is no link in the bibliography. The following section aims to understand the government structure based on an interview done with the professor Pradtana Yossuck (Maejo University, Chiang Mai).

Thai ministries have to set up strategies to implement the five-years plan of the Thai National Agenda. One of these 5 years plans is the National Organic Agricultural Strategy Plan. Four ministries have their own project to comply with this one but we will focus on the National Program for Organic Farming 2017-2021 (2560-2564 in Thai years) launched by the Ministry of Agriculture and Cooperatives (MoAC) with the objective of developing organic rice all over the country. The MoAC has several departments: Department of Royal Irrigation, Royal Forestry Department, Rice Department…. The program we are studying is handled by the Rice Department, represented in each province by Rice Research Centres (RRC) responsible for the National Program for Organic Farming's implementation.

The government was already supporting sustainable farming and organic farming movements since the five-year plan of 1993 but without giving any financial support. This new program introduces a real involvement of the government in the process to organic conversion. The following information of this section comes from the Rice Department's document (2018). The government wants to "*create a stable, prosperous, economically, socially and ecologically sustainable society*". The objective is to recruit farmers to increase the area devoted to organic rice farming by at least 20% per year to reach **one million rai** (i.e. 160 000ha) in 2021. In Thailand, "*rice farming is the main agricultural sector, it generates important incomes for the country: 200,000 million THB/year"*.

The reasons for launching this project announced by the Rice Department are as follows:

- Competitiveness with other rice producers and exporting countries
- Improve the health of farmers and consumers by stopping chemicals use
- Increase profits: the price of organic paddy is 66% higher than conventional paddy
- Improve the stabilization of rice prices and farmers' incomes
- Maintain environmental balance

Conditions of participation to the program:

- Set up a minimum group of 5 farmers who will organize an internal Control System for the group.
- Have a minimum total area of 100 rai (16ha) located near one to each other (but it's especially in the same village)
- Have access to a natural water source suitable for organic rice production (water supply from rainfalls, farm ponds or canals)
- Provide details on the cultivation of organic rice (areas, rice varieties, standards ...)
- Have a buffer zone to avoid contamination from conventional farms surrounding

- Stop the chemicals use from the first year of the program

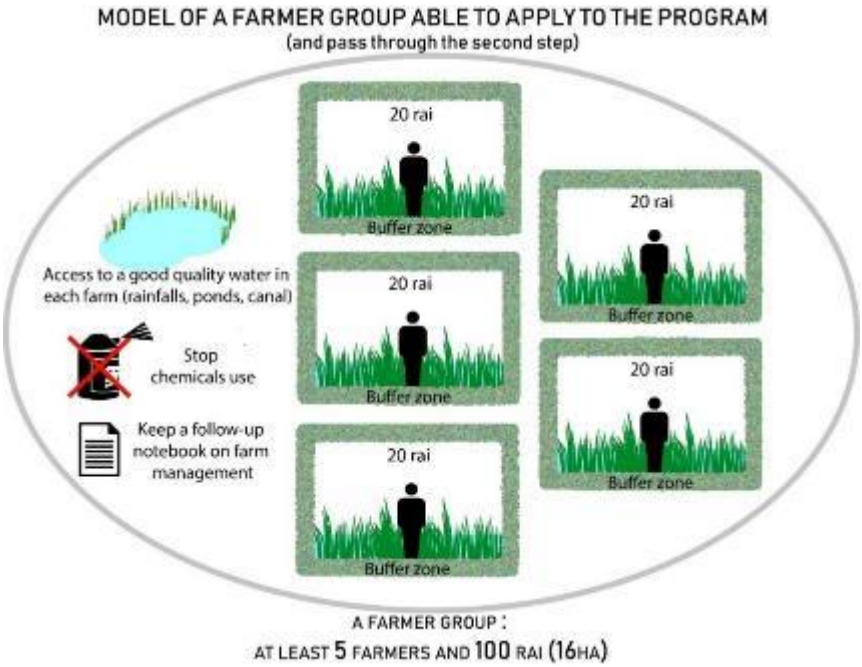


Figure 5 - Scheme of a theorical model of farmers' group able to apply to the program, according to the Rice Department document.

Advertisement for this program has been made by Rice Research Centres (RRC) and websites (brpd.ricethailand.go.th). Farmers have to register themselves at the RRC of their own province. The RRC works with the Department of Agricultural Extension (DoAE) who has information about farmers. Then, applications are sent to the Committee of Organic Agriculture.

The roles of the government in this project are:

- Provide training workshops for farmers
    - 1st year: At least one time about certification requirements, how to do the record about farming management and about ICS and how to set up a group structure.
    - 2nd year: the same training
- Provide organic rice seeds (don't provide organic fertilizers and herbicides)
- Manage the supply chain
- Subsidize farmers for 3 years at a maximum of 15 rai (or 2.4 ha) per household to compensate for the losses of conversion to organic.
    - At the beginning of the 2nd year: 2 000 THB/rai
    - At the end of the 2nd year: 3 000 THB/rai
    - At the end of the 3rd year: 4 000 THB/rai
- Grant certification according to the organic standard of the Ministry of Agriculture and Cooperatives "Organic Thailand". This program wants to focus on certification to upgrade production to compete

with other exporters. After obtaining certification, farmers can access more market channels and get more incomes.

The Rice Department expects to establish a wide production of quality rice, over 1 million rai (400 000 ton of paddy/year, 400kg/rai) and to sell it at 20 THB/kg in domestic or export markets (compared to 12 THB/kg for conventional rice). The budget for the program in 2018 was 777,697,200 BHT.

The aim is to strengthen agriculture and its workers by offering them sustainable autonomy and better health. In 2018, 300,000 rai (i.e. 48 000 ha) have been registered to participate to the program, 80% have been accepted in the evaluation phase and 80% of farmers' groups who joined the program in 2017 passed to the conversion phase. At the end of the program, the organic farming mindset and ideas could be spread to other farmers by farmers groups who can become a learning resource for villagers (Rice Department's document, 2018).

III.1 Official Organic Thailand standards

Rules and standards of organic rice are established by the Thai Agricultural Standard TAS 9000, and governed by the National Bureau of Agricultural Commodity and Food Standards under the Ministry of Agriculture and Cooperatives (THAI AGRICULTURAL STANDARD, 2010). This document includes organic standards in regard with "practices of production, processing, labelling and marketing of organic rice produce and products derived". Organic rice production aims to enhance the biodiversity and ecosystems by prohibiting use of chemicals or synthetic inputs and materials derived from genetic modification. The harvest product is the organic paddy. Processed organic paddy (by milling) provides organic brown rice or organic white rice.

The requirements for organic rice production are:

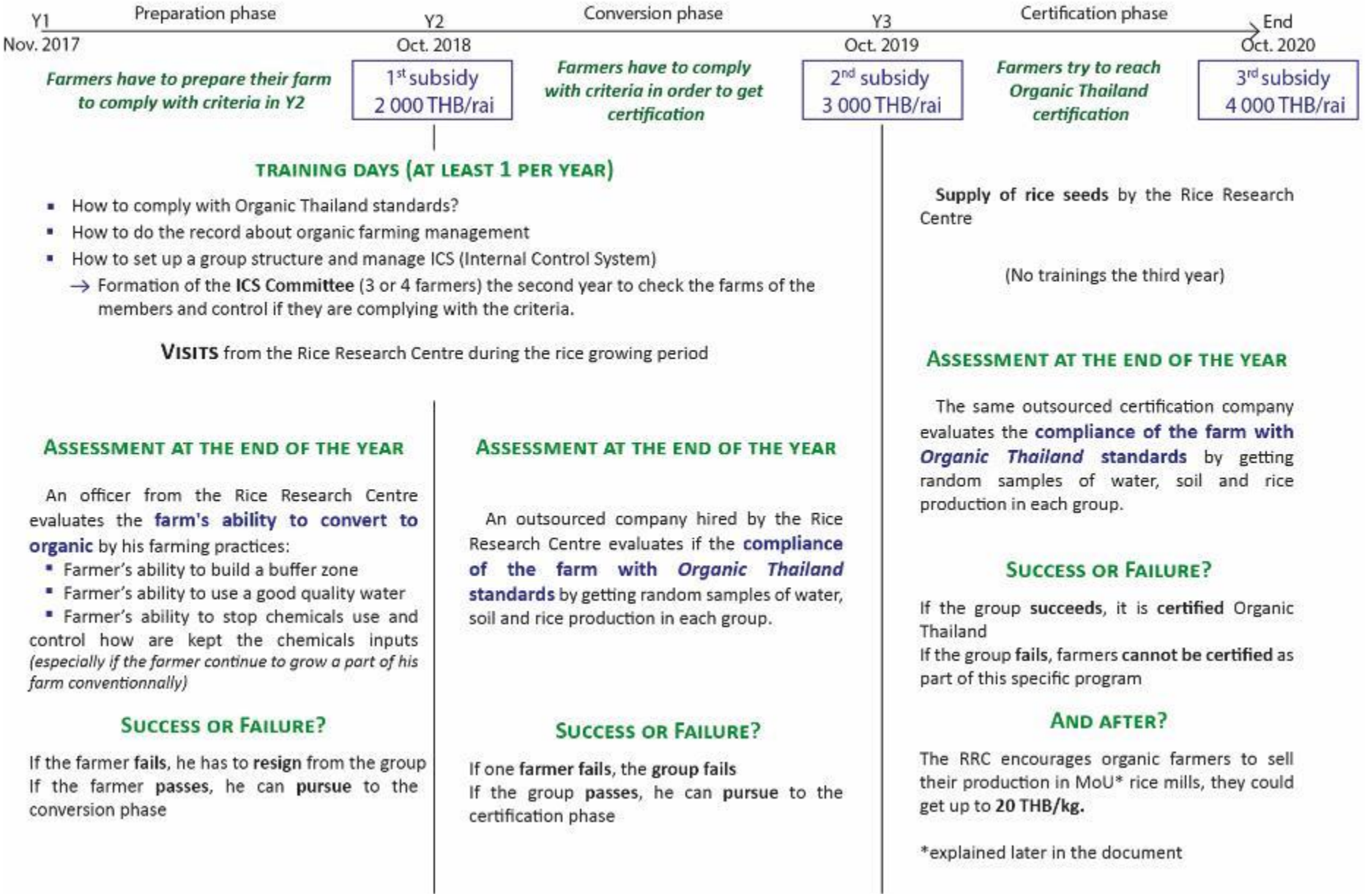
- At least 12 months of transition period before which the rice cannot be named as organic rice. The certification body has to take into account the land use history, such as the analytical results of chemicals residues in soil, water and rice. If the grower can prove that s/he's not using chemicals inputs for 12 months, the transition period can be reduced to 6 months.
- The farmer shall report her/his land use history (chemicals use and analytical results if s/he has), her/his land management and production plans, details of her inputs use, map and farm layout.
- Preventives measures against contamination from polluted sources has to be taken: dike, cultivated buffer zone.
- Seeds shall come from organic agriculture. If not, the first crop can be grown with conventional seeds but chemicals have to be eliminated before use and the seeds shall be recognized by a certification body.
- Maintenance or enhancement of soil fertility and biological activities by:

- Cultivation of a crop rotation with legumes, green manures and deep rooting plants.
- Animal manures (from open area and raise without veterinary drugs), rice straw, compost, sea weed, wood ash… all the substances need to be recognized by certification body or competent authority
- Support the decomposition process with microorganism
- Biological fertilizer to increase soil nutrient. These can be made by using wastes from farm, from household and fermented them with molasses or raw sugar solution. Microorganisms should be added.

- Pest and disease control: Use rice resistant variety, crop rotation or cover crop, traps (physical or light), noise repellent, preservation of natural enemy of rice pest, microorganism. Diseases can be avoided by a nutritional balance.
- Weed control is based on physical methods: hand weeding and use of water as weed controller.
- Soil management: Burning is prohibited because it causes losses of organic matter. Keeping bare soil before planting and after harvesting rice is not recommended. Conversely, grow leguminous crop and the tillage of rice stubs and green manures are recommended to increase organic matters and minimise erosion. After 7 days decomposition into the soil, sow the rice seeds. A soil analysis should be done annually, especially to check the soil acidity, if too high, use marl or wood ash.
- Transportation containers and bags have to be clean and free from any contamination, including non-organic rice.
- Storage shall provide good ventilation and mechanical pest management. Plants and seeds are recommended to control pest storage. The storage has to be clean and rats free.
- The paddy shall be dried not more than 14% moisture content before storage or the high moisture could infect grains.
- All the machines in contact with non-organic rice and organic rice have to be clean between both uses.

III.2 The course of the program

Table of the organic farming conversion phases as part of the National Program for Organic Farming in Thailand



IV Government involvement in organic farming in the world

Since 2000, the total organic farming area in the world has grown at a rate of 12% every year (Paull, 2017) but only 1.1% of total land is certified organic. Paull analysed the transition process of different countries and how governments have encouraged this transition:

- "One state at a time": in India, the organic transition's support is focused on one state, Sikkim.
- "One country at a time": in Bhutan, the government wishes to convert the whole country to organic, without aiming to certify the whole country.
- "One crop at a time": in Dominican Republic, the government chose to support the organic transition of banana crops.
- "One island at a time": in Pacific Islands, the island of Cicia in Fiji was chosen to start organic conversion.

In each case, the government is an important actor for boosting the change. In Thailand, the current transition is rather "one crop at a time" at a national level.

IV.1 Similarities between 11 countries and Thailand

We have analysed the general aspects of the organic transition that 11 countries have gone through. We won't describe each country's organic transition here but some foreign experiences could give new perceptions of the current situation in Thailand. The following table presents some general and relevant aspects:

Level of development	Countries	Main actor in charge			Aim of the movement			Limits/Difficulties	
		Government	Local administrations (districts)	NGOs or private companies	Convert and certify new organic farmers	Certify old organic farmers	Convert without certify	Financial means	Marketing
Developing	Bhutan	X					X	X	
	Argentina			X	X			X	
	Tunisia	X			X				
	Fiji Island (Cicia)			X		X		X	
	Dominican republic			X		X		X	
	Thailand	**X**		**X**	**X**	**X**			**X**
Transition	India		X		X				X
	China		X		X	X			X
	Brazil			X		X		X	
Developed	Australia			X	X			No limits mentioned in the read bibliography	
	France	X			X				
	Austria	X			X				

As shown in the table above, we have clustered the transition pathways regarding the country's level of development (developing country, country in transition, and developed), the main actor that boosts the transition, the aim of the movement (converting new organic farmers and

certifying former organic farmers in the case of Thailand), and the limitations or difficulties of the current action. In Thailand the government is the main actor. Private networks also take part in this transition, however on this paper we will focus on the government's involvement. The main constraint facing by Thailand is the marketing aspect that we will further describe in Chapter 3 (III.6).

In this research, we will focus on the government actions. Bhutan, Tunisia, France and Austria are upscaling the organic transition, as it is the case with Thailand. It means that they are managing the transition at the government level. The definition of upscaling is the following: "the process of reconstituting activities or phenomena at a higher or larger geographical scale" (Oxford reference). In India and China, public administrations at the district level are supporting the conversion to organic farming, the scale is smaller than in Thailand but the framework is similar and these experiences are still interesting to analyse. Furthermore, India and China are similar on other aspects of their conversion to organic, they choose to certify former organic farmers as well as converting and certify new organic farmers and they are struggling with the marketing area. This issue of marketing in Thailand will be analysed throughout this research paper, especially in the third chapter.

IV.2 Local governments in charge of the conversion

The Sikkim district in India won the award of the first organic state in the world in 2018. In 2003, a plan to eradicate chemical inputs from agriculture was launched due to environmental and health problems (IFOAM, 2017). In 2010, the Sikkim Organic Mission was created. The Ministry of Commerce established a regulatory mechanism fixing standards for organic production, accreditation of agencies and inspection (Karuppaiyan and Rahman, 2008). The process and organizations are explained by these authors:

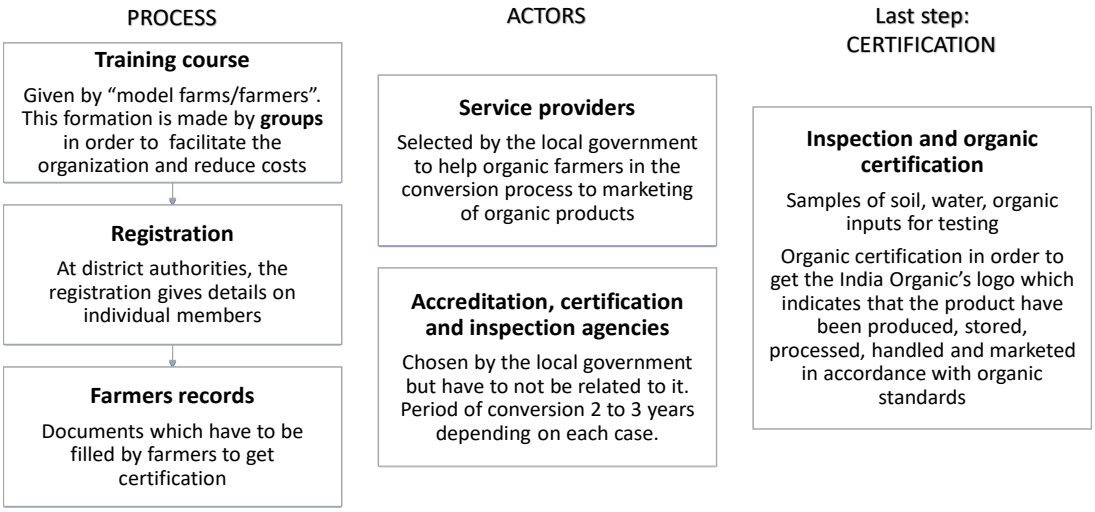


Figure 8 – Scheme of organic conversion process and general organization in Sikkim district, India. By the author, from Karuppaiyan and Rahman datas (2008)

The local government supports financially **organic seeds and organic fertilizers supply in co-operation with NGOs and certifiers**. The local administration provides subsidies to establish rural compost units or EM (Effective Microorganisms) technology for example. The production mainly goes to **local markets**.

The limitations in the Sikkim state are the lack of infrastructures facilities and certification bodies, the absence of organized markets and marketing channels, and the lack of financial support. The commercial entities are not comfortable with the idea of working with a large number of small farmers. The absence of a regulatory framework of marketing governance seems to be the main issue in the Sikkim district (Subhash and al., 2015; Garg and al., 2017).

In China, organic farming is an alternative to decades of traditional agricultural practices (Qiao, 2011). Chinese government established agencies and institutions to organize the organic sector but didn't establish organic programs or plans to develop the sector (Wang, 2012). These agencies organize the certification and labelling in order to comply with western standards. There is financial support for certification but the management is "profit-oriented", according to the ASIENHAUS' report (2015). The government's role is to provide missing services such as research, information, and opportunities for cooperatives and associations in the organic sector.

Even if the government is increasingly involved, the real key players are at a local level; counties are providing real support for organic farming (Wang, 2012). The Yangxian County is an example. The local government implemented policies, finances, research, marketing and others services to develop organic farming. An Organic Agriculture Office was established to help the sector's management and to provide financial support (60% of certification costs). Regarding organic markets, relationships were built with big cities such as Shanghai to the wholesale market (Wang, 2012).

The value chain is explained by Wang (2012). In Yangxian County, the farmer or the company sells the production to cooperatives based on a contractual relation. After quality tests in their lab, cooperatives sell the products to traders. Traders collect organic products and non-certified organic products and sell them to wholesalers who supply retailers/supermarkets. Organic production from Yangxian County is intended to domestic markets.

The difficulties encountered are the lack of satisfying processing (loss during packaging or transportation), the high cost of certification, the lack of direct access to market for the smallholders (the production only goes in big cities) and the lack of consumer's knowledge about organic farming according to Wang (2012).

IV.3 National governments in charge of the conversion

Some governments in the world are essential for the organic transition, having a significant impact on the organic sector development.

France

We might think that the French organic sector is over-developed to be compared to the Thai one. In fact, the organic sector is well-established, able to meet the demand even after the booming since decades now. After a development by farmers cooperatives in the 1970s, the French government partly seized the organic sector (Caplat, 2012) by including these new practices into texts of law in the 1980s. Since the beginning of the 21st century, the standards of organic farming in France are controlled by the government. This takeover has made organic farming lose its original meaning according to Caplat (2012) and Stolze and Lampkin (2009) who argue that the organic agriculture was Europeanized through the (re)definition of the concepts of organic agriculture and the direct financial support to organic producers through national and regional programs.

The French certification system is comparable to the rest of the world. The certification is done by certified agencies accredited by public agencies. Inspections are carried out every year. The government try to compensate for the losses and costs due to the organic conversion with financial supports. Support for the conversion and maintenance of organic farming exist in France. For example, for annual crops, the conversion subsidy is 300€/ha/year and the maintenance subsidy is 160€/ha/year. The financial support increased in 2015 but since, there have been delays in the payments because of the "boom of the organic farming" according to the Ministry of Agriculture (2017).

Austria

Austria was the first country in the world to set official guidelines for organic farming. Today, the organic production is the greatest in Europe with 20% of the farmland into organic farming, but the government keeps improving the framework of the organic sector (by subsidies including services rendered, education and research, marketing) and wants to increase the offer of organic products (IFOAM, 2017).

The main actors of the converting process are governmental institutions such as the Ministry of Agriculture. The first move was made in 1992 with direct payments to organic farms (Schermer, 2008). Then, Austria established agri-environmental measures after taxing nitrogen fertilizers in 1986. Programs for organic food in hospitals, schools and nursing homes were set up; in 2012, 50% of the food was organic in schools (IFOAM, 2017).

A farmer who wants to convert to organic farming has to pass a conversion course in order to be eligible for the organic subsidy. This training course is offered by the Chamber of Agriculture (Ministry of Agriculture, 2009). Then, each farmer converts his/her farm with the different subsidies from the government. And finally, the organic farmers establish a contract with the control agency to be certified as organic and they will be inspected each year. Organic farmers associations are also important for marketing and consumer information and they have their own label (Schermer, 2008; Ministry of Agriculture, 2009).

Tunisia

Organic farming in Tunisia first started in the 1980s by private initiatives, and later on the government laid down rules and measures for environmental reasons and market opportunities (ISOFAR, 2012). In 2005, the first organic action plan included organic promotion, training and certification, institutionalization of organic agriculture and investment into organic research (IFOAM, 2017). The government aimed to meet the demand for organic products (especially olive oil) in Europe. The organic production of Tunisia is ranked 27th in the world and the first among the Arabic countries.

In 2010, Tunisia launched the "Bio Tunisia" label. All public agencies organized them in order to suit the organic objective. The Technical Centre of Organic Agriculture (TCAB) is considered to be the driving force of the organic sector (ISOFAR, 2012). It provides training modules for agricultural technicians and engineer students. Other governmental institutions are implementing organic strategies, supervising organic certification bodies and providing technical support (Adebiyi, 2014). Government subsidies for equipment and implementation of different means are fixed at 30% of the value.

Certification and inspection are made by private organizations accredited by the Ministry of Agriculture. The farmer who wants to convert into organic farming has to contact the organization and pay it to be certified. However, government's subsidies for inspection and certification increased over the 2000s. Now, Tunisian government finances 70% of the certification costs during 5 years (FIBL, 2006 and ISOFAR, 2012). In terms of market, Tunisia established partnerships with a lot of European organic institutions (IFOAM, MOAN or FAO) in order to consolidate the production and to ensure exports.

Bhutan

The country aspires to become the first organic country by 2020. The government's aim is not to certify 100% of the land but to produce organically in 100% of the arable land (Paull, 2017). In Bhutan, animal manure is the main source of nutrients; the government objective is to get rid of chemical inputs and improve the access to alternative inputs (MoAF, 2015, Feuerbacher and al., 2018). In 2006, the National Framework for Organic Farming in Bhutan was published.

The National Organic Programme (NOP) developed frameworks and guidance material to support organic farming. It provides training for farmers' groups and cooperatives through field extension workers and field demonstrations, facilitation of marketing and promotion of local organic products (ICIMOD, 2018). Agencies of soil fertility management, pest management, post-harvest, processing and value addition, R&D, certification, marketing have been developed by the NOP. Education on organic farming is also an important aspect of this policy (MoAF, 2015). Bhutan seems to have developed a complex and complete policy to develop a strong organic sector.

The main organic stakeholders are farmers, cooperatives, consumers, districts, research centres, traders (not so developed) and Planning and Policy Division. The districts' roles are to give advices, assist farmers in groups' formation, develop management plan, train farmers and identify research issues (Duba and al, 2007).

However, according to researchers, the leading issues are the lack of awareness, lack of sufficient legal framework, institutional support, the labour shortage and restrictive certification process. The financial aspect remained a significant issue because the government has limited source of revenues and most programmes are dependent on donor's projects. The NOP's budget decreases every year (ICIMOD, 2018). Thus, the challenge is to introduce subsidies and credit support for organic farmers (Duba and al., 2007; MoAF, 2015; ICIMOD, 2018; Feuerbacher and al., 2018).

IV.4 Main characteristics of the foreign countries' organization

To conclude this part, we can try to highlight some similarities and differences of organic transition implementation in different countries in order to analyse the enforcement of the organic program in Thailand.

First, there is more than one reason for a country to start an organic policy. In Bhutan and India, the willingness to stop agrochemicals importations and/or eradicate chemicals inputs for environmental and health issues were the first step of the policy. While in others countries (France, Austria, Tunisia), governments chose to develop the organic sector to meet demand for organic agricultural products. In China, organic policies help to give a frame to traditional practices. These two latter reasons are rather a profit-oriented interest.

Each country involved in an organic transition process is implementing trainings for farmers. Most of these trainings are handled by a governmental organization (Bhutan, Austria, Tunisia…). On the other hand in India, role model farmers are chosen to train future organic farmers. As mentioned, India differs on the following aspect with regard to other countries s: they supply organic seeds and fertilizers for farmers and the local government, district of Sikkim, cooperates with NGOs to operate

the organic conversion. However, India has to deal with the lack of an organic framework with organized structures.

The certification process is essential to build an organic sector. In every country, the government handles the links with accredited certification bodies. But what differs according to the countries is the kind of certification chosen: local or global. India, Austria and China chose a local certification, it means that organic farmers could only sell their products on the domestic market, the certification is not adapted to the global organic market, while in France and Tunisia, this is global certification, the product can be exported to foreign countries, it opens a few doors to organic producers and gives more opportunities to sell their production.

All the countries are setting up subsidies to help farmers in their conversions, such as to implement microorganisms and compost use in India, good practices in Austria or every means needed to convert into organic in Tunisia (30% subsidized). Most of the countries are implemented subsidies for certification as in China (60% of total costs) and Tunisia (70%). But certification is still too expensive for farmers in these countries, certified organic farming is not opened to every farmer. Budget is an issue in several countries, when it's not a lack of willingness from the country to invest into organic farming (such as China), some countries like Bhutan want to do things but don't have financial means to do it. In Bhutan, the organic sector depends on external donations.

In regard with marketing, countries are not handling this aspect the same way. China's organic counties made up relationships with big cities especially for the domestic wholesale market; local governments create a big value chain to be able to sell the organic products, but this has a negative impact on farmers' incomes who have low profits. The Austrian government designed programs to supply public institutions with organic products such as school or hospitals. Tunisia ensures exportations based on partnerships with Europe. Others countries are struggling with organic marketing like India who didn't plan this aspect, or Bhutan due to the lack of awareness of the population. Education can be a solution to the demand issues. Bhutan understood that and developed measures to educate people and children about organic production. It is in fact important to create the future demand and future consumers. This can be a way to fight against the lack of awareness also present in China.

The organic transition in Thailand could take its inspiration from the analysed study cases especially on the organic framework and structure, ensuring demand through tailoring the supply with the demand (create demand through education for instance), adapting the type of certification to demand, cooperating with NGOs, keeping a small value chain to maintain farmers' incomes at a decent price, handling the marketing by the governmental organizations or subsidizing certification costs to enable farmers to convert with organic certification.

However, suggestions may be carefully considered and a more detailed study should be done to complete this analysis. Differences between theory and practice should as well be taken into account.

CHAPTER 2: METHODOLOGY

I Problematic and analysis' axes

In 2018, the Thai government invested around 25 million dollars in the National Program for Organic Farming. The main aim of the government, mentioned in the official document, is to expand the organic sector in Thailand. The initial goal was to reach one million rai by 2021, although this target was already attained by 2019.

In 2015, 168 310 rai of rice were certified organic (GreenNet website, 2019), representing 0,55% of the domestic market in Thailand. Within the program, 1,000,000 rai are certified organic, which represents 517 000 tonnes of paddy rice or **333 333 tonnes** of milled rice. According to Warrerat datas (2017), it represents 3,3% of the domestic rice consumption in Thailand. Are the market and demand ready to absorb, trade and buy 3,3% of organic rice?

What is the real aim for the government with this program? Was this program launched aiming to rectify his past mistakes, especially the *Paddy Pledging Scheme* which was withdrawn in 2015 (see Chapter 1 - II.2.4) or was it launched to really reinforce the organic sector? We won't answer this question in this specific research paper but it might be relevant to have this thought in mind. The Paddy Pledging Scheme was a failure because the government was subsidizing farmers without helping for marketing. Will the Rice Department repeat the same mistake again?

This line of thinking leads us to the main research question:

To what extent the National Program for Organic Farming enables the strengthening of the organic sector in Thailand?

According to Cambridge and Collins dictionaries, the definition of *strengthening* is "to *make or become stronger, more effective*", its synonymous are "*reinforcing*" or "*consolidation*" of something. In the economic dimension, this word means "to *become more valuable, productive*". Our vision of *strengthening* gathers all these meanings but we will add the *process* dimension to this. To strengthen the organic market is a process that can be achieved during the period of the program.

In this context, the word *strengthening* gathers several axes of analysis:

- **The access to learning and the learning process**: Relationships between actors involved in this process, relevancy of training: agricultural practices and knowledge taught, farmers' capacities → To what extent the learning process improves farmers' knowledge and their quality of work?

- **Farmers' collective action and governance of the organic value chain**: Reinforcement of farmers within the group by sharing knowledge, farm inputs and human labour; by organizing a management group with a committee; Interactions within the group's members and between the group and other actors involved in the program; creation of a network; plans for the future of the group; marketing strategy.

  → To what extent the program enables an improvement of farmers' collective action and a clear and balanced governance setting between all involved actors?

- **The control**: The control is managed by farmers, Rice Research Centre and a certification body. Is the process to get certification rigorous?, what is the real quality and reliability of the organic production under this program?

  → To what extent the control managed by three types of actors, enables the quality and reliability of the product?

- **Markets**: Value chain and prices. Cooperation between actors of the value chain (especially rice mill and farmers), farmers' decision making. Sustainability of the commodity chain. Pertinence and scope of Organic Thailand certification to strengthen the organic products

  → To what extent the program creates a sustainable marketing?

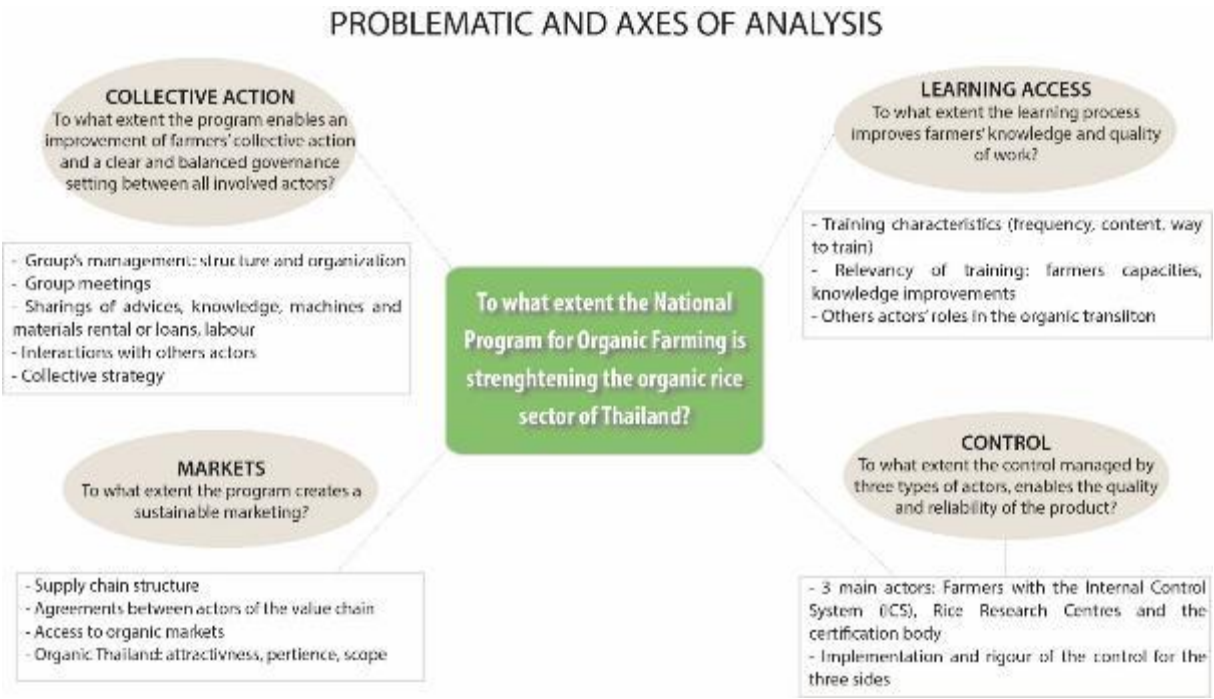


Figure 6 - Axes of analysis' scheme

The objective of the interview was to explore which of the four dimensions mentioned above (access to learning and learning process, collective action, control and market) were strengthen by the National Program for Organic Farming.

Our research assumptions are the following:

The organic sector can be strengthened if the aim of the program is to plainly integrate farmers into the organic sector: Providing capacities to farmers in terms of organic practices, organic knowledge, understanding of collective management in order to make farmers autonomous at the end of the program.

The organic sector can be strengthened if the organic production is well-organized and reliable: The organization depends on farmers' practices, the collective action in the farmers' groups, the relations between actors, the control lead by the different actors, and the certification's setting and relevancy.

The organic sector can be strengthened if the market is reinforced by creating a sustainable organic market for each stakeholder: Possibility of a collaboration between farmers and rice mills with decent remunerative prices for farmers and sufficient organic rice demand independently of the government financial support.

We have to keep in mind that it is too early to make a post evaluation of the program since its still under implementation and it hasn't finalized yet, however the program is sufficiently advanced in order to describe its implementation and to analyse to what extent it influences the actors' practices and the organic sector for now.

II. Research approach

II.1 Planning

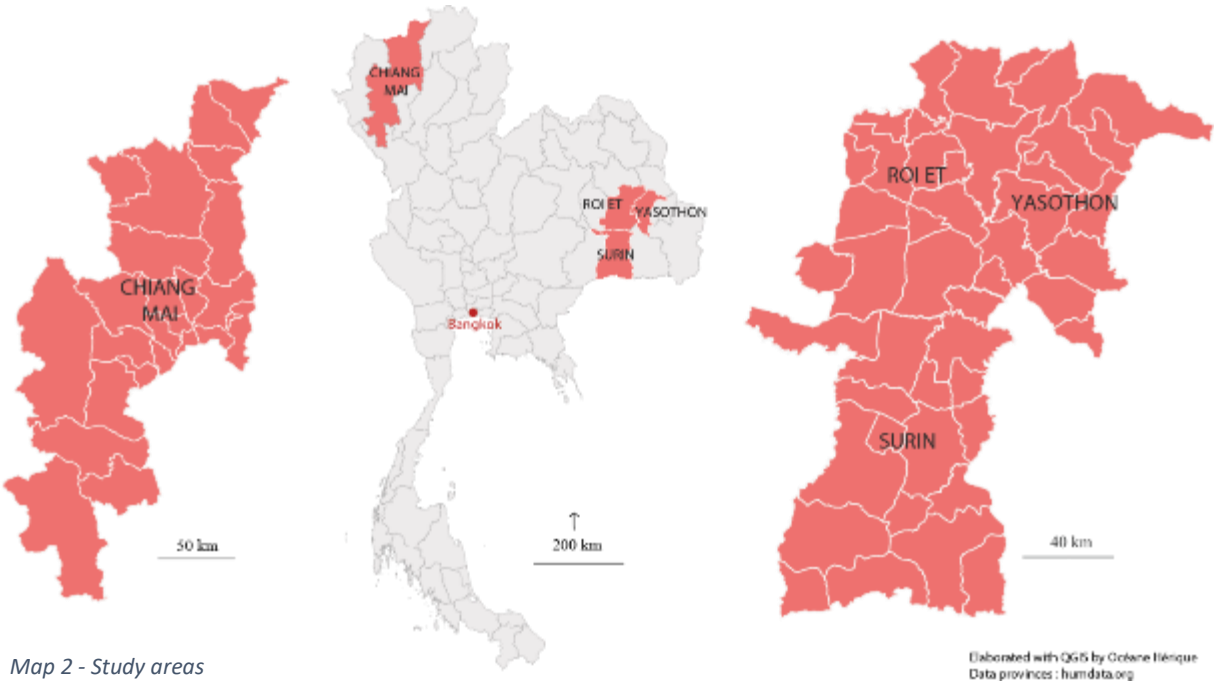
	SEPT 2018 – FEBRUARY 2019	MARCH	APRIL	MAY	JUNE	JULY - AUGUST	SEPTEMBER
State of the art: preliminary work about organic farming in Thailand							
Observation fieldwork: Chiang Mai and Prachinburi (3 days)							
Preparation of **interview guides**							
Exploratory fieldwork Isaan (2weeks)							
Methodology, conceptual frame and study cases choices in Isaan							
Research fieldwork Isaan (10 days)							
Exploratory fieldwork Chiang Mai (3days)							
Data analysis Isaan - **Study cases choices** in Chiang Mai							
Research fieldwork Chiang Mai (8 days)							
Data analysis							
(Fieldwork to collect last datas if necessary)							
Redaction							
Rendering of master thesis + oral examination							

After writing the literature review from October to February, the 4 months' fieldwork began in March 2019. Based on exploratory fieldwork in Prachinburi and Chiang Mai province we observed and analysed the organization and implementation of the National Program for Organic Farming. Based on this preliminary field observation the methodology was elaborated.

Interviewees:

- 86 farmers of 39 different groups
- Officers from RRC of 4 different provinces
- Rice Department's head
- Supporters for farmers in organic conversion: Agricultural Department, Land Development Department, Agricultural Cooperative, Maejo University
- 8 rice mills or buyers including 2 rice mills owned by the groups
- Royal Umbrella's employees (biggest agrobusiness company in Thailand)
- Experts: Ms Supa Yaimuang, Mr Vitoon Panyakul, Mr Chomchuan Boonrahong. These meetings gave new visions and analysis axes to the work.

II.2 Study areas choices



Map 2 - Study areas

We finally choose Isaan because the 3 days interviews in Prachinburi and Chiang Mai showed us the importance of farmers groups involved in the program in this part of the country. The Roi Et, Yasothon and Surin provinces gathered 905 farmers groups and more than 20 000 farmers (see table below).

Province	Number of farmers groups	Number of farmers	Area (rai)
PRACHINBURI	7	96	1 011
CHIANG MAI	12	307	2 203
ROI ET	187	4 470	47 230
YASOTHON	431	10 458	110 653,25
SURIN	287	5 800	65 432,5
Total	924	21 131	226 529,75

Table 1- Groups of farmers registered in the program per province

The choice to study Isaan region appeared obvious. We also decided to continue the analysis of farmers groups in Chiang Mai province in order to be able to compare two different regions of Thailand, taking into account their physical and technical differences in terms of agriculture and their specific history with organic farming.

After elaborating the interview guides (*see Appendix 1*), interviews allowed us to broaden our understanding of the program and gave us new analysis' axes. The next step was to elaborate the methodology, design the conceptual framework to settle down the analysis's axes of the work, interviews guides and selection of study cases according to fieldwork in Isaan.

II.3 History of organic farming in the study areas

In this section we analyse the conversion to organic farming in the study area. The reason that triggered farmers to turn into organic, how they carried out the conversion and the support received by farmers.

On the one hand, organic farming in Chiang Mai province increased due to health concerns among farmers; while in Isaan region, especially in Surin province, farmers saw on organic agriculture an economic opportunity and a way out from poverty.

II.3.1 History of organic farming development in Chiang Mai

Chiang Mai province has a favourable climate for agriculture. Chiang Mai is a great producer for both, local and international markets. Many plant breeds are cultivated in the province: rice, soybeans, tobacco, lychee, oranges, garlic, (…), temperate-climate vegetables and flowers. The average temperature is 25.4°C and the average humidity is 71%. Rice varieties in Chiang Mai are sticky rice (RD-6 and Sanpatong 1 varieties) and non-glutinous rice (Jasmin rice, Hom Nin rice and red rice) (Pattanapant and Shivakoti, 2009).

Organic farming started in Chiang Mai after the green revolution and the birth of commercial production and agrobusiness in the 1970s. In 1997, the Public Health Department reported that patients with health problems from Chiang Mai province had problems related to pesticide use. In 2002, 97% of farmers were using pesticides and 77% were using herbicides (Pattanapant and Shivakoti, 2009). Organic farming aims to improve health of farmers as well as reducing the input costs.

In the 1980s, NGOs started promoting sustainable agriculture as an alternative to mainstream agriculture. In 1990, the Alternative Agriculture Network organized seminars in Northern Thailand to promote this new system. This organization facilitated relations between farmers and consumers by informing them. NGOs were providing training sessions to farmers about organic practices, they developed and made easier the process through certification and created markets for organic products. Even governmental agencies started to focus on organic farming in the 2000s. The Royal Project Foundation (RPF) supported farmers in term of provision of land and inputs, certification and marketing (Pattanapant and Shivakoti, 2009). According to researchers, organic farmers in Chiang Mai, get their knowledge mainly from NGOs (45%), but also from governmental agencies (6%), organic groups (13%), local knowledge (28%) and by self-learning (8%).

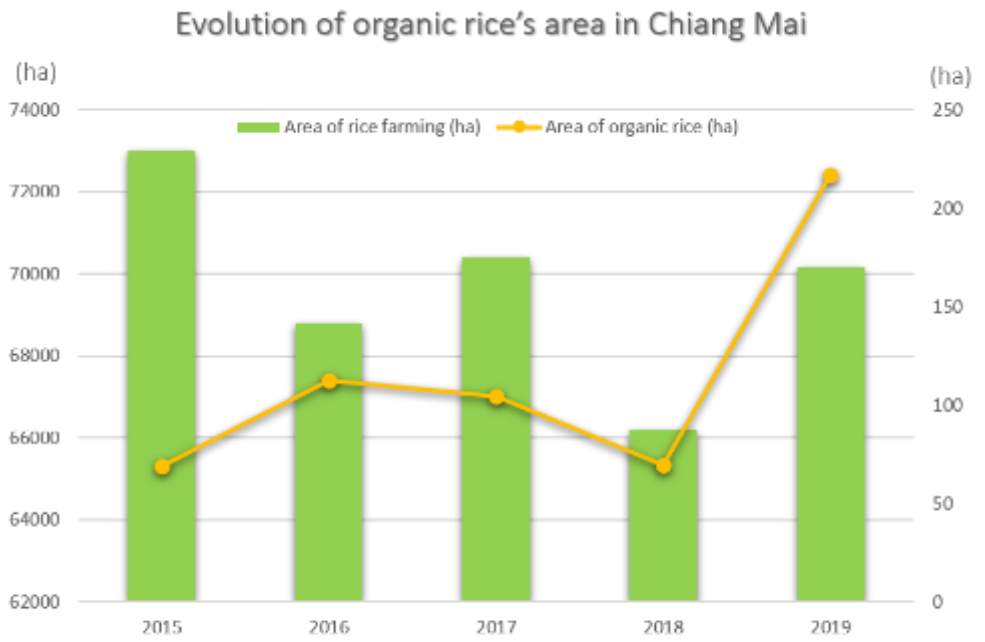
At the beginning, trust and reputation were enough to extend the local agricultural network but when international accreditation started to join, these “local trust certification” had to change. ACT have been created and accredited by IFOAM. Farmers didn’t want to follow new standards and pay certification costs even if it meant access to export and compliance with IFOAM (Wyatt, 2010).

Farming in the northern region is globalizing, where local networks are now integrated to this new global pattern. Farmers from Chiang Mai benefit from NGO and governmental support, corporation and private support.

There are two categories of organic production: self-reliance and commercial organic agriculture, which mostly requires third-party certification because this type of production is sold on domestic and international markets. The three principal certification bodies in Chiang Mai are NOSA (Northern Organic Standards Association), ACT (both private organizations) and IOC (government agency). NOSO sell the products in Chiang Mai and Northern provinces while ACT can export internationally (IFOAM accredited) (Pattanapant and Shivakoti, 2009).

NOSA (Northern Organic Standards Association) is cooperating with ISAC (NGO) to offer a structured and efficient learning about organic practices to farmers. NOSA is not accredited by the government because it doesn't meet all the IFOAM requirements. It is a unique organization because in addition to provide local certification and support farmers, it promotes biodiversity preservation, social welfare and fair trade. This organization encourages sustainable development through sustainable agriculture.

In 2007, 4,536rai (725ha) were certified organic crops (NOSA, ACT, IOC) in Chiang Mai



Data from Rice Research Centre of Chiang Mai. Conversion of datas from rai to hectare. 1 ha = 6.25rai

(Pattanapant and Shivakoti, 2009). Many farmers grow organic rice but are not members of an NGO or farmers groups. Non-certified organic products are sold at local markets while certified products are sold to distribution chains, stores, supermarkets and international companies.

As Pattanapant and Shivakoti showed (2009), yields in organic farming are decreasing, but the price is increasing from 20% to 25%. The data also shows that incomes and profits over cash cost are higher in organic farming than conventional agriculture. The cost includes the labour, seeds, inputs, land and other costs (depreciation, certification costs, market place, transportation, water, electricity). Organic rice with premium price can have a benefit-cost ratio higher than conventional rice, otherwise, organic rice without premium price has benefit-cost ratio lower than conventional one. Food security is promoted by organic farmers. In average, an organic farmer keeps 38% of their production for home consumption while a conventional farmer keeps 22%.

In Chiang Mai, a new agricultural model is born from the mobilization of social concerns of actors who promote and establish community-based standards taking into account safety, security, environment and social responsibility (Wyatt, 2010).

II.3.2 History of organic farming development in Isaan

With the commercialisation process, farm labourers have been replaced by machines, which have been boosted by the establishment of the minimum wage per hour in 2002. Farmers stopped the transplanting method and started using machines (Formoso, 2016; Rigg et al., 2012). In 1966, irrigation canals brought water into Isaan villages but it was effective around 1980, then farmers could start doing double cropping. The electricity reached the region in 1975 and the domestic water supply in 1985 (Formoso, 2016). The low benefits (high costs, low yields and low prices) from rice farming made the Northeast region lose 900,000 inhabitants between 1985 and 2000.

According to Rigg et al. (2012), an agrarian change is occurring in the Isaan's countryside. Inequalities increased after the "Thai economic miracle" because Isaan is far from cities and economic activities. According to the National Statistical Office, in 2011, 70,1% of households in the Northeastern region were indebted and 59,9% of the population remain below the national poverty line in Isaan. Climatic hazards and markets prices fluctuations are also disturbing farm's sustainability (Formoso, 2016; Rigg et al., 2012).

Labour migration increased, thus some rural villages became a place of residence not a place of work. Migrants had to leave their children behind and remittances became an important source of income for grandparents. The economic activities of the villages are going through a profound transformation beyond agriculture and towards trading and services (construction, industry, government service). Pluriactivity emerged as a "survival strategy". Even the elder ones do not encourage the youth to get involved in farming because it is considered a hard job (Rigg et al., 2012; 2018). On the other hand, researchers studied the strong attachment of villagers to the land, especially the old ones. They say that their work is farming, while their main source of income is not farming. It's

unthinkable to sell the land for the old villagers because land is not an economic good; it's a gift from their ancestors. Before, land was free, today they have to keep it because once it's sold, they can't have it back. They want to give it to their descendants as well but they are concerned that their children or grandchildren would sell the land. For them, land represents as well a last resource in times of shortages and crises; it can be a way-out from poverty in tough times.

The average age of farmers in Thailand was 51 years in 2015 while it was 31 years in 1985 (OCDE). We can identify current farmers as semi-subsistence cultivators, growing glutinous rice to feed their families. Authors called the phenomenon: a deagrarianization without depeasantization (Rigg et al., 2012).

The example of Surin province is interesting. Surin diversified agricultural production: farmers shifted from subsistence farming to organic rice farming with a wide market. They chose this alternative to tackle the current situation of indebtedness, unstable prices, to respond and leverage the high international demand of organic rice, and the low inputs costs. Health concern is also one of the main reasons. Organic farming has become a popular alternative in Surin (Moore and Donaldson, 2016).

How it took place? According to researchers, by a collective action and the development of strong quality control mechanisms. Smallholder farmers began the transition to organic farming in the 1990s. The National Agriculture Group (NAG) was created in 1992 to train farmers on organic practices. NAG's objective was also to run against the power of traders and mill owners and the low prices they offered to farmers. Then, many organizations were established to assist smallholder farmers in organic agriculture. For example, Surin Rice Fund trained farmers on the conversion process and on organic fertilizers production.

A network of NGOs that helped connect farmers to the international market (including Fair trade rice) was created helping farmers comply with standards of certification (Organic Agriculture Certification of Thailand and Surin Province Organic Certification).

In the 2000s, the Surin provincial governor promoted organic farming prioritizing this form of production. According to him, "Surin provincial authorities taught 34 000 farmers on organic farming with a budget of 10 million baht" (2001). The official state recognition and support from NGOs network made a well-organized provincial organic sector. Political and social force both appeared to be important.

Yasothon province began to support organic farming few years ago When the governor chose to prioritize organic farming in the province, he dedicated half of the provincial budget to the

promotion of organic farming. According to the Land Development Department, the goal is, within 3 years (from 2019), to become a 100% organic province. Besides helping in the production process, the province also wants to help farmers to find organic markets. Hospitals are starting to ask for organic rice on the request of the governor and provincial organizations. Yasothon has his own organic label "Yasothon Organic Standards", this is not 100% organic but it is safe to consume. 1,600,000 rai (256 000 ha) of rice, vegetables, fruits, sugarcane or animals are grown or raised according to those standards.

Moore and Donaldson (2016) produced the last organic jasmine rice production data in Isaan (unspecified year, unverifiable):

- Surin: 33 248 farmers, 482 337,27 rai.
- Yasothon: 10 198 farmers, 173 952,80 rai. (According to the head of the Agricultural Department of Yasothon, today, there are around 190,000 rai of organic rice in the province).
- Roi Et : 3 927 farmers, 259 896 rai.

II.4 Data collection: preliminary fieldwork

The preliminary fieldwork in Isaan, for two weeks, and in Chiang Mai, for two days allowed us to observe the implementation of the program in different provinces at a farm and group levels. All the groups have different histories with organic farming and the program. We choose to mainly study groups in T2 (see the table below) because T1 groups are too young to give their experience of the program. Moreover, in 2019, T3 farmers were already converted to organic and recognized as organic farmers by the RRC.

Experienced groups are composed of farmers already converted to organic farming before the program with or without certification. Others groups are mixed with inexperienced and experienced farmers. And some groups are fully inexperienced (rare). From each kind of group, we can learn different kind of information.

On the table below we present some characteristics of the 39 groups interviewed during this period. These criteria helped to select the groups who have been interviewed in the second period.

Province		Chiang Mai	Roi Et	Yasothon	Surin	Total	%
Groups' number		7	10	10	12	39	
Farmers		28	26	19	23	24	
Rai		147	359	240	228	243	
Phase	T1	6	0	2	0	8	21
	T2	0	9	6	10	25	64
	T3	1	1	2	1	5	13
Level of experience	Experienced	1	4	2	1	8	21
	Unexperienced	1	2	2	0	5	13
	Mix	5	4	6	11	26	67
Land registration	Whole	5	4	4	5	18	46
	Part	2	6	6	7	21	54
Place of selling	Rice mill	1	5	4	1	11	28
	MoU rice mill	0	4	3	10	17	44
	Private company	3	0	0	2	5	13
	Own rice mill and markets	4	2	3	0	9	23
	Cooperative	0	0	0	2	2	5

Figure 7 - Characteristics of 39 studies groups. Farmers and rai datas are an average of the studies groups in each province

II.5 Data collection: second fieldwork

In order to answer the research question of this paper, we elaborated a methodology. From the first phase of fieldwork, 9 farmers' groups were selected to represent the diversity of profiles of the groups involved in the program. They constitute our study cases for this work: one study case includes a farmers' group **and** all the actors who gravitate around it (RRC, rice mill or middlemen, Agricultural Department… depending on each study case). The selection of the 9 farmers' groups tried to represent the diversity of level of experience of farmers, the diversity of organization of the groups, the diversity of investment in the program and the diversity of management of markets and of buyers (own rice mill with commercialization, MoU rice mill, rice mill…).

Interviews in each group aimed to understand the past history of members and their organic conversion process. At least one group in each program's phases (T1, T2, T3) was interviewed to represent every type of group. In each farmer's group, we interviewed at least 6 members in order to get different information and ways of seeing things. For each type of group, we wanted to interview leaders, people with responsibilities in the group (in charge of Internal Control System (ICS), secretary…) but also lay members who could give another vision of the program. In the groups with mix level of experience, interviewees have to represent both levels. Here's the table gathering main characteristics of the 9 selected groups:

	T(x)	Members	Rai	Interviewed members					Age	Rice variety	Typology
				Total interviewed	With organic experience	Without experience	Rai Converted to organic (avg)	Rai Registered (avg)			
Group 1	T2	16	102,5	6	4	2	9	7	62	Jasmine and sticky rice	Beginners (passive)
Group 2	T3	28	413	6	6	0	19	14	65	Jasmine and sticky rice	Advanced
Group 3	T2	27	333,5	6	5	1	26	17	53	Jasmine and sticky rice	Advanced
Group 4	T2	13	104	6	4	2	13	10	62	Jasmine and sticky rice	Beginners (passive)
Group 5	T2	24	283,7	7	5	2	10,7	10,4	53	Jasmine rice	Beginners (active)
Group 6	T2	12	153	7	6	1	33,7	12,4	50	Jasmine rice	Beginners (active)
Group 7	T2	18	131	8	4	4	8,6	8,6	54	Jasmine rice	Beginners (active)
Group 8	T2	11	100,5	5	5	0	12	12	58	Lot of varieties	Advanced
Group 9	T1	29	222	7	4	2	8	8	46	Sticky rice	Advanced

Table 2 - average age among interieweed members

II.6 Farmers' typology

The first fieldwork allowed the distinction of different kind of groups, which leads to this following typology. Two main kind of groups appeared: the advanced farmer's group and the beginner farmer's groups. The typology is established considering three elements:

- The learning process and access: the autonomy of farmers to get new skills, the openness to learning new knowledge about organic farming.
- The collective action: the relations within the group, organization of the group, and the autonomy of the group to find solutions to their problems.
- The market access and entrepreneurship of the group.

This typology and the observation of the evolution of these elements address our research question. These characteristics are showing the evolution of the group through the program and so, the strengthening of the group, or not.

We can summarize the typology as follows:

<table>
<tr><th></th><th rowspan="2">Advanced groups</th><th colspan="2">Beginners groups</th></tr>
<tr><th>Actives</th><th>Passives</th></tr>
<tr><td rowspan="2">LEARNING</td><td rowspan="2">Participation on organic trainings before
Good knowledge of organic farming and techniques
Openness to learning</td><td colspan="2">Some participations to organic trainings before</td></tr>
<tr><td>Willingness to learn</td><td>Neutral in front of trainings</td></tr>
<tr><td>COLLECTIVE ACTION</td><td>Own rice mill
Established organization for the rice mill’s management, the processing and the marketing.</td><td colspan="2">No previous collective action nor previous organization</td></tr>
<tr><td rowspan="2">MARKETS</td><td rowspan="2">Management of their own marketing.
Remaining dependence on demand to sell
Can struggle to find new markets.
Sense of management and entrepreneurship:</td><td colspan="2">Try to get the better price
Dependence of rice mills
No initiatives in terms of marketing.</td></tr>
<tr><td>Willingness to increase their autonomy</td><td>Passive attitude</td></tr>
</table>

Advanced groups

Advanced groups can be characterized as follow:

- Good knowledge about organic farming thanks to the participation to several trainings before the program. Openness to learning as part of the program
- Established organization within the group with a distribution of roles to manage the rice mill, the processing and the marketing.
- Own rice mill: they gathered as a group before the program to receive support from the government or to collect money and ask for a loan to the Agricultural Bank to buy a rice mill and packaging machine.
- Management of their own marketing by selling their production online and through direct sale to consumers. They still depend on demand to sell their rice and can struggle to find new markets. However, they organize the farming activity in order to get others products to sell (peanuts, longan, vegetables). They have a good sense of management and entrepreneurship.

Beginners' groups

Beginners' groups can be characterized by 4 main facts:

- They formed the group especially for the program with members with different level of experience in organic farming: some are experienced, some aren't.
- They don't have previous collective action, previous organization because they just formed the group.
- In terms of learning, some members already attended to organic trainings before the program
- In terms of marketing, they try to get the better price but they depend of rice mills around them, they are usually unsatisfied of the price given by rice mills.

There are two types of beginners' groups: the actives and the passives ones. In none of them we can say that there are initiatives in terms of marketing because all the groups are struggling at this point.

N.B.: One group may include some members belonging to different types of beginners' groups, but we choose to categorize one group according to the general aspect that emerges from it due to the majority (about 70% of interviewed farmers in one group, i.e. 4 farmers over 6 or 5 farmers over 7).

Active beginners' groups (3 groups)

However, the actives ones have a different dynamic with a vision for the future:

- Willingness to learn: Motivation is visible by their participation to trainings of RRC and others supporters, they want to increase their knowledge about organic farming
- Willingness to increase their autonomy in terms of commercialisation: they want to have their own processing machines and sell directly to consumers (but they didn't start an action in this way yet)
- They tried to solve the problem of lack of water: two of them contacted the government to benefit from a support (by digging ponds or pump the groundwater)
- They hold a positive outlook for the future: they want to expand the group, they have projects (open a learning centre or develop agritourism for example)

Maybe these projects will never be achieved but still, the groups are dynamic and know what they want for the future to enhance their current situation.

Passive beginners' groups (2 groups)

Passive groups can't be characterized by the latter points, as they are very fragile because groups can disappear after the end of the program. Members of these groups mentioned the

possibility of leaving the group and organic farming at the end of the program. There is a lack of motivation and dynamism for the majority of members (5 over 6 interviewed in Group 1) that is visible in terms of participation on trainings and willingness to learn new knowledge about organic farming.

Groups' type		1st fieldwork	2nd fieldwork
Advanced		7	4
Beginners	Active	32	3
	Passive		2

CHAPTER 3: RESULTS

I Implementation at the provincial level: an overview of farmers' groups

I.1 Differences and similarities between RRCs' organizations

Difference of registration amount and officers between provinces

According to RRC's officers, the number of farmers registered in the program in a province depends on the officers' involvement and on the organic history of the province. In Isaan, farmers traditionally didn't use many chemical inputs, while in Surin and Yasothon, organic farming is supported because of the provincial officer's active involvment, which resulted in many farmers' groups being interested in joining the program. In Chiang Mai on the other hand, according to officers, fewer groups registered to the program due to the lack of land title among famers, especially the ones in mountain areas. Moreover, many organizations are already helping farmers to convert to organic farming. Tourism is as well the reason why farmers prefer to sell their land to construction companies rather than continuing rice farming.

Province	Number of farmers groups	Number of farmers	Area (rai)	RRC officers
CHIANG MAI	12	307	2 203	3
ROI ET	187	4 470	47 230	7
YASOTHON	431	10 458	110 653,25	8
SURIN	287	5 800	65 432,5	7
Total	924	21 131	226 529,75	25

Table 3 - Number of officers per province according to number of groups and area

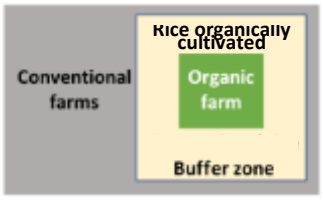
Based on this initial difference in Chiang Mai and Isaan, some advantages and disadvantages emerged for officers and farmers. RRC's officers in Chiang Mai can have close relationships with coordinators of each group, therefore farmers communicate their issues to the officers. While in Isaan, officers can't know everyone, although they try to do their best. This unequal repartition is due to budget restrictions. This distinction can be apparent on the field. Some farmers never saw officers since the beginning of the program, officers can't visit every land and can miss out on farmers not complying with organic standards. Interviewed farmers mentioned this issue and denounced a "*lack of rigour*" from officers (see III.7.1).

Privileged provinces to implement the program

The National Program aimed to convert 1,000,000 rai by 2021, although this goal was already achieved by 2019 (RRC, 2019), therefore there were budgets cuts on the program. From March to June, the farmers groups registered in the program in Chiang Mai decreased from 12 to 8. Why? RRC's officers had to dismissed the groups the less likely to succeed. One of the promises of the Rice Department was to provide rice seeds to farmers. Yet, is not the case of Chiang Mai. Because of budget cuts, the government provided rice seeds only to few provinces.

Different rules' implementations

The implementation of the program's rules are different in provinces according to the Rice Research Centres. We don't have a clear explanation about this. Each RRC seem to have taken some liberties on the program's rules and when we ask questions about it, no clear answers were given.

<table>
<tr><th colspan="2" rowspan="2">Criteria - Rules</th><th rowspan="2">Chiang Mai</th><th colspan="3">Isaan</th></tr>
<tr><th>Surin</th><th>Roi Et</th><th>Yasothon</th></tr>
<tr><td rowspan="3">Enrolment and practices</td><td>Water use</td><td>Farmers are doing 2 crops per year and use the water from the canal because they use irrigation's infrastructures</td><td colspan="3">Farmers can only use water from rainfalls and have to avoid risks of contaminated water's flooding thanks to the buffer zone.</td></tr>
<tr><td>Buffer zone</td><td>In specific cases, the rice field can act as a buffer zone. In this case, the rice in the buffer zone is considered conventional rice as we can see on the following scheme:
 
</td><td colspan="3">The buffer zone is a dyke of at least 1 meter of width where farmers can plant bananas, lemongrass or what they want.</td></tr>
<tr><td>Land registration</td><td colspan="2">Farmers can register discontinuous lands. In Surin, plots have to be less far than 10 km from each other to ease the officers' work.</td><td colspan="2">Farmers cannot apply discontinuous lands, because starting with a small land is easier for farmers.</td></tr>
<tr><td rowspan="3">Assessment</td><td>Checking</td><td>By officers from RRC because not too much groups</td><td colspan="3">By the outsourced company</td></tr>
<tr><td>Analysis</td><td>The T2 and T3 assessment includes an analysis of soil and water</td><td colspan="3">Samples analysis include only rice samples</td></tr>
<tr><td>Consequence of failure</td><td>Only the farmer who failed is dismissed from the program, the group can continue, either in T1, T2 or T3.</td><td colspan="3">In T1, only the farmer who failed is fired but in T2 and T3, if one farmer fails, the whole group is fired from the program</td></tr>
<tr><td colspan="2">Previous organic certification</td><td>A farmer with organic certification can apply</td><td colspan="3">A farmer with organic certification (IFOAM, PGS, …) is not allowed in the program because officers have to develop the organic area with new organic farmers.</td></tr>
</table>

Former organic farmers	Groups can jump to T2 from the first year because they were already experienced (former organic group without certification). In Yasothon, 9 groups jumped in T2 the first year, they directly received the 3,000thb/rai of T2. This is a financial saving for RRC.

I.2 Common characteristics of groups

- The group are formed with relatives (friends, siblings, neighbours), they all know each other so it's easier to work together. We have met one group formed with members who didn't know each other and they had a case of cheating. Coincidence or not? We can suppose that relationships between members are important to build trust and to work together.
- The chief of the village is often the president of the group. Out of 39 groups, the chief of the village was the president in 12 cases because they are generally chosen according to their position and age. When there is no chief of the village in the group, the leader is a former organic farmer who wants to gather farmers in order to spread organic rice farming in the village (31 groups over 39).
- Most of the farmers without experience in organic farming had the willingness to convert to organic farming for months or years but they didn't have the knowledge and support to start. This program is an opportunity to do what they wanted to; it brings them some confidence with their transition.
- In 51% of the groups, some members have registered only a part of their land in the program and keep doing conventional farming on the other part (5 rai on 10 rai for example). The reasons are the following: "*My lands are separated, so it's easier to handle the conversion on one plot*", "*I'm worried that it won't work*", "*I don't have enough organic inputs available to convert my whole land*", "*I just want to try organic in a small part*", "*This is a first step but I want to continue the conversion in my whole land afterwards*". Some experienced farmers are finally converting their whole land as part of the program.

I.3 Farmers groups' stakes

Farmers involved in this program have different motivations. They usually want to do organic farming because of health, the environment and for low costs and they do it especially through this program to get knowledge, subsidies and to have access to new markets with higher prices. Motivations and enrolment in the program refer to a personal aspect, an individual decision, but we have tried to generalise the idea for one entire group according to what have been said by leaders at the first interview and by each member during the second fieldwork phase. Advanced groups are separated from beginners' groups because former organic farmers don't need this program to increase their health, enhance the environment situation or decrease their production costs.

Groups	Health	Environment	Low costs	Knowledge	High price/Markets	Subsidies
Advanced groups				1	4	4
%				14%	57%	57%
Beginners groups	23	3	21	6	20	14
%	72%	9%	66%	19%	63%	44%

Table 4 - Motivations of farmers registered in the program according to the type of groups. N=39 groups. One group can give several reasons

Health

Several interviewed farmers mentioned having health problems before converting to organic farming, they know the reason was linked to chemicals use. The more visible was skin problems because of herbicides use. In fact, farmers are spraying herbicides in the flooded field without shoes or gloves. Even if not every farmer is concerned about health issues, they are aware and afraid about it. They talked about amputated farmers or dead ones because of chemical use. Organic farming is a way to improve their health and avoid diseases, according to 69% of farmers groups interviewed. They are proud and happy to say that now they can go fearless in the field.

G1 – Beginning group

- A member stopped herbicides in 2015 because of a skin issue. His wife wasn't agreed and was worried about the decrease of production. Now, he doesn't have skin issues anymore, she trusts him.
- A member would like to be able to drink water from his rice field again (like when he was young), with fishes and frogs in it.

G3 – Advanced group

Two old members were so scared about chemicals that they were hiring labour to apply them.

10% of the farmers' groups are aware about the risks for the environment too. Generally, those who mentioned the environment's health are farmers doing 100% organic farming since more than 5 years ago, and who have converted without financial support.

Low costs

Furthermore, chemicals are expensive according to farmers, the price is always increasing and the land needs more and more chemical inputs. They describe the following phenomenon: A farmer starts to use chemical inputs; the production increases quickly and after 4 years the production starts to decrease because of the degradation of the soil quality. The farmer tries to put more inputs than before; the production increases again, "the rice becomes beautiful, so beautiful that it attracts pests" (Farmer from Yasothon, 28/3/19). The production costs become too high and the excessive use of chemical inputs is

A farmer in Surin tried to find a new land to rent because his own land was infested, during 15 years he moved out several times but he was still using chemicals and always had the same issue of increase of production and then decrease of production; he finally decided to stop using chemical inputs in 2011.

bad for health according to farmers. Organic farming allows costs reduction because organic inputs are often free for farmers since it is often animal manures.

Higher price - Markets

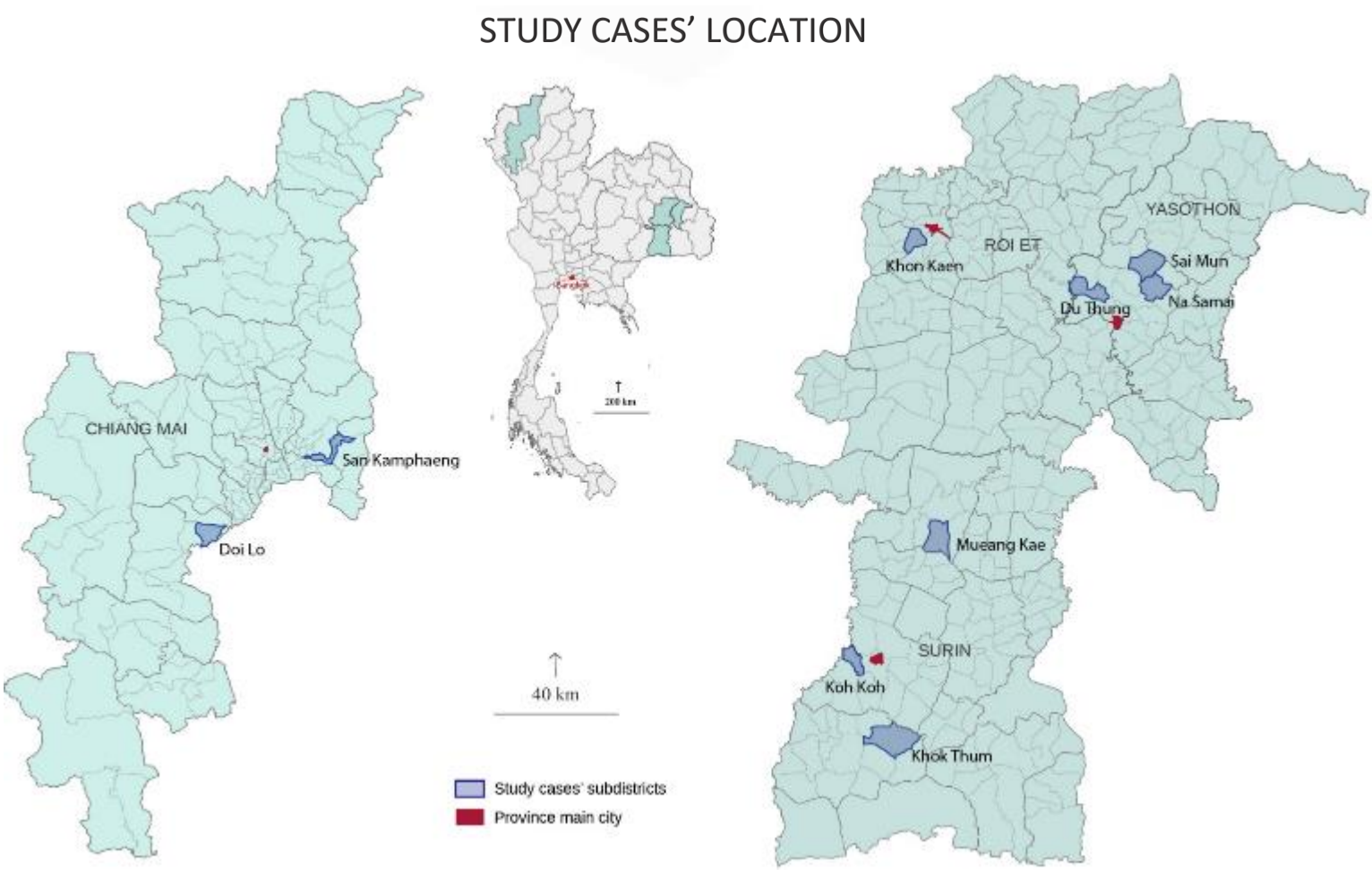
62% of interviewed farmers' groups (24 over 39 groups) mentioned that they would get a higher price thanks to organic farming and thanks to this program. Even farmers without experience in organic rice farming mentioned higher prices because this is what they heard from organic neighbours or from RRC. In fact, RRC informs farmers about MoU (Memorandum of Understanding) between farmers groups and rice mills and encourage them to do it. We will briefly talk about this MoU point later; this kind of contract allows farmers to get a higher selling price because they are in organic conversion process. Experienced farmers mentioned a higher price too but some of them stated about the non-difference between organic rice's price and conventional rice's price.

Subsidies

At the end of the first year, farmers get 2,000 THB/rai, the second year, 3,000 THB/rai and the third and last year, 4,000 THB/rai. In all provinces RRC's officers are unanimous in saying that the first motivation of farmers applying to the program is subsidies, according to them, and only 50% of registered farmers will continue organic farming after the program. 46% of the 39 interviewed groups declared doing this program for subsidies, but it wasn't the main reason of their participation. Some farmers pointed out that it is a good thing for them to receive such money but they supported that they convert to organic because they deeply believe that it is the best way to do farming; subsidies are a plus but the main aim for them is to get more bargaining power in the market. The moment when farmers mention the subsidies interest is when we talk about cheating, the answer is almost always "*None cheats because everyone wants subsidies, if we cheat, we don't pass and we don't receive subsidies*".

The RRC stated that farmers who are in this program only for subsidies do not hide it, they are not ashamed to tell everybody. One interview confirmed this statement. In the Group 1 – Yasothon, one farmer explicitly told that he is doing the program for money, each answer was referring to money, he converted only 3 rai to organic out of 35 rai. Those 3 converted rai were sticky rice only for home consumption and he probably won't pursue the organic conversion on the 32 rai left.

II Study cases



Map 3 -Location of study cases

Study case 1 – Na Samai sub-district, Yasothon – Passive beginners

T(x)	Members	Rai	Total interviewed	With organic experience	Without experience	Rai Converted to organic (avg)	Rai Registered (avg)	Age	Rice variety	Typology
T2	16	102,5	6	4	2	9	7	62	Jasmine and sticky rice	Beginners

The group was formed in 2017 especially for the program. It is spread on 4 different villages in the Na SaMai sub-district in Yasothon. 16 members compose this group, they are growing Jasmin rice and sticky rice, usually they don't eat Jasmin rice, they sell it, and they keep sticky rice to eat. On average, members of this group keep 48% of their organic production for their self-consumption. Almost all of them have another occupation: handcraft, leader of the village, rubber trees, sewer. They don't need rice to live but they don't want to give up on farming because of the cultural dimension.

The two main motivations for them to do organic farming are health and subsidies, some members had health problem and others were afraid of having it. One farmer had headaches problems, another had skin issues caused by herbicides and others stopped chemicals inputs because they know farmers with amputated limbs due to chemicals. On 6 interviewees, 3 members do this program to set the example for villagers.

Three members (over 6) received support in terms of training and provision of cover crops' seeds and biofertilizers from the Agricultural Extension Provincial Office and Land Department before the program and during the program. They declared themselves satisfied of the RRC's training, but they didn't expect anything from it. They learned about the advantages of ploughing the soil (reduce weeds), that they should change rice seeds every 5 years at least. But in fact, most of the members don't really care about the training even if they respect officers. The group meet two or three times per year to prepare the arrival of outsourced company checking, to discuss about harvesting, storing the seeds and overall, they have to fill the record book together.

Members support each other but some farmers mentioned that some of the members will probably leave the group and quit organic farming at the end of the program. We can distinguish two different types of organic farmers over the 6 interviewed farmers: The ones who converted before the program for health reasons and who are invested in organic farming, looking for the better way to run an organic farm and the others who are here without knowing exactly why, they have little knowledge about organic farming and about the program itself. They took the opportunity of the program to get subsidies, more knowledge and perhaps, convert their whole land in the future.

From 6 interviewed members, 4 have converted only a small part of their land for the moment. On an average of 22 rai per member, 9 rai are organic. They were 25 members in T1 but 9 left the group because they didn't follow the rules by using chemicals. Some members say that organic farming is more difficult than conventional farming because it takes more time. It can be disappointing for them to see that the organic rice is not as beautiful as the conventional one. The organic one is thinner, smaller and lighter.

The group plans to sell to Na So rice mill (MoU) in 2019, they almost didn't sell in 2018 because they had very low production. This rice mill is linked to an organic farmers' group which is certified by IFOAM. Members of the group believe that they could sell at the same price than IFOAM certified farmers (20 THB/kg) with Organic Thailand rice. Most of the members don't know the characteristics of Organic Thailand certification; sometimes they don't even know the name. The lack of knowledge about the characteristics and the implementation of the program are recurrent. A member managing his 9 rai organically since 2014, applied only 6 rai in the program because he didn't know about money,

he only followed his friend and the RRC in this program. They all said that they will continue to work as a group after the program but they don't have any projects together and maybe some of them will stop organic.

Study case 2 – Si Sok Village, Sai Mun sub-district, Yasothon

T(x)	Members	Rai	Total interviewed	With organic experience	Without experience	Rai Converted to organic (avg)	Rai Registered (avg)	Age	Rice variety	Typology
T2	27	333,5	6	5	1	26	17	53	Jasmine and sticky rice	Advanced

The president of the group, located in the tiny Si Sok village, was a part of organic farmers' group since 2006. In fact, she came back from Bangkok this year, took back her parents' conventional farm and started doing organic farming without knowing anything about it. She was very worried about the environment and the health of villagers; she would like that everyone could eat organic food because it's safer. She wanted to have frogs and fishes back in the field, like when she was young. She learned by herself on Internet. They gathered with 4 or 5 farmers to form a group of organic farmers and with her, the group grew. Then, new members (experienced or not) joined the group in 2017 especially for the program; they are now 27 members. In the Si Sok village, almost all farmers are organic farmers for about 4 years now. This group is connected to a bigger group of 230 members created in 2011, which gathers 8 villages in the Sai Mun sub-district.

This group is a mixed group: some of the members have experience for 1 year to 15 years, some had organic certification in the past (IFOAM), other members (very few) didn't have experience before the program and joined the group in 2017. They rejected some members to join them because they didn't trust them. The leader likes to know the background of a farmer before accepting him in the group. Everyone converted their whole land to organic, 19 rai per farmer on average on which they grow Jasmine rice and sticky rice mostly and others varieties. In the program, they registered 14 rai on average because the subsidies are not allowed above 15 rai (but they don't know that there is no limit of rai for certification). Half of interviewed members had another occupation, most of the time in the sale of vegetables and food products. In this group, farmers are keeping on average 27% of their organic rice production for their self-consumption, which is low compared to the average of studied groups (42%). This number shows the involvement of farmers in organic markets, they are not only producing organic rice for themselves but they are selling as well.

They have a very strict organization to be sure to make a rice of quality. Before the program, they already implemented a kind of internal control system by checking the land of members to make

sure that everyone was producing organically but without giving official positions to each member, it was informal. Now, 3 members are inspectors, and they record their work to 3 members of the controlling system *(see Appendix 2*). If someone doesn't follow the rules, first, inspectors try to explain and give a second chance, because usually it's only a lack of knowledge, not a lack of willingness. If the farmer still breaks the rules, he has to quit the group and he could try again in 5 years if he wants to (not as part of the program). When the moment of rice sampling's analysis comes, inspectors are in charge of taking samples in each land to avoid cheaters. Since the beginning of the program, they hadn't had any problems or cheating situation.

The decision-making process is carried out by the entire group through meetings. Usually, the leader gets ideas, discuss with the group and they vote to make decisions. For example, Charoen Pokphand's company contacted the leader to order some organic rice, the group voted and denied this proposition. The group wants to sell without middleman, sell to villagers and feed villages around them with safe food. They meet at least 4 times per year to share knowledge, train members, and discuss about their problems. Farmers are glad to be able to share skills with new organic farmers, it is rewarding for everyone.

The group has his own rice mill, they got help from the government to build it because they already were a "*strong group*" according to them. In 2017, they received new material support from the Industry Department who gave them packaging machines. They received the first rice mill in 2006 and bought the second one with 18 members in 2015. Farmers can hold shares in the rice mill and receive dividend every 6 months. Every member of the big group (230 members) can use the rice mill. Broken seeds are sold at 10 THB/kg to villagers for animal food and others wastes are used for biofertilizers; they sell it at 5thb/kg.

Before being organic, the members were selling to different rice mills from 12 THB/kg up to 15 THB/kg for Jasmine paddy rice, depending on the time period's policies. Before being a part of this group, some members were in the Na So organic group with or without IFOAM certification and were selling from 17 to 20 THB/kg (but most of the time 18 THB/kg). One interviewed member left the group; she gave up IFOAM to be able to participate on this program.

Being a solid group and participating on the program enable farmers to receive more governmental support. Thanks to this support, the group is independent when it comes to markets.

Figure 8 - Different type of organic (non-certified) rice produced and packed by the group

The members produce rice and rice seeds, in 2018, as part of the program, they sold the rice seeds to the RRC at 20 thb/kg. They signed a MoU with the RRC and will continue to sell there this year because they are satisfied. When they don't sell rice seeds to RRC, they packed their own rice and sell it directly to customers. They sell the processed rice via social media to relatives and strangers at 40 thb/kg. They are very satisfied of this price. The leader, in charge of the marketing, hopes that this organization could help farmers to reduce or eliminate their debt because they get better prices and they can hold shares in the rice mill. They sell about 15 ton of rice per year directly to consumers but they have more demand.

Previous to the program, each member had several supports from governmental institutions (LDD, AD) and farmers' cooperative (NaSo organic group). At the beginning, some of the members were worried about organic farming but now they are more confident because they have a stable market thanks to the group and they get support from members and from government. The group plans to continue its activity in the future, provide safe food to everyone, and try to eliminate farmers' debts. They have knowledge and support from governmental organizations, thus the group is strong. It would be good according to the leader to have a program that doesn't stop, to support farmers in the long term.

Study case 3 – Du Thung sub-district, Yasothon - Advanced group

T(x)	Members	Rai						Age	Rice variety	Typology
			Total interviewed	With organic experience	Without experience	Rai Converted to organic (avg)	Rai Registered (avg)			
T3	28	413	6	6	0	19	14	65	Jasmine and sticky rice	Advanced

After coming back from Bangkok to Isaan in 2012 to do farming, the leader of the group understood the importance of organic farming for the villagers' health. He formed the organic group with friends in 2015 in order to get more power and be able to sell organic rice seeds. 28 members gathered to ask for a loan at the Agricultural Bank and build their own rice mill. The group belong to a larger group of 240 organic farmers in the Du Thung sub-district, almost every member is selling to the rice mill.

Most members started organic farming specifically to join the group in 2015, they wanted to stop chemicals and convert to organic before so it was the opportunity to try. Their main motivation was health; all the members are very worried about the risks of chemicals inputs. When most of farmers were using chemicals inputs in the villages, inhabitants were smelling and breathing chemicals. Every member interviewed mentioned the dead of numerous farmers in the area because of

chemicals. The oldest farmers in the group were so scared about chemicals that they were hiring labour to apply them. They try to convince conventional farmers left in the village to convert to organic but they don't see the point since organic farming requires more care in order to get the same price than conventional rice. In the group, only one farmer didn't convert his whole land. On average, members have 19 organic rai and have registered 14 organic rai because they can't apply discontinuous lands and because usually, they don't understand that they can get a certification for their whole land.

The group was created two years before the program, during these two years they went to different trainings. They are satisfied with the trainings and very happy to get support from several governmental institutions. They gained knowledge about how to do organic farming in theory, and "economic" knowledge, as they called it (how much fertilizers they should put, how to reduce the costs). This group only lost 22 kg/rai on average between conventional yields and organic yields, which is very small; some of the members got more yields in organic than in conventional farming.

The group meets often to share knowledge. They also gather to do biofertilizers. Anyone in the group can bring an idea; they discuss about it and vote to take decisions. Even the group structure was voted. They choose the leader according to his organic farming experience. The group is doing ICS (Internal Control System) following the RRC rules, 3 members are in charge of the controlling system and 3 others are inspectors. Inspectors check the land of members and report the results to the controlling system. If there is a problem, they meet and discuss about it to take decisions according to the situation. The group was gathering 30 members back in T1 but two members were not complying with organic standards. One never came to meetings and the other didn't want to build a higher buffer zone to protect his land from polluting factories, so they were dismissed by the group and by RRC. They are now 28 members.

The group automatically jumped to T2 in 2017 because they were already organic farmers before the program. They got OT certification at the end of 2018 after the analysis of 5 samples taken in 5 members' farms.

The rice mill is managed "*by the group for the group*" (Member), they think as a community. Before the group, farmers were selling their conventional rice to random rice mills at 11 THB/kg in average. Now, they can sell the jasmine and sticky paddy at 12,5 to 13 THB/kg at the rice mill of the group.

"*RRC supports the production part but not the marketing part*" (Leader). With Organic Thailand certification, the rice mill should be able to increase the buying price, but there are no markets for Organic Thailand rice according to the leader. The group told the RRC's officers their marketing issues but nothing happened. They produce 80% of organic rice and 20% of conventional rice. In 2018, they

sold 28 tons of organic rice of 30 tons; they don't get enough demand. Nevertheless, members holding shares in the rice mill can get benefits every year and increase their incomes. Rice seeds are bought from 16 to 18 THB/kg by the rice mill and sold at 26 THB/kg to RRC and farmers. Paddy is bought at 13 THB/kg and processed rice is sold at 50 THB/kg. They got orders from hospitals, military, Bangkok, others provinces and even Toyota as souvenirs gifts. The client orders by calling and come directly to the rice mill to buy the products.

Besides rice production, the group has other activities: They grow peanuts and process them to sell 3 different peanuts-based products. They are processing the rice to do rice milk and rice milk powder. They also sell the rice wastes from the rice milling to do biofertilizers or to feed animals. The rice straw is sold at 35 THB/ 1 bag of 25kg.

Farmers would like a long-term support for organic farming, not only a three years project. Their main problem is the market, even with an organic certification. They also would like to get support to have water, for this, the leader is trying to get support from the Department of Natural Resources to receive solar cells in order to pump groundwater. According to RRC's officers, this group is a strong one with a good organization; they should only improve at filling documents.

Study case 4 – Khon Kaen subdistrict, Roi Et – Passive beginners group

T(x)	Members	Rai	Total interviewed	With organic experience	Without experience	Rai Converted to organic (avg)	Rai Registered (avg)	Age	Rice variety	Typology
T2	13	104	6	4	2	13	10	62	Jasmine and sticky rice	Beginners

This group of 13 members with 104 organic rai is producing Jasmine rice and sticky rice in the Khon Kaen subdistrict, Roi Et. In this area, many land plots are next to factories which pollute the river and the soil, so some farmers couldn't apply to the program. This group was formed especially for the program in 2017, from 6 interviewed farmers, 4 had started organic farming in 2015 and 2 started with this program. However, the 4 "experienced" farmers didn't have high knowledge about organic practices and some of them never participated to trainings before. As part of the program, the group received trainings from the Agricultural Extension Provincial Office and RRC and materials to make biofertilizers from the Land Development Department.

Members of this group turned organic for health reasons and apply to this program for subsidies. The main benefit is not economic but health because a lot of farmers are sick around this village, now they have organic rice to eat. A member mentioned the comeback of red worms in the field and he is happy about it. 5 members of 6 have converted their whole land to organic farming but they didn't register

their whole land in the program because of RRC's rules (according to them, RRC prevented them to register more than 10 rai in the program), 13 organic rai converted on average against 10 organic rai registered.

Training is good for farmers to get new knowledge (they learned about the buffer zone and the polluted water) but officers don't know how to do in practice according to the members. They are reluctant to the RRC's training and checking because they think they don't need it since they are doing farming since the time they were born. Paradoxically, some farmers learned the basics of organic farming (river polluted, buffer zone to avoid contamination) and some expected more knowledge, more experience from the Rice Research Centre on about how to produce and increase the yields. Members with higher position in the group don't have the same vision, they said it's a good thing for the members to get some advices and a kind of framework, the training is necessary even if they don't learn a lot. The secretary of the group said that the RRC is a support to the group's building and organization, after the program end, the group has to be independent. But seems he is the only one with this thought.

Members are more self-confident in their practice by acknowledging that they are supported. It's easy to switch from conventional to organic according to them, the time accorded to land management is the same in conventional and organic. Compared to other groups, this one doesn't have a big difference of yields between organic and conventional: on average, a difference of 53 kg/rai. Their main concern is the lack of water. Usually they keep rice more than necessary for home consumption, avg. 53% of their organic production, to make sure they will have enough the next year in case of drought. Only 4 members of the group sold their production in 2018 because of the lack of rain and production.

The committee is formed by 3 main persons: the president (leader), vice-president and the secretary. The leader manages the group, he tries to make everyone comply with the rules, go to trainings and manage the meetings. The vice-president helps him. The secretary takes notes during meetings with members and he makes the calls and appointments with RRC. There are no predefined inspectors as recommended by RRC, each member checks another member. They check if the farmer is using chemicals, how he store seeds, if s/he built the buffer zone and they try to follow the evolution of the conversion by going twice a year. The checking doesn't bring conflict, it's easy to talk together because they know each other but they avoid checking on siblings. The outsourced company checked every farm the first year and only 5 farms the second year.

The group meets 5 times a year. They discuss mainly about the timetable of machines' use. The leader owns machines to remove weeds and to plough the soil; he rents out his machines with discount price

to the members. They are happy to be a part of a group, they are friends, they help each other and they are an example for others farmers. Joining the group is a good thing for every member because they know more people (government, other organic farmers with same ideas) and they feel that they got more power.

About Organic Thailand, members are happy to get the certification but they cannot explain why, they don't know OT or understand the point of certify lands. Members with high position in the group know that the certificate paper guarantees the organic production; it brings trust and recognition from consumers. It's a guarantee but it doesn't help to get higher prices according to them. They would like to certify the rest of their land but they don't know that it's possible without the help of the government and they don't know how to do it.; they don't have knowledge about this.

They chose to sell their production to a cooperative because the scale is not falsified as it is usually the case in other rice mills according to them. Farmers were selling their conventional rice between 6 to 10 THB/kg for sticky rice and 13 THB/kg for Jasmin rice. Now they are selling Jasmin rice at 16 THB/kg and sticky rice at 13 THB/kg to the cooperative.

They hope to get higher prices in the future. Improvements can be done with marketing and price support from the government. One member would like 25 THB/kg for jasmine paddy rice. They will continue to work as a group after the program, but they don't have a plan for the future. Only one member talked about building a rice mill but he thinks that his group is too small so he thinks to join other organic farmers' groups and sell local products "Nong Ku Khad products" to hospitals because he knows they ask for organic rice. However, he doesn't know how to do it, he doesn't have any plan.

Study case 5 – Koh Koh subdistrict, Surin – Active beginners group

T(x)	Members	Rai	Interviewed farmers					Age	Rice variety	Typology
			Total interviewed	With organic experience	Without experience	Rai Converted to organic (avg)	Rai Registered (avg)			
T2	24	283,7	7	5	2	10,7	10,4	53	Jasmine rice	Beginners

The group was created in 2016 with 5 members in order to meet the demand of the Credit Union Cooperative (CUC). The CUC is a bank which provides loans with low interests to farmers. Three years ago, they realized that farmers were struggling to get rice seeds, so they started to support farmers by buying rice seeds and resell them to farmers in need. The CUC buys seeds at 23 THB/kg and sell them at 25 THB/kg. This group of organic farmers producing jasmine rice's organic seeds was

formed back then. In 2017, the National Program for Organic Farming started so the leader of the small group tried to convince new farmers to join them.

All the members come from the same village in Ko Koh sub-district, Surin. Farming is their only occupation and they do not hire labour; they farm alone with family and machines' help. Half of the members are inexperienced and half are experienced farmers, from 8 years to 1 year of experience before joining the program. They didn't know each other before which is a difficulty according to them because they couldn't trust everyone in the group. They started T1 with 37 members, now they are 24 members with 283 rai. In fact, some farmers didn't want to manage their land to comply with organic standards: some land plots were located next to risky areas with too small buffer zone, so they quit the group by themselves.

The inexperienced farmers joining this group were tired of buying chemicals and concerned about health issues so this program was the opportunity to start organic farming. To the experienced farmers, choosing organic also was a healthy concern and a way to reduce costs. However, most of farmers are or were scared of the low yields of organic farming, they are or were worried to change their practices.

The hardest, according to one of them, is to hear from other farmers or villagers that it's unsafe to convert to organic, that they couldn't get a viable production and that they will lose a lot. They question themselves after hearing this kind of comments. But they all started for the health of their families, not for money and after few years of experience they become more confident in organic farming. Their main difficulty is the weather and the access to market. In conventional farming they were selling between 5 to 10 THB/kg, this is also a reason that pushed them to convert to organic farming.

This group get 3 sources of knowledge: the RRC, the group itself and the Land Development Department (LDD). The RRC's training is good enough according to farmers. They also share knowledge between members since they are in a mixed group. At the same time, the group receives help from the LDD who, after providing trainings, deliver them materials to make biofertilizers and cover crops' seeds. RRC checking enables farmers to enhance their practices by guiding them to do it in a better way.

The group meets once a month to discuss about their problems, solve them, to fill the record book and to attend trainings from the leader after RRC trainings. Every year the group arranges a big meeting to elect the president and representatives' members, if they are not satisfied with the structure of the group at the time. Three members are inspectors, they assess every farm once a year: they check if the farmers burn, whether they use chemicals inputs, the soil quality, the environment, the water next to the field… if a farmer doesn't comply with the rules, first they will warn him and then

he must quit the group. This is not an easy task according to inspectors. The certification company randomly checked 3 farmers in T2, they passed and are now in process to T3.

Members of the group feel grateful for the program; they feel supported. They think they will sell more easily and their production will be trustworthy thanks to OT certification. Farmers producing rice in the group (19) are going to sell their production to a MoU rice mill while farmers producing rice seeds (5) are selling to the RRC during the program and will sell to the Credit Union Cooperative after it. Rice seeds are sold at 23 THB/kg while paddy is sold at 17,5 THB/kg to the rice mill.

The rice mill is buying conventional paddy at 16,5 THB/kg and organic paddy from 17 to 17,5 THB/kg in T1 and T2, 19 THB/kg in T3. The owner doesn't only buy Organic Thailand certified rice, but also USDA and EU (400 tons/year). OT rice represents 70% of purchases, i.e. 280 tons of rice per year. He started buying organic 8 years ago and decided to do MoU with farmers in order to support them in their conversion to organic.

Members feel pleased with the government support, they receive financial support, knowledge and materials to do organic farming. As improvements, farmers are expecting a long-term support. They would appreciate if the support wouln't stop after T3, especially the support to get the certification but they know that it will depend on the government, not on RRC. They would like to get a stable market and higher prices and to get an organic market in Surin as big as in Bangkok to be able to sell directly to consumers. They are really happy when consumers are looking forward to get their organic rice but they don't have enough production. Some members couldn't sell last year because of the drought.

They have a better standard of living in organic farming, not in terms of finances but in terms of health and environment. With organic practices, animals are coming back to the field; it shows that the land is clean and pure to welcome living beings. They don't have to worry when they go to the field because nothing will affect them anymore. In the future, they would like to get an international certification with governmental support but they are not ready to pay for it. They would like to develop their organic farm, expand the group and have their own rice shop and sell directly to consumers.

Study case 6 – Khok Thom subdistrict, Surin, Active beginners' group

T(x)	Members	Rai	Interviewed farmers					Age	Rice variety	Typology
			Total interviewed	With organic experience	Without experience	Rai Converted to organic (avg)	Rai Registered (avg)			
T2	12	153	7	6	1	33,7	12,4	50	Jasmine rice	Beginners

This group is composed of 12 members gathering 153 rai and was created especially for the program and put together experienced and inexperienced farmers. Interviewed farmers are growing Jasmin rice and don't have other occupation except growing and selling vegetables. They all knew each other before, the group was formed after hearing about the program from the radio, they met, talked about it and created the group. Some farmers in the village didn't believe that the government would support organic farming so they decline the proposition of joining the group, now some of them regret, according to the leader.

Of 7 interviewed farmers, 6 started organic farming before the program (with a experience of 10 to 1 year) and 4 of them received support from the Agricultural Bank in form of trainings before the program. They didn't receive trainings from governmental organizations, this group doesn't get any support from the Land Development Department, yet presents for others groups in Surin providing biofertilizers materials. RRC's trainings are helpful because farmers get to know organic standards, and get advices in terms of farming practices. It guides them to know the right way to do farming. They would like to have some updates from RRC when there are innovations.

Members of this group started organic rice farming due to health concerns, to reduce costs and get subsidies. Conventional farming progressively needs more and more chemical inputs so the costs become too high for farmers. The environment is also a stake for some: one farmer of the group mentioned the willingness to maintain nutrients in the soil. Two members over seven converted only a part of their land to organic, especially to get safe rice to eat. One young farmer of 30 years old mentioned the importance of her baby's health. Three members are producing organic rice for 6 years now but never sold it because they kept it for themselves and sold the conventional rice. On average, members of this group keep 48% of their organic rice production for themselves.

Members in this group own big plots of land from 11 rai to 74 rai. They don't have the same farming practices but none is hiring labour. Doing organic farming is not difficult according to them, it only takes more time and the yields are sharply decreasing but farmers can go in the field without fear because they know that their field is chemical-free and healthy for them. Low yields discourage some farmers in the village that don't have enough patience with organic farming, so after trying some of them are using chemicals again. The groups often meet to discuss about farming practices, how to improve yields, the seeds, how to avoid contamination. They share knowledge between friends and help each other making them happy.

The group is structured according to the rules of the program; there are 3 inspectors in this group. Inspectors were a little bit worried before the first checking because members are neighbours and they might be unhappy with the checking and the advises given by inspectors. Until now, they didn't have

any problem of cheating. If they see someone cheating, they warn him and if he continues, he has to leave the group. But none is cheating "*because subsidies are too important*".

For 2 years now, it's getting difficult to sell due to the lack of rain resulting in low production. Half of the members didn't sell since they are in the program because they have less organic land and the yields are very low, so they keep everything for the household consumption. They mill their rice in a rice mill freely and they sell their rice to the Agricultural Cooperative (MoU) at 16-17 THB/kg. Before the program, they were selling to rice mills between 10 and 15 THB/kg.

Farmers expect that this program could help them finding new stable markets and get higher selling price thanks to OT certification. They are proud to receive this guarantee. They would like to know that they have a buyer waiting for them every year and at what price they will sell.

The leader is happy with the program because it allows farmers in his village to get interested into organic farming and try. The program can prove to them that organic farming is viable. Subsidies are also important to encourage farmers. He would like to open a Learning Centre in his village to teach organic techniques to everyone. He made a call for tenders to build ponds for farmers in the village to be able to face the drought. They would like to get irrigation to be able to choose what crop they grow; some would like to grow vegetables but they can't because of the lack of water. He also thinks about developing agricultural tourism within 4-5years.

Study case 7 - Mueang Kae subdistrict, Surin, Active beginners' group

T(x)	Members	Rai	Interviewed farmers					Age	Rice variety	Typology
			Total interviewed	With organic experience	Without experience	Rai Converted to organic (avg)	Rai Registered (avg)			
T2	18	131	8	4	4	8,6	8,6	54	Jasmine rice	Beginners

The leader of the group formed it by making an announcement to relatives; he presented the program mentioning financial support and benefits for health. At the same time, he opened his learning centre with the support of the Ministry of Agriculture and Cooperatives to teach organic farming. The topics were: how to make organic fertilizers, how to select rice seeds, how to produce good rice seeds, how to prepare the soil. Around 250 persons attended his class from 10 villages. The leader started organic farming in 2011 and learned with the Agricultural Department. The group is mixed, some farmers started organic farming with the program and others already had experience before. For unexperienced farmers, this program is an opportunity to start organic farming, they were thinking to do it but maybe they never have done it without a helping hand.

All the members come from the same village in Mueang Kae sub-district, Surin. Before the program, 20 farmers were organic in this village, now they are 61 organic farmers (and 3 different groups in the program). All members of the group are producing Jasmine rice. Their main motivations are to reduce production costs and improve their family's health; some are also concerned about the environmental aspect. Of 8 interviewed in the group, 4 have converted only a part of their land to organic. Even if they really seem to believe in the benefits of organic, they want to start by converting a small area, in order to give a try to organic farming, and then continue to convert the whole land if they are economically satisfied and if organic markets are stable. The weather is really difficult for them since last year (2018) and the yields are decreasing a lot comparing to conventional farming so they are worried to convert their whole lands to organic and to get low production to sell. Subsidies are important for them and helpful to compensate the losses.

Some members had difficulties with their family because one wanted to stop and the other was afraid of the consequences so it already happened that in one couple, one puts chemical fertilizers without informing the other. According to some members, converting to organic is difficult, but mostly in terms of yields decreasing. If the farmer is willing to success in organic, he has to continue and it will get better with time. Meanwhile, it is difficult to convert according to farmers in terms of time and patience: organic farming requires a good care of rice plants every day.

The group received help from the LDD and the AD in the form of trainings and materials for biofertilizers and cover crops seeds. The group has their own organization to get more cover crops seeds: some members are producing more in order to give to others members. Members borrow seeds and give back the next year. RRC provided them rice seeds in T2: 15kg/farmer. Farmers are satisfied with the RRC training which is more professional than their daily life's learning with their parents or neighbours. However, experienced farmers are not learning anything during this training, sometimes the leader knows more about organic practices than officers, according to him. Farmers hope that the government will continue to support and inform them about innovations for organic farming even after the program. Some experienced farmers had to change the agrarian structure of their farm because the current situation wasn't complying with criteria: an organic non-certified farmer for 10 years had to make the buffer zone higher and bigger and plant crops on it (vegetables and fruits).

As in every group, farms are checked 3 times: with ICS within the group, by the RRC and by the certification company. RRC checking is strict but not too much according to farmers. It is necessary to assess farmers to get organic farmers complying with criteria. The outsourced company checked 5 farmers in the group; they are now in process to get T3. In the group, 4 inspectors are going to check lands together; they know how to make the difference between friendship and work. They look at the

rice plants, buffer zone, storage, fertilizers used, they suggest things or warn members to change their practices, everyone is following the rules because they want to get subsidies at the end of the year.

Members expect to sell at higher price thanks to this program and the certification given. They hope that OT certification can help them to gain power to bargain and set the price of the rice. They are proud to get the OT label at the end because, according to them, it will expand markets, they will have more options to sell the rice and they become a role model for others farmers in close by villages. The group wants to contribute to the spreading of organic farming to next generations.

In conventional rice mill they were selling from 8 to 16 thb/kg depending on the year. In organic they choose to sell to a MoU rice mill. They expected to get 18 thb/kg but they got from 14 to 16 thb/kg so they are very disappointed.

The rice mill buys Organic Thailand's rice since the program was launched because this was an opportunity for them to reach new markets with a "*trustworthy certification*". Organic rice is now representing 20% of the rice mill production but they don't have markets for OT rice yet. They are waiting for export companies to come and buy this rice in the coming years but the manager doesn't even know where OT can be exported. For the moment, the rice mill is selling OT rice directly to consumers in their own shop. The selling price for processed rice goes from 80 to 100 THB/kg. Locally, there is not a high demand for organic rice, thus they struggle to sell it. The owner thinks that people are not aware of the health aspect of food. The rice mill buys the paddy from farmers from 16 to 20 THB/kg depending on the year and the quality of the rice. One of the reasons of low quality according to the rice mill is that the rice is surrounded by other rice varieties so the quality of the rice is decreasing and the selling price too. To avoid this mix of varieties, farmers can select or change the seeds. The group renews the contract with this rice mill every year even if they are not really satisfied because they don't know where to sell. Farmers get better economic benefits thanks to the production costs' decrease but they would like to know where to sell their production.

As improvements, the government should support price, at least 20 THB/kg because without it maybe some farmers will go back to conventional farms. The future of organic farming depends on water availability. The group would like to receive support to build ponds, in order to get water even when there is drought. The water department came few years ago, checked organic farmers and had

T(x)	Members	Rai	Interviewed farmers					Age	Rice variety	Typology
			Total interviewed	With organic experience	Without experience	Rai Converted to organic (avg)	Rai Registered (avg)			
T2	11	100,5	5	5	0	12	12	58	Lot of varieties	Advanced

the plan to build ponds, but they left and villagers never had news from them. Also, the group would like support to get machines to sow, harvest and plough and also to process and pack the rice.

Study case 8 – Huay Sai sub-district, Chiang Mai, Advanced group

This group of 11 members was formed especially for the program but members know each other since a long time and were a part of several groups in their villages. Every member in this group is doing organic farming since a long time, for 9 to 20 years now. Some of them never used chemicals inputs during their life. They all want to do organic farming because it is better for their own health, the health of their families, health of customers and also for the environment. One member was used to overusing chemicals, however when her neighbour passed away because of them, she thought about her kids and she stopped conventional farming and joined ISAC in 1999 (Institute for Sustainable Agricultural Communities). She said "*Even the birds didn't fly over the land*".

In Chiang Mai, farmers do 2 crops per year. They received irrigation 30 years ago and support to build pounds from the Land Development Department. In this group, members are growing several varieties of rice: jasmine rice, sticky rice, riceberry, black sticky rice, sanpatong, kor khor 43….

Members learned about the existence of the program by the RRC. Their expectations were: share and learn, spread organic farming by helping conventional farmers to convert, develop new market channels. In the past, they received help from ISAC in terms of trainings and zero rate loans, they learned how to do organic with this institute. They still participate to every kind of trainings such as from Maejo University (providing biofertilizers materials and advices) or the Land Department (provides cover crops seeds). Now, they feel that they never learn new things, except from this program, that they learned the differences of organic standards between the different certifications. But the training about organic farming itself is useless for them now, anyway, they respect it and they participate. Since they don't need the training, this program brings overall subsidies to them.

Members of this group have different organic certifications: PGS, NOSA and IFOAM. They received NOSA thanks to ISAC and PGS with Thai Agriculture Foundation's help. The ones with IFOAM get this certification thanks to the contract with Farmer and Energy Company, producing rice-based cosmetics, who pays the certification costs of farmers and in exchange farmers sell their rice there. Members are aware that the best certification they can have to reach more markets is IFOAM but still, they expect that Organic Thailand certification will enable them to become more trustful in the customers' eyes when they sell on the local market but otherwise, they don't really know who is interested of OT rice. One member recommended that the government should give less subsidies but help for the market, by helping to get IFOAM for example.

Marketing is managed differently according to each member so we can't generalize prices or buyers. Some members of the group own small rice mills and packaging machine, every member can pay 3 THB/kg to mill their rice there. Then, some farmers sell in the local market around 60-70 THB/kg for packed jasmine rice; others sell to the Agriculture Cooperative from 17 to 20 THB/kg (resell at 50 THB/kg), others have a contract with the company who buys only organic rice from 13 to 21 THB/kg according to the humidity rate (best rate: 15% = 21 THB). They created a group in 2007 especially to sell to this company. Nowadays, some farmers of the group stopped selling there because they were disappointed of this company who promised a very good price but in practice, farmers received a lower price, only few of them continue to sell to this company.

They follow the structure of the group recommended by the RRC but in practice, everyone is helping everyone. The vice-president goes with inspectors to the field, although members have responsibilities too. They work as a group, everyone's investment is important. They dismissed one cheater in T1 after discovering that he was using chemicals fertilizers. They know that some members are still not fully complying with the standards (field burning for example) but they try to warn them and if they don't change, they would be expelled from the group. Members interviewed think OT certification is difficult, not in terms of complying with standards, but because they have to be certified as a group. Checking every member and be sure that they follow the rules is not easy according to them and this is stressful because if one member is not following standards the whole group will fail. Otherwise, OT certification is not difficult to get, it is less strict than NOSA. For example, with NOSA they have to buy organic certified fertilizers while with OT they can use their own animal manures.

Today, organic farmers of this group have a better standard of living in terms of health and a safe environment but in terms of incomes is the same than conventional farming: Better price but less yields so this is a balance. Nevertheless, they would like to get access to more markets because they struggling finding them at the moment.

Study case 9 – Doi Lo sub-district, Chiang Mai, Advanced group

T(x)	Members	Rai	Interviewed farmers					Age	Rice variety	Typology
			Total interviewed	With organic experience	Without experience	Rai Converted to organic (avg)	Rai Registered (avg)			
T1	29	222	7	4	2	8	8	46	Sticky rice	Advanced

The group was created in 2015 by 10 members aiming to tackle low prices and price fluctuations. They stopped to use chemicals inputs and tried to learn organic farming by themselves. Members took out a loan at the bank to buy a rice mill (230 000 THB) and packaging machine. Thanks to this initiative, they could manage the market themselves and get out of the rice mills' grip, they also

started to produce rice seeds. They had GAP (Good Agricultural Practices) certification but not organic ones, they are happy to get Organic Thailand at the end of the program to offer new market opportunities (export, higher prices, competitiveness).

In 2017, 19 new members joined them to apply to the National Program for Organic Farming. Now, they are 29 members with 183 rai. They are all friends, and they work and eat together almost every day. Farmers of the group are growing rice and rice seeds of sticky rice and riceberry. If they grow jasmine rice, it's usually for home consumption (contrary in Isaan). They grow 2 crops per year thanks to irrigation developed 40 years ago; they even have the right to use river water for organic farming. The whole group is growing organic Longan (fruit) besides rice farming because they couldn't live only with the small areas of rice that they have and the actual market. However, organic rice is good to get higher prices, consumers are more and more looking for organic products and they trust this group especially thanks to their Facebook page where they regularly post news about their organic farm activities.

The group receives support from several organizations: Land Department (tanks), Agricultural Department (microorganisms) and Maejo University who trains farmers and give organic rice seeds to them. Being a part of a group is an advantage according to them: receiving support. As part of the program, they get training from RRC, they continue to learn with them, especially about organic standards. They had to make their buffer zone bigger, wash the storage area and change of storage bags. This group is transplanting the rice, a technique lost few years ago when the minimum salary appeared. They are hiring a group of sowers for the whole group (1300 THB/day), in one week they sow 183 rai. They use machines to harvest and plough and handle weeds by hand. In organic, their yields are around 550 kg/rai/crop (a difference of 100 kg/rai with conventional yields), and they keep around 45% of their production for their self-consumption.

Members followed the structure recommended by the RRC, they think is very helpful to distribute specific tasks because they respect each other's work and don't feel uncomfortable warning others members for inspectors for example. However, being in a group means taking in account all the different visions and dealing with members who don't understand organic standards and purposes, but they try to create harmony in the group.

A member pays 2 THB/kg to mill his rice with the common rice mill. Then, the coordinator of the group is managing the Facebook page to sell the processed rice online at 80 THB/kg (for every kind of variety) either directly to consumers either to grocery shops of other provinces. They are making a profit of 30 THB/kg with direct sale and 10 THB/kg with grocery shops. Or, members go sell their rice on the local markets at the same price. They sell the rice seeds to Maejo University or rice mill at 12

THB/kg (max 14 THB/kg) who sell them back to farmers. When they get high yields, they have to sell their rice to the rice mill for 6 to 8 THB/kg. The group would like the government to set a higher market price to feel safer or to find new markets because they don't have other options than the rice mill at low prices. According to them, the RRC should be able to talk to rice mills and ensure a good price (~15 THB/kg) through MoU contract. Members want the government to open their eyes about the difficulty of the current rice market for farmers; farmers should get higher returns and rice mills lesser. The group would like to receive help to buy another rice mill because the one that they have is getting old.

Today, thanks to the creation of the group 4 years ago, members have a better standard of living, mainly health-related but also with prices even if they are still not satisfied about it. Members of this group hope that the program and the marketing that they are creating will encourage youth to invest in organic farming. The 20 years old son of one of the members is a proper member of the group with his own land. They would like to expand the group in the future and become more competitive and recognized thanks to OT certification. One of the members mentioned the willingness to develop agricultural tourism, build a homestay and show to tourists the daily life of farmers. This could be managed by young farmers.

III Analysis of study cases

III.1 Level of investment in the program

According to the head of the Agricultural Department, the greatest challenge for farmers who convert to organic farming is the mental aspect. If the farmer is really invested, there is no problem, if not, it is difficult for the farmer to implement organic practices and to success in his conversion. Officers of RRC feel and observe the different behaviours/mindsets of farmers involved in the program. Interviews highlighted these different mindsets according to the motivations of farmers, worries and participation to trainings. We can classify farmers with 4 different levels of investment in the program:

- **Invested farmer**: Motivated farmer and really engaged in the program and in organic farming in general.

Invested farmers are really motivated to be a part of this program, health is their first motivation and they won't shift to conventional farming again. In Yasothon, most of the farmers told us that they attend all the different trainings about organic farming because they learn a lot, and even if they don't learn new things, it is a helpful to review and refresh concepts. They are open to every kind of help they can receive, as well as dynamic.

Behaviour observed in: Advanced and actives beginners' groups. About 78% of interviewed farmers (over 58 farmers)

- **Concerned farmer**: Invested farmer but still concern about the risk involved in organic conversion.

These farmers are aware of chemicals risks, they want to improve their health, but they have a deep attachment with chemicals use, it became a habit. These farmers wouldn't have converted without the group and the program but they are glad to do it. They want to convert their whole land in the future but they start with a small part for now. RRC's officers advise them to start small too.

Behaviour observed in: Advanced and beginners' groups. About 16% of interviewed farmers.

- **Reluctant farmer**: Farmers are motivated to grow organically, although they are reluctant with the program itself or with organic practices.

Within this classification farmers don't join the trainings, and don't want to change their practices. The members of the group 4, Roi Et were really annoyed about the trainings given by RRC, they told us their unwillingness to see RRC officers and to go to the trainings because they do rice farming *since they were born* –as they say- so they don't think they need any help to manage their farm. Of 6 interviewed members, 3 claim themselves as organic farmers but never went to trainings. The same ones just learned basic knowledge about organic (river polluted, buffer zone) as part of the program (the leader trained farmers after RRC's training). These farmers usually followed their friends in this "adventure" which is the program without knowing anything about it.

According to RRC of Yasothon, a great challenge from working with farmers is to deal with their age, older farmers are doing farming since at least 40 years, they are experienced so some of them don't want to listen to RRC officers because they think they know how to manage their land.

Behaviour observed in: Beginners groups. About 5% of interviewed farmers

- **Money-driven farmer**: Farmer doing the program only for the subsidies and might quit organic farming at the end of the project.

Farmers who have enrolled to the program especially to get subsidies do not hide it, everyone, even the RRC is aware of their underlying motivation, which is having access to subsidies and and they will quit after the program. Of the 58 interviewed farmers, only 7 farmers didn't mention health's reason, either because it was obvious to them, either because they joined the program only for money. The one member of the Group 1 clearly joined the program to get subsidies.

Behaviour observed in: Beginners group. About 2% of interviewed farmers.

N.B: Each classification is not exclusive, different type of farmers can be found in different groups. It should also be taken into account the biases of farmers' responses. Since it is possible that they might not have felt confident enough with the interviewers to give honest responses

III.2 Support to organic rice farming

This part will focus on all kind of support given to interviewed farmers about organic practices, by RRC and others organizations.

III.2.1 Rice Research Centres (RRC)

Rice Research Centres are in charge of the program's implementation in each province. Each centre receive budget from the Ministry of Agriculture and Cooperatives to administer the program: the budget is destined to officers' salary, officers' transportation costs, organic rice seeds' supply and subsidies for farmers. All the centres answer to rules from the Rice Department but they can differently handle the program on some points.

a) Trainings

RRCs provide training in T1 and T2 for farmers. Officially, at least one training per year; In practice, 2 to 4 times per year depending on each RRC.

The first year (T1), training is mandatory for every member. In T2, only the President or the members in charge of managing the group are invited, then, they organize a meeting to deliver information to the rest of the group. Strangely, members of several groups never went to trainings provided by RRC according to them. RRC's officers mentioned that if some members don't come, they will try to know if they had a good reason for their absence, but it is difficult, if not impossible, to keep an eye on everyone with 7 officers for 5,000 members for example in Roi Et.

First example: Training of one group in T1 - Chiang Mai

In Chiang Mai, there are 3 officers for 8 groups. These latter are privileged compared to groups in Isaan where there are 7 officers for 300 groups because trainings can be provided group by group with a personalized support (as we can see on the following pictures). Officers of Chiang Mai's RRC provide 4 trainings/visits to each group the first year.

Figure 11 - Training in Chiang Mai. 3 officers for 15 farmers in T1. 14/5/19

1st visit of RRC: Explanations about purposes and principles of organic farming (*see Appendix 3*)

2nd visit of RRC: Collection of personal documents (ID, Land title) to finalize the registration

3rd visit of RRC: Training about how to fill the record book, advices about organic farming. Farmers are filling 4 forms during this training:

- Application form: Personal information and 'map' drawing of the plot in organic conversion
- Risk assessment: Risks' possibilities of the land (distance between the plot and factories, hospitals, canal…; buffer zone importance, characteristics of storage bags, manures' provenance…)
- Farm inspection: How farmers are managing their land/farming practices (seeds, inputs, machines, harvest, storage…)
- Record form: Similar to farm inspection with more details (date and frequency of application of manures for example)

4th visit of RRC: Check on fields of members and give advices.

Second example, Surin

One lecturer of RRC provides training to about 15 group leaders in T2. At this point of the program, farmers have to set up the Internal Control System organization in order to be ready for the final control of the year and to comply with organic standards. The officer reminds everything said the first year, the principles of organic farming, the rules of the program and add the new rule with ICS.

Farmers' opinions

Figure 13 - Record book

Figure 13 - Training in Ban na Tuang, Surin, 15 groups, 6/6/19

The majority of interviewed farmers were satisfied with the training but can't remember the different topics or even how many times they got it. They are mainly confused because they have many different trainings with others public institutions.

Advanced groups (4 groups): Trainings are helpful and important but, in this case, the majority of the farmers don't need trainings, they already learned everything with others public or private organizations. Still, they are grateful to receive help and they go to the trainings by respect to officers.

Beginners' groups (5 groups): According to them, trainings are helpful to improve their skills, to learn about organic standards, and receive advices in terms of farming practices. It guides them to know the right way to do organic farming.

Information held back by farmers from training

They gained knowledge about the importance of the buffer zone, the risks of using river water, quantity of organic fertilizers they should put, how to reduce the costs, advantages of ploughing the soil (reduce weeds), change of rice seeds every 3 years to get a good rice quality.

However, according to some farmers, RRCs should provide more detailed information, deeper knowledge and give an accompaniment in practice and not only in theory. Some of them would like more knowledge about how to increase yields, improve the quality of the rice or about economics.

The level of openness in trainings is different according to each member, his experience in organic and his/her personality, it doesn't depend on the group's type. Here's an example with two kind of farmers inside one group:

Two types of members in one same group - G4 (Passive beginners' group)

- Members don't want to bother with training because they think they don't need it
- Board members of the group (President, secretary and vice-president) don't have the same vision. They think the training is necessary for the members to receive advices and a framework. According to the secretary, RRC is here to help the building of the group, the organization of it and then, after 3 years of program, the group has to be independent and know how to work. But he seems the only one thinking like this.

b) Rice seeds provision

In the official document, RRCs are supposed to provide rice seeds to farmers. However, RRC don't have enough financial means to get organic rice seeds for everyone so they decided to provide them only to groups who pass in T3. But they won't have enough to cover the whole land of each farmer. RRC's officers from Yasothon told us that they should provide 15kg/rai/farmer (limit of 15rai) but they don't think they will have enough so maybe they will provide only 5kg/rai/farmer and they will put in priority farmers having MoU with rice mills.

RRC are doing contracts with rice seeds' growers to buy the seeds and then be able to redistribute them to farmers' groups in T3.

The group 2 in Yasothon is producing rice seeds. They sell the seeds to the RRC of Yasothon at 20 THB/kg which is a good price according to them.

Because RRC can't provide rice seeds to farmers, these latter have to use their own rice seeds or buy organic rice seeds. Most of the farmers are using their own seeds. In this program, according to Organic Thailand standards (*see III.1 Official Organic Thailand standards*), farmers are allowed to use their non-organic rice seeds, they have to wash them and then they can use it the first year (T1). At the end of T1, they harvest their land and can sow the organic rice seeds in T2 that they produced in T1.

III.2.2 Support from governmental organizations

Before the program, 67% of farmers registered already participated in trainings on organic farming with other institutions. There are no links between different organizations. RRC is not even pushing farmers to participate to others support but farmers have to participate by themselves to different trainings to get a complete organic knowledge and organic materials to facilitate their conversion.

a) Agricultural Department (AD)– Isaan

For 10 years, officers of the Agricultural Department were training farmers to GAP standards (Good Agricultural Practices). The Agricultural Department started to seriously support organic farming about 3 years ago. They set up different projects to help farmers converting to organic to protect the environment and improve the health of farmers and consumers. The Agricultural Department support farmers by providing information and supply for organic farming. The training (4 times a year from May to August) instructs on selecting rice seeds, soil quality management (biofertilizers), harvesting, processing and packaging. The training is also depending on the group's objective. If the group wants to get Organic Thailand, officers will train OT standards, if farmers want IFOAM, officers will train IFOAM standards. The AD provides 25 kg of organic rice seeds per farmer, then the farmer has to manage it and produce enough to get organic rice seeds for his whole land the next year. Farmers are not systematically converting to organic after organic farming's trainings but officers feel an increase of interest for organic farming.

b) Land Development Department (LDD)

The LDD started supporting organic farming 10 years ago to help farmers and consumers to improve their health and get better incomes. LDD trains farmers on adjusting the soil's characteristics in order to improve the soil and the organic production. The role of LDD is to provide training, materials to do biofertilizers and cover crops seeds.

Biofertilizers support: the LDD provides molasse, plastic tank and microorganisms (bag of 100g for 1 ton of biofertilizers). Microorganisms are Trichoderma and Beauveria, one helps the leaves and roots of the rice plant to be stronger and the other one repels pests. Farmers mix this with rice bran and vegetal wastes and let fermented for a week. The farmer should apply between 1 to 2 ton of biofertilizers per rai. Farmers can ask these ingredients as much as they need.

Cover crops seeds' support: The LDD provides seeds only one year. They give from 5 to 15 tons of seeds depending on the group's size. One rai needs 10 kg of seeds.

c) Learning Centres

In Yasothon for example, LDD officers are 5, which is not enough to train all the farmers interested in organic farming in the province. Thus, the LDD set up the system of Learning Centres, where officers train one volunteer in each subdistrict of the province, which become a middle person between LDD and farmers (The leader of the group 7 (Surin) is also the volunteer of the learning

centre). All the learning centres are not dedicated to organic farming, but to Sustainable Land Management Practices. The volunteer usually has a great knowledge about agriculture, including organic farming. After being trained by LDD officers, the volunteer returns information to interested farmers of the subdistrict. The volunteer isn't paid, but the building of the Learning Centre is financed by the LDD.

III.2.3 Non-governmental institutions

Some farmers also received support from cooperatives (RiceFund Surin), NGO (ISAC in Chiang Mai) or private companies (Redbull in Surin, Farmer and Energy Company in Chiang Mai) before or at the same time than the RRC's program. Still, there are no links between all these supports.

NGO are training farmers on organic or sustainable practices in the case of ISAC. This organization provides zero rate loans to help farmers to convert and to pay for organic certification (usually second-party certification).

In Surin, there is the RiceFund Surin, a cooperative founded by farmers. This cooperative trains farmers, certifies them according to EU standards and buy their production to export to Europe. But now the cooperative is in trouble due to corruption issue. In Surin, some groups are also working with RedBull company. Private companies are making contracts with farmers, they pay for the organic certification and farmers sell their organic rice to them. Usually, the certification is IFOAM because this is exportable.

III.3 Adaptation of the agrarian structure and farming practices

In Isaan, farmers are growing jasmine rice and sticky rice one time per year during the rainy season, from June to November. Since they don't have irrigation, the rice season depends on the rain. Jasmine rice is mainly for selling while sticky rice is mainly for self-consumption. According to farmers it is easy to grow rice organically except for the lack of water. 57% of interviewed farmers are concerned with the lack of water, and many them couldn't sell their production last year (2018) due to the low production caused by the drought.

Figure 9 - Timeline of the rice season observed in Isaan

In Chiang Mai, interviewed farmers are growing two crops per year (see Rice calendars) thanks to the irrigation system developed in the 1980s. The main variety is the sticky rice.

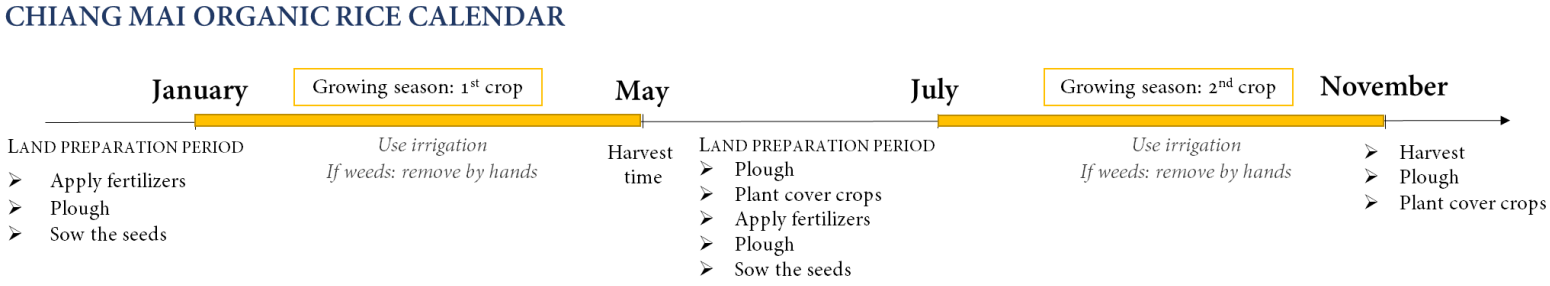


Figure 10 - Timeline of the rice season observed in Chiang Mai

Organic practices were already adopted by some "conventional farmers". In fact, small farmers were already using animal manures as fertilizers but farmers with big lands are usually using more chemicals because it's easier to manage according to them. Farmers interviewed keep on average 42% of the production for their own consumption. Usually they keep more than necessary to prevent the lack of rain of the next year and get enough rice to eat.

Rice and rice seeds are produced in both areas. The general process of growing is the same. But growing rice and rice seeds requires different kind of work. It takes more time and care to produce rice seeds because farmers have to pay more attention in order to have quality rice seeds, they have to go on the field every day to take care of the rice.

III.3.1 Conventional farming practices

Agrarian structure: no buffer zone, the water from neighbouring land can enter in the field, no cover crops between rice crops.

Soil preparation and management

- Slash and burn practice: first step of the soil preparation
- Chemicals fertilizers called 15-15 (15kg/rai) and 16-16-8 (5kg/rai). Apply without gloves, 30 minutes/rai.
- Herbicides: Most of the farmers didn't use chemical herbicides even in conventional farming, they are used to remove weeds by hand "since ever", especially in Isaan.
- Pesticides: Usually farmers don't use pesticides because pests are rare and they could handle them without chemicals, only 2 farmers over 58 years old used it. Names of the pests: Stenchaetohrips biformis (Bagnall) and Pyralidae Lepidoptera. The rice plant gets brown and die, farmers remove one plant by one and burn it.

➢ Machines: Farmers are using machines to harvest and plough the soil. Farmers usually sow alone or with the family by throwing the rice seeds, few farmers sow thanks to a machine and others hire labour. Human labour is privileged for harvesting when the farmer produces rice seeds.

III.3.2 Organic farming practices

Some groups (G3) are managing so well their seeds that they can lend them to farmers in need: A farmer borrowed 10 kg of cover crop seeds in 2018, from this amount he produced more seeds. Thus, in 2019, he can give 10kg back to the farmers group.

Agrarian structure: Buffer zone with grass or crops such as lemongrass (to avoid insects), banana, mango…; cover crop recommended after harvesting.

Soil preparation and management

➢ Sowing: Farmers usually sow alone or with the family by throwing the rice seeds, few farmers sow thanks to a machine (save seeds) and others hire labour. Two groups are still transplanting rice (G3 – G9).

➢ Rice seeds: Farmers can receive support to get organic rice seeds (see 0), can buy from members or from organizations (20 to 25 THB/kg) or can use their own non-organic rice seeds in T1. Farmers should renew rice seeds every 3 years to keep a production of good quality.

➢ Water: In Isaan, water comes solely from rainfall. Some farmers have ponds for water harvesting. In Chiang Mai, land is irrigated so organic farmers can use water from the canals but they have to avoid contaminated water. If the water is a bit polluted, farmers should use water hyacinth to filter the water. The water used will be analysed in T2.

➢ Weeds/Bioherbicides: In Isaan, farmers remove weeds by hand. If there is too much weeds, either they “let it be”, or they use a machine (rent or own). Several members leave the weeds if there are too much: years with enough rain, this is not a problem; years of drought, this is a big problem.

➢ Organic fertilizers:

- Animal manures: In Isaan, farmers usually use their own animal manures (buffalos, cows and chickens). If they don’t have animal farms, they can buy manures.
- Biofertilizers (mix of molasse, Effective Microorganisms (EM), vegetal wastes). Farmers can do biocontrol with EM: Trichoderma and Beauveria. These fungi species have their ability to improve agricultural productivity while decreasing the development of fungicide-resistant pathogens.

  Cover crops: Farmers use Sunn hemp (Crotalaria juncea L., leguminous plant) as crop rotation to enhance the soil fertility when the LDD provides the seeds. Otherwise, most farmers plant nothing. Few farmers are growing vegetables or peanuts after harvesting rice. But the lack of water is difficult to handle.

➢ Pests and disease. Most of the farmers said that they never had any pest and disease in their field so they don’t think about this possibility. If they have disease, they just remove the rotten plant

one by one. The rain is an important factor, if there is no rain, pests and disease will be stronger. To avoid pest and disease:

- Biofertilizers with EM are reducing the risks to get pests and disease.
- Let space between the rice plant, the transplanting method enables to avoid them. Most of the farmers stopped transplanting few years ago because they had to hire people and it became too expensive.
- Use crops with smell that push back pests such as lemongrass or cassava which kill snails.

➢ Machines: Farmers use the same machines as in conventional farming but have to wash them between a use in conventional farm and a use in organic farm. When a member owns machines, he usually rents at discount price for others members of the group.

Farmers' assessment of organic practices

Few farmers say that organic farming is more difficult than conventional because it takes more time, on the other hand other farmers say that it takes the same time of land management and that managing a land organically is very easy. It can be disappointing for some of them to see that the organic rice is not as "beautiful" as the conventional one. The organic one is thinner, smaller and lighter according to farmers.

Figure 12 - Irrigated rice, 1 month old, Chiang Mai

Figure 12 - Pounds with canal water, Chiang Mai

When they started organic farming (as part of the program or before), some farmers were concerned to convert since they thought it was more complicated. "*With chemicals, if you have a problem, you put chemicals and the problem is solved*" (G3), while organic farming takes more time and patience. The yields decrease but the production costs decreased a lot too. So, at the end, it is balanced according to members. Many farmers mentioned the return of animal species (red worm, fish, crab) thanks to organic practices and the stop of chemicals inputs use. They are very happy and proud when they talk about it. The majority of the farmers interviewed are now confident about organic farming practices (despite the concern about rain in Isaan) although they are still concern about the marketing aspect.

III.4 Collective action within the group

III.4.1 Group structure in practice

The presented structure decided by RRC (*see Appendix 2*) is not mandatory for groups. Groups can either follow the framework suggested, or they can also organize themselves a bit differently with an Internal Control System (ICS) in function and to have a 100% organic group. In order to assign tasks and responsibilities, the whole group meets and vote. However in practice, if any group member wants to carry out a specific role, e.g marketing consultant, no one would be compelled to do so. In some groups, only the main tasks are distributed. In G4 in Roi Et, only 3 members over 16 have a role (President, Vice-President and Secretary). It might be a disinterest from the group or a choice to manage the group on their own way.

III.4.2 Relations within the group

In all groups members share knowledge, techniques and advices. In 2 of the groups, members are already experienced in organic farming but in 7 of them, there are some experienced and some inexperienced farmers which creates rewarding exchanges of skills between farmers. Often, they are meeting daily because they are neighbours or good friends but they organize big meetings with every member at least 3 times per year.

Meetings reasons in interviewed groups:

- Vote the structure of the group
- Prepare the arrival of outsourced company checking
- Fill the record book
- Trainings
- Share knowledge: Discuss about harvesting method, seeds choices, solve problems of practices…
- Making biofertilizers together
- Vote: Everyone can submit an idea; they discuss it and have votes to make decisions.
- Organize the timetable of machines use when machines are also used by conventional farmers (to avoid contamination).

According to farmers, being in a group is good in order to share experience, ideas and knowledge with friends; everyone has different issues according to their land so they can help each other. Joining the group is a good thing for every member because they know more people, whether members of the group, others farmers groups, governmental officers, or rice mills owners.

A member of G1 stated that he only knew his group before the program, now he knows 8 different groups. He has a **wider network** and he's happy about that.

Being a member of a solid group and participating in programs enable farmers to receive more governmental support. In fact, organizations (governmental or NGOs) usually don't provide support to individual farmers. Therefore, the program encourages farmers to gather and to get more support. Moreover, farmers stated that they prefer to convert to organic farming with a group of farmers than individually, they feel more confident doing it with friends. According to farmers in advanced groups 2 and 8, the group enhances their bargaining power and access to market

III.4.3 Groups' common future?

Farmers of the advanced groups (G2, G3, G8, G9), share a common vision for the future. They want to develop the group to become stronger and be able to reach more markets and get higher prices. These groups are trying to find solutions to their issues of marketing (by creating their own market with direct sale) or technical issues. For example, the leader of Group 3 is trying to get support from the Department of Natural Resources to receive solar cells in order to pump groundwater. In these groups though, some farmers feel too old (70 years old) to think about the future.

III.5 Quality control and Organic Thailand certification

III.5.1 Internal Control System: control by farmers

The Internal Control System (ICS) is taught by RRC's officers to farmers the second year and farmers have to implement it before the next control at the end of the second year. This concept refers to the checking of members' farm by members of the group at least once a year. According to RRCs' officers, ICS is very difficult for farmers to implement, officers have to explain many times and go to the field to follow up the process, especially with older farmers. In practice, there are different ways to implement ICS in the 9 studied groups:

1. According to the official rules, some members have to manage the "controlling system" and some others have to be "inspectors". Inspectors (2 or 3) check the farms of the members to see if everyone is complying with organic standards and if there is no offender in the group. Inspectors check the land, the buffer zone, they verify that the contaminated water of the neighbour or of the canal can't reach the land, if the farmer really stopped using chemicals, what inputs he uses and how the rice is stored. Then, inspectors must be accountable to the controlling system's members by recording everything they checked. They will then discuss about possible issues and decide what to do. 7 groups over 9 have this organization because they follow the official rule given by RRC.

An informal inspection becoming ICS: Group 2 – Yasothon – Advanced group

They already had this type of organization before the program but not as much rigorous and official. Now they have exact positions and have to record checking in the book. If someone doesn't follow the rules, first they try to explain and give a second chance. If he still breaks the rules, he has to quit the group and could try again in 5 years (not as part of the program). Inspectors don't advise the exact day of checking. They have a very strict organization to be sure to make rice of quality.

2. In Group 8 (Advanced group) of Chiang Mai, roles are distributed but according to members this is only titles, everyone has to participate to every task. They are only 11 members so it's easier to work together according to them.

3. In Group 1 (Passive beginners' group), inspectors or controllers are not defined. The structure of the group is only composed of the president, the vice-president and the secretary. Every member check on everyone. Contrary to the group 8, this ICS's way to organize might be linked to a lack of motivation for the program. One of the members declared that some members have small buffer zone, not complying with requirements. It means that the ICS isn't really implemented and followed but since RRC's officers never come to check and trust ICS (according to this specific member), it is overlooked.

A case of firing members through ICS: Group 3 – Yasothon – Advanced groups

Thanks to ICS inspections, 3 members of Group 3 were dismissed from the group. They were 30 in T1 but two members were not complying with organic standards. One didn't want to come to meetings and the other one didn't want to build a buffer zone higher and stronger to avoid contamination from close factories.

According to inspectors, the inspection doesn't bring conflicts, it's easy to talk together because they know each other but they try to avoid checking on close friends because it's complicated to be strict with a friend. On the contrary, in the group 6 (Beginners, Surin), one inspector mentioned his apprehension of checking neighbours, he was afraid of the members' reaction when he will warn them about their practices. But now, he is at ease with his role and everything is going well.

III.5.2 Accompaniment by RRCs

RRC officers randomly visit the field of farmers two times per year in each group, at the beginning of the growing season and during the harvest period, some lands are never inspected, mainly because of the lack of officers. In order to proceed with inspections, officers need to receive the budget from the government, which often gets delayed (officers' declaration, 2019). The aim of these inspections is to follow up on the conversion of farmers and give advices to them by looking their land management and their record book. This is preparation process before the certification company's assessment.

RRC: A lack of rigor?

A farmer from Group 1 complains about the lack of rigour of RRC officers: "*If they want to reach international markets or the trust of people, they have to be more rigorous and stricter. And to get more rigorous farmers, farmers have to get better prices*". This farmer blames the fact that some members didn't comply with organic standards especially with the size of the buffer zone but none knows because none check their lands.

This point may rise a problem: ICS could stop this situation but in a group with a majority of too indulgent farmers, that one farmer denouncing a lack of rigour has no power to change things. Also, this group gathers 102,5 rai, it means that if one farmer is fired from the group, the group will be fired from the program because the minimum area for application is 100 rai.

III.5.3 Third-party certification

RRCs work with different outsourced companies/certification bodies: TPS Assess Global Group and Thai GAP 09. But mainly with this latter: the THAI GAP 09 is certifying GAP (Good Agricultural Practices) farmers and Organic Thailand farmers (not IFOAM). They certify organic production since 2016 and issued the first certification in 2018. The assessment is done during the harvest period: October, November in Isaan. Chiang Mai's RRC doesn't hire outsourced company to check the lands. In fact, in provinces with less than 1,000 rai registered (as Chiang Mai), the RRC doesn't have to hire a company because RRC's officers can assess farmers by themselves. Officers assess the land and take samples during the period of June to August. If they find a suspect item or see a suspicious practice, they warn the farmer at the T1 assessment, and dismiss the farmer at the T2 or T3 assessment. But the whole group can continue the program. In Surin, there are around 50 officers from Thai GAP 09 taking care of the control and certification of 287 farmers' groups. The outsourced company checks every farm of a group in T1 and randomly in T2 and T3.

The process in Isaan and provinces with more than 1,000 registered rai:

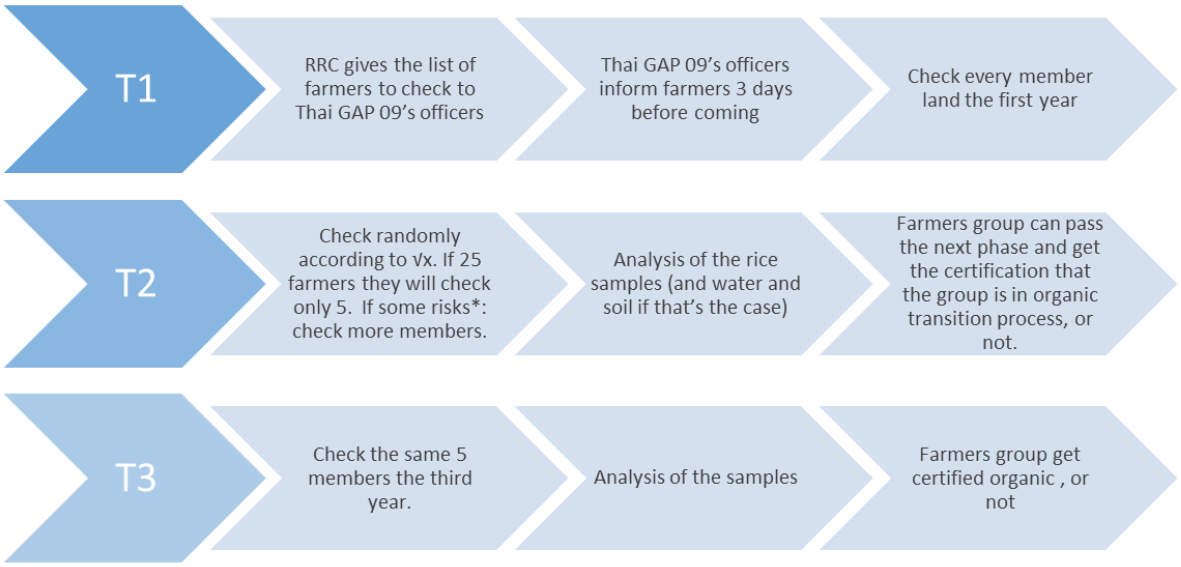


Figure 13 - Control process over the 3 years of program

*If a group has many risky lands (near to factories or polluted water), these lands will be checked with priority. They can become suspicious if the member doesn't record his farming activities.

Checking list according to OT standards:

- Land management: inputs, buffer zone
- Rice plant (if yellow and tall, officers can tell that the farmer used chemicals)
- Rice sample to analysis
- Water - if can come in the field or risk = water analysis
- Soil - if risk of soil contamination = soil analysis
- Rice storage. (Farmers have to buy white bag for the organic rice at 5 THB the bag of 30kg)
- Record book verification

According to the certification body's officers, to take the rice sample: officers from Thai GAP 09 go to the farmer house, look where the rice is stored, ask the farmer to pick up 1kg of rice from a bag and send it to the Central Lab in Bangkok area. If the sample of rice is good but the soil and water aren't, they can't certify the farm. Chemicals are prohibited in the rice analysis but residues of Chromium and Cadmium are authorized.

About rice seeds: farmers have to write in the record book which kind of rice seeds they used. They can buy organic rice seeds or use their own, if that's the case, they have to wash seeds with water. They can do this in T1 and produce "organic" seeds for T2. Outsourced company and RRC don't have means to verify this but they trust farmers and the record.

Breach of the rules

- About 36% of farmers interviewed are very concerned about the decrease of production, especially because they were used to chemicals. According to the Roi Et RRC, they are potential infringers, however the staff is too small to handle all the infringers so they can't avoid them. They heard that after the first check of RRC in T1, some farmers used chemicals again because they only wanted T1 subsidies. RRCs' officers recognized potential infringers because usually they are not involved in activities, in trainings, during visits, they don't want to make efforts.

- RRC's officers in Chiang Mai have close relationships with coordinators of each group. These latter convey the group's problems to the officers. Some members don't understand how to comply with the rules, they don't agree with some rules, they continue burning or using chemicals. If such is the case, the group has to warn the members and if they don't rectify, they are expelled from the group. This, however, can become an issue for the survival of the group within the program. If a farmer is dismissed, and without this member the group does not sum 100 rai, they won't be able to continue the program. Out of the 9 groups studied, 3 are in this situation, they can't expel one member, even if he is not complying with standards, otherwise they won't be able continue the program.

- It is possible to breach the rules with the sample of rice depending on the way to collect samples of the outsourced company. Two versions have been given during interviews: the outsourced company comes and takes samples OR farmers give samples that they took themselves to the company. If the staff doesn't go by themselves to take rice samples, farmers can give organic rice as sample even though they are still using chemicals. According to Roi Et RRC, if officers have doubts about one farmer, they can take the sample by themselves in his field or storage.

Sample's collect. G2 – Yasothon

This group has a peculiar organization when it comes to the rice samples' collect: 3 members of the group collect 1kg of rice in each land (in the field or in the farmer's storage), then the outsourced company picked 7 samples randomly and analysed them. They are now in the process to T3.

Farmers' perception of OT certification: Lack of knowledge

Almost all the members are confused between RRC officers and the outsourced company staff. They don't know the existence of the outsourced company-certification body even if they met officers.

Many members don't know anything about the Organic Thailand certification, especially in the beginner groups; sometimes they don't even know the name of the certification even though they participate on the program. In Group 4, two members are very happy to get the "*paper*" based on the common opinion or suggestions from the leader, but with little understanding about it. On the other hand, some others are aware of the guarantees of the organic certification, "*it's better than nothing*";

they mostly think that they can get a better price thanks to the certification. At least, it will bring trust and recognition from consumers. Some of them are convinced that the best market they can find is the export market, they feel prouder if their production is exported, but they don't know that Organic Thailand certification can't be exported in most countries.

Nevertheless, few members know that it is not possible to sell everywhere and they know that they have to find markets by themselves to be able to get higher prices than conventional rice because "*the low price is not a motivation for farmers*".

In the beginner groups - G1, Organic Thailand is either a mystery for farmers, either they know but they don't care because "*it won't bring them markets or money*" according to them. Most of farmers of this group feel like they already know how to do organic farming and are happy about it and they don't need a certification according to them. They don't believe that they could get a better price. Their only concern is to have a good price for their work in order to get a better future with a strong group.

III.6 Organic markets

III.6.1 Farmers' positioning in markets

Every farmer interviewed (except the G2 - advanced group) is expecting to get support from the government to get better access to markets with higher prices. Back to the period of Thaksin's government, farmers had very good prices (up to 20 THB/kg) for selling conventional rice, they somehow miss this period and would like to get a similar support again.

Market channels:

- Sell on their own market: direct sale to consumers via online or phone calls orders (Groups 2 and 3)
- Sell on local organic markets: direct sale to consumers (Groups 3, 8 and 9)
- Direct sale to grocery shops (Groups 8 and 9)
- Sell to a MoU rice mill (Groups 1,4, 5 and 7)
- Sell to a rice mill (Group 6)
- Sell to a private company (Farma, Redbull…) (Group 8)
- Sell rice seeds to RRC (Group 2, 3, 5 and 9): The RRC established MoU (Memorandum of Understanding) between them and farmers' groups who are producing organic rice seeds. The MoU states that farmers can't sell anywhere else and can renew this kind of contract every year. RRC buys rice seeds from 20 to 22 THB/kg and use those to provide rice seeds to every group registered in the program at the beginning of T3.

Some groups are part of cooperatives when it comes to selling while others groups are playing individual. It means that if all members agree on which rice mill is the best for them, they will sell to the same rice mill. Or, each member of a group sells wherever he wants, but this is unusual (2 groups over 9).

Advanced groups. They have their own rice mill and are managing the marketing:

- Group 2 is buying rice at 20 THB/kg to members and directly sell to the consumer at 40 THB/kg, the group has more demand than supply and farmers are very satisfied of this organization and market access. This is the only group working without any middlemen satisfied with the price they get.

- Group 3. The group has his own rice mill buying members' organic rice at 12,5 THB/kg (sold packed at 50 THB/kg) and rice seeds at 16 THB/kg (sold at 26 THB/kg). The price difference wasn't really explained by members but since they can get share of the rice mill, their rice is bought at 12,5 THB/kg but they get dividend at the end of the year thanks to the sales of the rice mill which allows them to increase their returns. The manager would like to buy at higher prices to members but he doesn't have enough demand of organic rice on the market. In 2019, they sold 28 tons of organic rice on 30t. They need orders. They have to sell the 2t of organic rice left at the same price than conventional one (38 THB/kg instead of 50 THB/kg). This group is also selling rice online (Facebook). The manager thinks that IFOAM is a better certification than Organic Thailand but it is too expensive for them to pay for it. They would like support to get it because they would have access to more markets.

- Group 8. Members are not selling at the same place: it can be direct sale on local markets (60 THB/kg), to agricultural cooperative (18 THB/kg) or to a private company (Farma ~ 16 THB/kg).

- Group 9. Members sell online to consumers and grocery shops up to 80 THB/kg. The surplus goes to usual rice mill at 8 THB/kg. These prices are for Jasmin rice.

The program didn't bring big changes to advanced groups in terms of marketing. Now, the groups having Organic Thailand certification can sell organic rice with the organic label but the demand isn't enough compared to their production. Groups already had their own markets before the program, they are still trying to build their own market channels and get good prices, the ones who struggled before still struggled because of the low demand. However, when groups are selling under the organic label, they obtain a better price than without the label: 50 THB/kg for organic against 35 THB/kg for conventional in the Group 3.

Beginner groups. These groups don't have their own rice mills.

- Groups are selling to MoU rice mill because they wish to get a better price than normal rice mills. Group 7 is not satisfied with the MoU rice mill's prices but they continue to sell there because it is convenient and they don't alternative. Farmers have to show the certification's document to the rice mill to prove that they are in organic conversion process in T1 and T2.

- Farmers can't sell to every rice mill, usually they choose the closest ones to avoid high transportation costs.

- Farmers usually don't know where the rice is sold after the rice mill process. They chose to sell to the cooperative because the scale is not faked as it is usually the case in other rice mills.

It is is too early to draw conclusion about beginner groups' experience since they are in T1 or T2. Notwithstanding, based on T3 groups' experience we can suggest that the program won't bring new market channels to those under T1 and T2.

As we can see on the table below, markets are a big concern for farmers involved in the program, 69% of the groups are worried about it.

Province	Worries		
	Markets	Lack of water	Decrease of production
Chiang Mai	4	0	3
Roi Et	9	0	0
Yasothon	7	3	1
Surin	7	7	2
Total	27	10	6
%	69	26	15

Table 5 - Main worries of the 39 interviewed groups

III.6.2 Economics comparison of the organic and conventional markets

According to the Surin RRC, production cost in this province is: 3 500 THB/ conventional rai and 3 000 THB/ organic rai. We also collected data from 46 farmers in Isaan and presented the average value of their responses below. We choose to do an economic comparison on the Isaan area (7 groups – 46 farmers) because we only studied two groups in Chiang Mai, then we don't have enough data to be able to give a real idea of the situation. Moreover, Chiang Mai and Isaan's practices, production

costs, yields, markets and prices are different. The aim of this section is to see the sustainability of organic rice farming as part of this program.

Conventional production costs (THB/rai)

Rice Seeds (per year)	**141**
Fertilizers	**547**
Herbicides	251
Pesticides	100
Harvest	**626**
Plough (*2)	**533**
Sowing machine	180
Remove weeds	250
Human labour	1287
Total (maximum)	**3665**
Total in average*	**1847**

Organic production costs (THB/rai)

Rice seeds (per year)	**141**
Sowing machine	180
Harvest	**626**
Plough	**508**
Organic fertilizers	280
Remove weeds	250
Human labour	1281
Total (maximum)	**3266**
Total in average*	**1275**

Table 7 - Production costs in Isaan

*According to usual farmers' practices. Average production costs are the essential production costs. All the farmers are spending money for these inputs while not all the farmers are hiring labour, not all are renting sowing machine….

According to farmers' declaration, organic production cost is 11 to 31% lower than conventional production cost, but what about the yields and prices? These elements are taken in account in the following table:

Production costs' difference between conventional and organic rice in Isaan

	THB/rai	Difference	% of decrease
Organic production costs max	3266	399	11
Conventional production costs max	3665		
Organic production costs avg	**1275**	**573**	**31**
Conventional production costs avg	**1847**		

Table 6 -Production costs' difference between conventional and organic rice in Isaan

***official prices (maximum) against prices seen on fieldwork (average) in 2019 for jasmine rice**

- Conventional yields are usually around 429 kg/rai in Isaan and 320 kg/rai in organic. The yields' difference between conventional and organic is 109 kg/rai, i.e. 25%. However, organic yields are changing according to farmers practices, lands… 8 interviewed farmers had the same yields in organic than in conventional in Isaan and 4 interviewed farmers had more yields in organic than in conventional.

- Selling prices of rice in Thailand are evolving each year depending on policies and markets. The official maximum price for jasmine rice in conventional farming is 16 THB/kg, but in reality, the price given to farmers depends on the rice quality and on the rice mill who is making the prices.

The average price is around 13 THB/kg. In organic farming, as part of the program, farmers can deal with MoU rice mills who should give them +0,5 THB/kg in T1 and T2 and +2 THB/kg in T3, organic farmers of the program could receive from 15 to 18 THB/kg of organic rice.

- The profit (Yields*Selling prices - Production costs) goes from -37% to -5.5% between conventional and organic profits, without the subsidies given to farmers within the program. Thanks to the subsidies of the program, organic farmers can go up to 7,525 THB of profit per rai, i.e. 102% more than conventional profits. With subsidies, organic farmers are automatically getting more incomes than with conventional practices, at least 8% more profits.

The minimum salary in Thailand is around 102,000 THB a year, according to NSO website; and the average income of farmers is around 139,000 THB a year but this number included Poo Jad Kan (big investor in farming). The majority of farmers' incomes is around 50,000 to 100,000 THB a year. Let's take the minimum salary of 102,000 THB a year as a base.

In average, the 48 farmers interviewed in Isaan have 21 rai. A farmer needs 20 to 25 rai to reach the minimum salary in T1. In T2, the farmers need 17 to 20 rai to reach the minimum salary and in T3, from 13 to 16 rai. Interviewed farmers have enough to get the Thai minimum salary. However, after the program, without subsidies, a farmer needs 29 to 50 rai to reach the minimum salary. Besides being a Poo Jad Kan, a farmer has no choice than having another source of incomes, or doing two crops a year.

IFOAM certification

With IFOAM certification, farmers can usually get a better price for jasmine rice (17 THB/rai at least), the yields are around 320 kg/rai and the production costs are around 1275 THB/rai on average and maximum 3266 THB/rai. IFOAM certification costs are around 650 THB per rai and farmers don't have subsidies. The profit is around 1524 THB/rai minimum and 3515 THB/rai on average once the farmer paid his/her organic certification. It is more profitable to convert into organic as part of the program because the certification costs are paid and farmers get subsidies. However, after the program, IFOAM or OT profits are similar but the marketing situation is quite different.

III.6.3 Rice mills' point of view

MoU rice mills

In this program, a MoU is a price agreement between farmers and a rice mill: The rice mill adds 0.5 THB/kg in T1 and T2 and 2 THB/kg in T3 for jasmine rice. This money is not paid by the RRC, but the rice mill. In this document (MoU), farmers sign for an approximate quantity of rice that they will sell to

the rice mill, they can choose to sell 10% as well as 90% of their production to the rice mill, there is no minimum quantity.

There are 5 MoU rice mills in Yasothon, 6 in Roi Et, 8 in Surin and none in Chiang Mai. The advantages for rice mills are to know the quantity expected for the next year, to get discount of loans with the Agricultural Bank and to earn quotas to export to EU. Few rice mills want to sign MoU with farmers because they have to buy rice at higher price and they don't have markets for Organic Thailand rice yet. Also, some rice mills don't want to buy organic rice because it's difficult to manage two types of production (separate organic and conventional rice).

During this research work, three MoU rice mills were interviewed. Rice mills' managers mentioned that OT certification is a good start to get international guarantees and they want to support farmers in this organic certification's process.

- The group 1's rice mill buys OT rice at higher price than conventional rice but it sells the both at the same price, 38 THB/kg on the domestic market. This rice mill buys IFOAM, EU and COR jasmine rice at 19 THB/kg and can sell it at 50 THB/kg in Europe and America. "*Organic Thailand certification is meaningless*", rice mills have no advantages to do MoU with farmers according to the rice mill's owner. He's thinking about stopping MoU in 2020 even if he would like to continue to support farmers in transition.

- The group 5's rice mill buys conventional rice at 16.5 THB/kg and organic rice 17 THB/kg in T1 and T2, 19 THB/kg in T3. OT rice represents 70% of his purchases, i.e. 280 tons of rice per year. His main market for OT rice is in Singapore where he can sell at 55 THB/kg. In the domestic market, he sells at 45 THB/kg to the *Bangkok Thai Rice Market Co*., while he sells conventional rice at 35 THB/kg exclusively in Thailand. The owner also buys USDA and EU certified rice. The market and prices for this rice mill is satisfying but the owner still feels the MoU contract as a "*burden*" because of the high buying prices. He encourages farmers to get international certification such as IFOAM because "*organic farmers with international certification could sell at 20 THB/kg, getting access to more markets and higher incomes*".

- The group 7's rice mill buys Organic Thailand rice since 2017. Around 20 organic groups are selling there, representing 20% of the rice mill production according to the vice-president of the company. According to him, the rice mill buys the rice from 16 to 20 thb/kg depending on the year and the quality of the rice (depends on the shape of the rice, the beauty and if there are others varieties mixed with jasmine rice). Yet, farmers from G7 declared being paid from 14 to 16 THB/kg by this rice mill because of the low quality of their rice, with which they don't agree, they are complaining about the low reliability of this rice mill and MoU contract in general. The rice mill's owner doesn't even know that he cannot sell OT rice all over the world, he's waiting for demand for OT but meanwhile he is selling the OT rice in his own shop around 90 THB/kg.

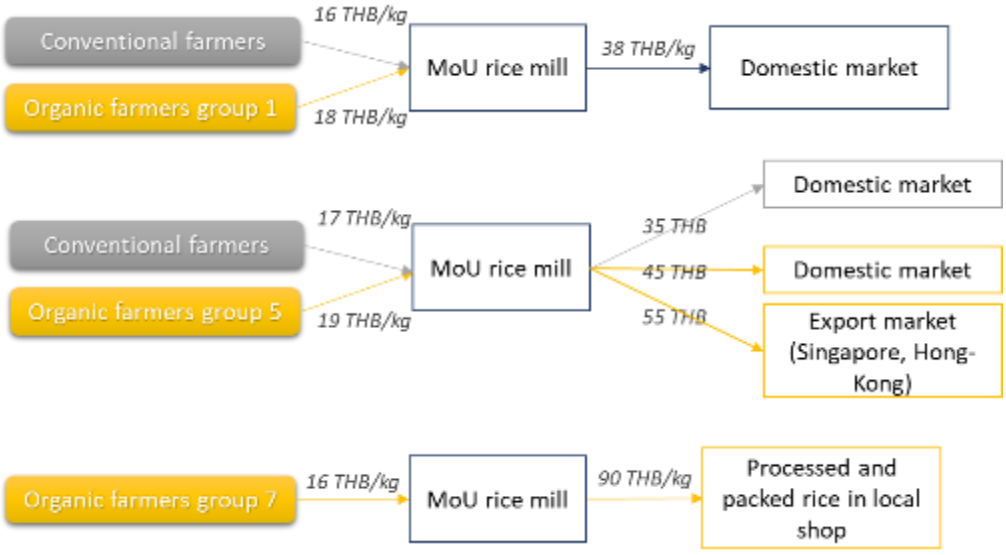


Figure 18 - Buying and selling prices of OT jasmine rice of two MoU rice mills in T3

Others testimonies

According to a rice mill's manager, farmers want Organic Thailand because the government is supporting it but this is not a good thing either for farmers or for rice mills because there is no market for this organic certification. The government planned to sell the production to China but China doesn't want and asked for IFOAM rice according to a manager. In addition to not having markets, the OT certification is not strict enough (some farmers continue the slush and burn practice). According to a rice mill's manager, the Rice Department should upgrade the quality of the certification. The demand for organic rice is increasing since Thai people's concern about health issues is increasing. However, according to a rice mill's owner, the only objective of Thailand is to export the organic rice while Thai people eat non-organic rice; he is hoping that the project to sell OT rice to hospitals and schools will come soon to reverse the situation and that inhabitants can benefit from this organic food.

Group 4 (Passive beginners' group – Roi Et): A cooperative as rice mill

The cooperative is currently helping farmers to convert to organic farming and will buy OT rice as soon as there is OT certified rice in the area. The cooperative has a MoU with supermarkets (Big C, Lotus, Amway) who only ask for jasmine rice. The hospital is also asking for 300 tons of organic rice. A lot of foreign companies from China, Japan and Europe are asking for organic rice too, but they can't sell Organic Thailand rice there, they need IFOAM. The demand for organic rice started in 2017 according to this owner. He plans to buy Organic Thailand jasmine rice around 20 THB/kg when farmers will have CERTIFIED rice. The selling price will be around 50 THB/kg.

Group 2 (Advanced group - Yasothon): Own rice mill

Their vision of markets is different than others rice mills. This group produce rice seeds and rice. They process their rice by themselves with their own rice mill and packaging machines. They sell the rice seeds to the RRC but they make a point of selling the rice directly to consumers and avoid all middlemen. For example, Charoen Pokphand (The biggest agrobusiness company in Thailand) contacted the leader to order some organic rice but she didn't want because she wants members to sell by themselves to people, she wants to feed villages with safe food. All the members weren't agreed to this decision but they voted to take it.

III.6.4 Governmental organizations' point of view

The Rice Department announced that farmers from the Organic Thailand certification's program could get 20 THB/kg for jasmine rice. In this program, the Rice Department chose to certify OT and not IFOAM because OT was created by the Ministry of Agriculture and Cooperatives of Thailand. According to the RRCs and others governmental institutions, this price is unattainable because Organic Thailand certification is weaker than other organic certifications. Only few Asian countries (Singapore, Hong-Kong) are accepting OT rice. RRC officers don't think there is enough demand for 1,000,000 rai of organic rice in Thailand, but there is enough in the international organic market.

In the domestic market, companies of agribusiness and grocery shops are buying OT rice and public institutions such as hospitals and schools are progressively asking for organic rice. Within 3 years, all the hospitals of Yasothon will buy Organic Thailand rice (Land Development Department's interview, Yasothon). Otherwise, farmers have to find their own market channels or sell on organic markets directly to the consumer.

RRC's officers think that only the ones really committed and motivated will continue organic farming after the program finalised. Access to market is the main constrain for farmers and the most common reason to stop growing organically. If there were better access to market even farmers who joined the program to receive subsidies would continue organic farming,

According to RRCs, the 1,000,000 rai project is good because the government is giving means to farmers to convert to organic farming with certification but it is better to support a certification with international organic standards to provide farmers a wider market.

III.6.5 Agrobusiness companies' point of view: Royal Umbrella Brand

Figure 19 - The new organic Hom Mali rice

Royal Umbrella Brand belongs to Charoen Pokphand Intertrade, the biggest agrobusiness company in Thailand. It is currently developing organic products destined to exports and to the domestic market. In July 2019, they exported their first organic jasmine rice to Netherlands, Portugal and others Europeans countries with EU and USDA logos (as we can see on the picture). The domestic organic market will be opened at the end of 2019. The organic demand is booming in the world and the demand in Thailand is increasing too but the consumer is still not enough educated on this topic according to interviewed employees. After educating farmers and consumers, the market will certainly grow and will be able to absorb the 1,000,000 rai organic production, but this is a long-term process. They don't plan to sell organic rice with the OT logo in Thailand or anywhere else. OT is not powerful enough to compete with others organic standards more famous all over the world and the country: OT is unknown by consumers and OT standards are below EU/USDA standards. The company focuses on organic consumers already existing (middle-class to superior-class) who are used to organic products certified EU or USDA.

According to this company, the program supports growers and exporters because farmers get more incomes (by MoU) and exporters get more quotas to export in EU. If every actor of the supply chain helps each other, they can build a good domestic and international organic market.

III.7 Actors' preliminary assessment of the program

III.7.1 Farmers

According to farmers, the program provides knowledge, financial support, a guarantee with the certification and connections; all the interviewed farmers stated to be satisfied with the program. Interviewed farmers consider that they have a better standard of living doing organic farming, not necessarily economically but certainly health-related. Nonetheless, farmers have suggestions to improve this program and the support provided to farmers in general:

Suggestions about markets

71% of interviewed farmers (58 farmers) mentioned the need of getting better access to markets. A higher price for organic rice, at least 20 THB/kg, would encourage them to continue organic farming and attract conventional farmers in this farming practices' transition. These farmers don't

know where to sell after the program, they don't know which rice mill is the more reliable and where to sell their organic production. They are complaining by saying that most programs are good in supporting farmers, however none of them support the access to markets, being the most important leverage point to maintain stable and decent incomes. "*The farmer is not a seller*" (Farmer of the group 2, Yasothon).

In order to get this support, 3 farmers proposed to stop subsidies and start supporting access to markets and better prices instead. Some other suggested to split allocations in order to be able to help a bigger number of farmers. Although this idea of subsidies' cut might not please everyone, especially those who are part of the program only for subsidies.

Three groups (over 9) asked for machines for planting, harvesting and for processing and packaging. Farmers are aware that they need to avoid the middlemen to get a better price, they would like support to get their own rice mills so they can manage the marketing by themselves.

Demand of more advanced trainings

Regarding the content of the program farmers are generally satisfied. However, some of them ask to enhance the trainings. One group would like the T2's training to be provided to every member in the group (instead of only to leaders in T2). Another group knows the existence of biofertilizers but don't know how to do it (because they don't receive any help from the LDD as other groups), they are asking to be taught about it because this is an important organic practice. All the groups were expecting rice seeds from the first year of the program.

Three farmers asked more technical and in-depth information about organic practices in order to increase the quality of the rice and their yields. They are complaining because they feel a gap between theory and practice.

Overall, farmers are satisfied with the trainings because they are able to increase their knowledge; they feel supported. Around five farmers are aware about the low availability of RRC's officers for each group.

Checking

Two farmers (from Group 4 and Group 7) complained about the RRC and outsourced company's lack of strictness, they suggested to analyse samples of soil instead of only of rice, and to find another organization in charge of the inspection because they seem to overlook some infringements. According to farmers, some pass T1 and then stop cheating because they have subsidies. This is unfair according to them. One farmer mentioned another issue, sometimes, the

buffer zone separating organic and conventional farms are too small, the farm shouldn't pass to the next phase but they pass because none come to check this land, luckily for the farmer. They don't come to every land so they don't know and they trust the work (ICS) of the group.

Other government's field of action

- Farmers are concerned about how to keep certification after the program. They ask for financial support to pay for sample analysis each year, but according to RRC, farmers won't have to pay to get certified after the program.

- The issue of water is one of the main concern of farmers, 71% mentioned this concern in Isaan because they faced drought last year. Groups are asking for different kind of support in terms of water: help to build ponds (machines), get an irrigation system and get solar panels to pump the groundwater.

- Two farmers asked for the government to stop the importations of chemicals, so the situation can improve for every farmer and inhabitant of Thailand.

In general, members don't have real expectations with this program so they are all overall satisfied. The program is good, it enables the large development of organic rice farming, the subsidies help to adjust the land (ex: buffer zone) but the government should support better access to market for organic farmers, instead of only providing subsidies.

III.7.2 RRC

RRC's officer also provided some suggestion in order to improve the program. Their main answer was to give less financial support to farmers, especially by removing the first year's subsidies. This measure would help to keep only the motivated and engaged farmers, because the program attracts farmers with "wrong motivations". In Chiang Mai, officers complained about the 100-rai minimum's rule because some groups are disturbed by it, if they dismissed a farmer from the group, the whole group can't continue the program because they will pass under 100 rai.

Officers also suggested maintaining the program after T3, to follow up with farmers and continue to support them over the long-term. The support should include a price guarantee for farmers and help them to access markets. In order to find more markets, the government should upgrade Organic Thailand standards based on IFOAM standards to be able to comply with all countries' regulation. Markets can be improved by providing processing machines to farmers so they can sell without middlemen. Also, RRCs would like to get more budget and staff for a proper implementation of the program.

III.7.3 Others actors involved

An inaccessible program for some farmers

The interview with the founder of Sustainable Agriculture Foundation[2] raised this issue. The National Program for Organic Farming can be a problem because several former certified farmers groups are split up and disturbed. Indeed, farmers groups with organic certification (IFOAM for example) don't have the right to apply to the program, especially in Isaan. Then, some farmers quit their initial group to apply to the program with a new one. This is the case of one farmer in the Group 2 in Yasothon, she quit her initial group* with IFOAM certification to join a new one and be able to participate to the program. The organization of the initial group can be disturbed and it can create tensions.

According to the founder of the Sustainable Agriculture Foundation and some member of it, it's unfair to prevent former organic farmers to apply because they turned to organic few years ago without help and they would like to finally get some governmental support. Those farmers had to borrow money from the Bank while other can benefit from financial support. All organic farmers, former and new ones, deserve to receive financial support from the government. She thinks that some of the new farmers will stop doing organic farming after the end of the program, especially if they don't have markets to sell their products.

*An illustration of this situation in the study case n°2

A farmer of the Group 2 had IFOAM certification in 2016 and was a part of a big group initially constituted of 290 members in Yasothon. She decided to participate in the program in 2017, her certification expired and she left her initial group to join the Group 2. Maybe she will try to get IFOAM again in the future but she does organic farming for health, not for certification because certificates are useless according to her, she currently has the same price, if it's not better price, without certification (because she's a part of an advanced group with their own market completely without middlemen and with high organic demand).

Since the program, the initial group of this farmer, lost 40 to 50 members. The leader is not mad at them, but he is disappointed and doesn't understand. For him, this is like being graduated from university (comparison with IFOAM) and quitting it to go back to high school (comparison with Organic Thailand), it doesn't make sense. The only rational reason is money. If members want to come back to the group after the program, they can but they will have to start over the process to get IFOAM (3

[2] Founder of Sustainable Agriculture Foundation, 1999. This organization strengthens farmers in conversion to sustainable farming by providing trainings and integrate farmers in a network.

years). This loss of members hasn't affected the functioning of the group since they are 1,000 farmer and they manage a rice mill, which enables the group to keep operating.

A certification without market

The interview with a founder of a cooperative specialized in sustainable farming and Fair trade, gave us another perspective of the program.

"This program makes no sense"

According to him, this program is unsustainable, the inexperienced farmers will go back to conventional farming as soon as the program stop because the Rice Department didn't think about the marketing aspect. The RD wants to convert 1,000,000 rai, but this organic rice's supply is too much in relation with the demand, so the market won't be able to absorb it and expand that fast. The program provides the farms with the Organic Thailand Certification but according to him, this certification is useless because it can't be sold on international market and domestic consumers don't trust this label. Farmers are not interested in certification; their unique motivation is subsidies according to him.

CHAPTER IV: DISCUSSION

I Is there coherence between Theory and Practice?

The official document published by the Rice Department about the program was presented in the first chapter of this paper. The purpose and aim of the program are explained in it, including the willingness to increase the organic rice area, to give a better standard of living in terms of health and incomes, to improve the competitiveness of the organic market and to increase the organic price up to 20THB/kg for jasmine rice. The following analysis reviews the current situation of farmers in relation with the program based on our literature review in regard with the concepts of organic transition, the collective action, the actor-network theory and the analysis done about the organic transition in others countries all over the world.

I.1 Farmers' enhancement: an individual and collective construction

The following discussion focused on farmers involved in the program and engaged in organic farming in the long-term. As we have seen in the Results' chapter, some farmers are a part of the program without the long-term plan of growing organically after the program finalised. The farmers' enhancement mainly concerns invested farmers. We distinguish invested farmers from non-invested based on their previous experience in organic farming, their reasons for participating in the program, their willingness to attend to the training and the part of their land registered in the program.

I.1.1 An opportunity for farmers: self-confidence given by the program

The program creates groups, trains farmers which gives them knowledge and a framework of organic conversion, give subsidies and at the end, an organic certification. The purpose of the training is to train farmers on organic farming; they learn how to be rigorous in this new activity by keeping records of their practices for example. Once the program finalised, farmers should have enhanced their knowledge and practice.

Interviewed farmers made us understand that the government involvement is important to them. It is also an opportunity for farmers to participate in a governmental program; it gives them hope to cope with the agricultural crisis. By knowing they are supported, farmers are more confident to start an organic conversion. This program attracts lots of farmers in the whole country, farmers who wouldn't have converted without the program. In fact, some farmers mentioned that they wanted to convert before but they were very concerned about stopping chemicals inputs and seeing their production decrease; thanks to the program, they are less afraid and more confident because they know that they have subsidies to tackle this situation. The program can attract young farmers, one young officer told

that she would like to join the program and she enrolled her mother in it. Another young farmer of 20 years old in Chiang Mai is registered in the program and he is satisfied with it.

However, farmers are not only supported by the Rice Department into their organic conversion, others organizations are supporting them as well (mainly the Agricultural Department and Land Department). Their role is essential for farmers because it supplies them with organic inputs, which is indispensable to do organic farming and be able to get the organic certification. The program alone is not enough for farmers to carry out the organic conversion. In other countries, the organic conversion is mainly done only by the government (See

Similarities between 11 countries and Thailand (IFOAM, 2017; ICIMOD, 2018; Wang, 2012; Karuppaiyan and Rahman, 2008). India is trying to create a network of supporting organizations (governmental or non-governmental) helping farmers in their conversion and gives them a stable support and framework. The cooperation between organizations in an organic conversion could be interesting to implement in Thailand as well.

I.1.2 A birth or maintenance of collective action

This research analyses the conversion to organic rice farming in Thailand through the program's implementation by interviewing the more important actors involved in it. Nevertheless, authors such as J.P Darré, analyse a change by studying local dynamics and farmer groups' initiatives. In our context, the program enables the groups' creation (beginners' groups) but also supports former farmer groups composed by experienced farmers in organic farming. Therefore, the analysis of organic conversion by the local groups' approach is also possible and can be interesting to understand to what extent the program finally helped former groups.

Whether it is former organic farmers or new organic farmers, how did they feel before the practices' changes? What pushed them to do organic farming, whether it was external or internal factors? The general context of our research in Thailand is the desertification of the countryside and the ageing of the agricultural population. Interviewed farmers (55 years old on average) are afraid that their heirs won't take over the family farm. Especially in Isaan, farmers faced drought problems for several years. The production cost is too high for conventional farmers, overall for small-scale farmers; interviewed farmers have 18 rai on average (i.e. 2,9 ha). Health concerns are increasing and farmers are afraid of the future. Their incomes are low due to unstable markets and public policies of the past years. Farmers started organic farming to reduce production costs, improve their health and increase their incomes. Individual farmers are converting by themselves but usually farmers create groups to facilitate the conversion process, especially to get access to any kind of support.

Out of 58 farmers, 44 were already experienced in (uncertified) organic farming before the program; on average, they converted in 2012. Of 9 groups, the advanced ones (4 groups) were already formed before the program in order to convert to organic farming. They started the conversion before the program and saw the program as a way to reinforce their initiative and create a collective change with the support of the government.

A change of practices within group comes with social interactions (Darré, 1999). The reflection and the motivation to change is carried by farmers. Their behaviour is influenced by collective ways of thinking and the change is possible if the farmer who wants to do it is surrounded by farmers having similar mindset. The research confirmed this point. Farmers told us the difficulty of not being concerned about others farmers or villagers' warnings about the risks of organic farming. In fact, they had to face negative opinions about their willingness to change, and without the group some might have given up. They needed mental strength to face this and the group gave them the support. The group, by discussion and ideas confrontation between members, enables the adaptation of ideas and norms' creation. The group is a framework and if members don't follow norms and rules of the group, they can be dismissed from the group. The program gives rules to farmer groups, but each farmer group is also creating their own rules and norms throughout time. This has been observed in advanced groups because they have created their groups before the program. Groups had their own organization, own rules of banishment… and they adapted them according to the program's rules.

I.2 Creation of a network and limitations of the program's governance

I.2.1 The Network's limitations

The program allowed the creation of a new network in order to complete successfully the project. The following scheme summarizes the principal actors coming up in this research and those with a main role in the program's implementation and accomplishment:

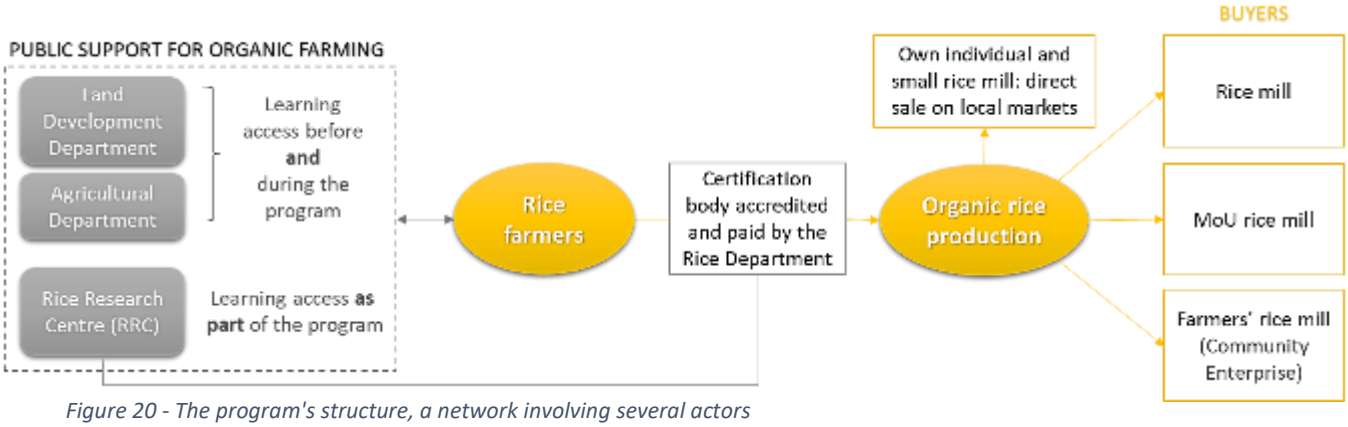


Figure 20 - The program's structure, a network involving several actors

The Actor-Network Theory (ANT) was explained in the first chapter. ANT can be used to analyse an innovation; here we are interested in an agricultural transition to organic. We can use the work of Quiédeville and al. (2018) to understand the network's creation in our situation. To create a coalition, actors have to pursuit a common aim. To reach this goal, a central actor is essential to manage every actor of the network. The central actor is the government, more precisely the Rice Department, who delegates the work to the Rice Research Centres collaborating with other actors. In 2017, the central actor (also described as the obligatory passage point, OPP on the following scheme) set the common objective of increasing the organic rice area to improve the country competitiveness and farmers' standard of living. The Rice Department is the one deciding the role of each actor in order to achieve the objective: when actors accepted these roles, it created a sociotechnical consensus as Mahil and Tremblay (2015) described. We are currently in 2019, in the "enrolment" process, each actor is acting to reach the common aim, the program is implementing and should end in 2021. The implementation of the program is analysed in this research and some limitations appeared. The following scheme represents the main actors and their respective small goals in order to reach the common aim, as well as the obstacles preventing the objective to be achieved.

Figure 21 - ANT scheme of the studied program, inspired from Lin and Wang, 2014

As conclusion, we can highlight some weaknesses on the governance aspect of this program. The Rice Department, central actor, gave objectives and roles to others actors to reach it. But the clarity and the balance in the relations between actors are questionable.

For instance, the Agricultural Department and Land Development Department have a major role in this program without really being a part of it. In fact, officers from the Rice Research Centres (who implement the program and steer farmers in their conversion) never mention the two other institutions to farmers, while they can provide them important items for their conversion (rice seeds, cover crops seeds, biofertilizers). There is a lack of interactions between the different supporters involved in the organic conversion which weaken the final results and minimises farmers' possibilities and means to complete successfully their conversion. Even with this lack of interactions, the majority of the groups know these support's possibilities and benefit from them, but some groups still ignored them.

There is also a lack of involvement in the design and implementation of the program by NGOs. Even though the program is similar to the ones designed by other organizations, the Rice Department didn't take advices given by GreenNet Foundation, which experimented in organic farming since decades. The consequence is that this program's implementation is dubious in terms of organic farming in practice and marketing.

The governance also lacked in terms of relations between MoU rice mills and farmers. Some farmers feel swindle by rice mills while rice mills feel that they can't do better in terms of price. Dialogue is difficult between these actors and the central actor isn't helping with this situation- As a result, it is difficult to reach satisfaction from both sides. In Sikkim, India, the local government collaborates with NGOs, it creates a wider network and gives more opportunities to farmers to achieve their conversion more easily in terms of knowledge, inputs and markets.

In the same line, the relations between Rice Research Centres and farmers are perfectible. Farmers complain about some aspects of the program especially the control and the training (see the Results section), other farmers are not informed about the course of the program, the certification… This research sheds light on this discrepancy between the two main actors, not the side at fault.

The program created a network with several actors and created relations between all of them with the to reach individual small goals in order to achieve the common objective set by the government. This great aim is hampered by some obstacles, regarding external factors from the network but also internal in relation with social interactions between actors. The sociogram below shows the reconfiguration of relations by the program and the lack of relations between some actors:

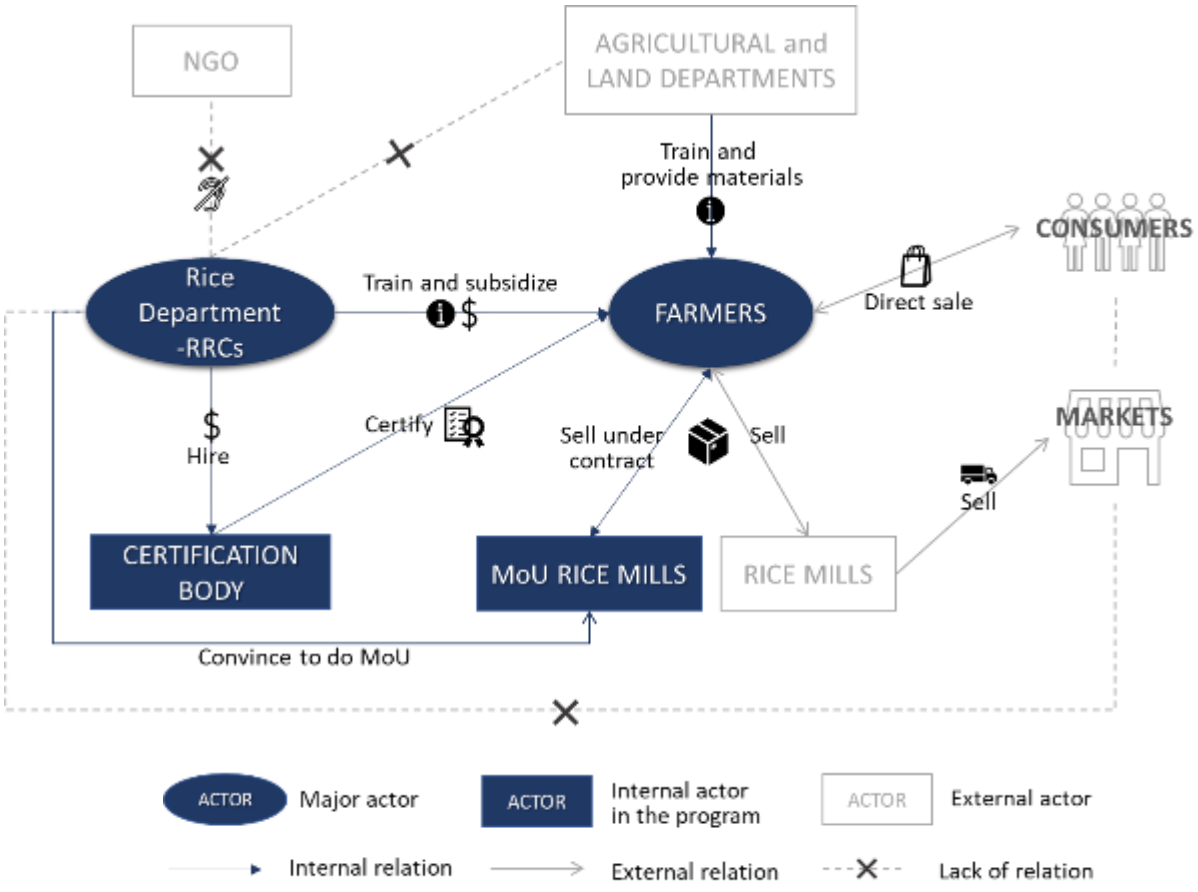


Figure 14 - Sociogram - Relations inside the program

I.2.2 Lack of knowledge from every side

When the interviewer asked, “what has the program provided you?”, farmers usually have no answer, especially farmers from beginners’ groups. When we asked about economic benefits, those who converted for health reasons stated no benefits. However, according to other members, the program only brings money (thanks to the subsidies, not markets).

The Group 1 in Yasothon shared their willingness to establish a MoU with a rice millexporting to Japan and America. Farmers currently believe that they might be able to sell their organic production internationally, but they don’t know that this rice mill is exporting organic rice under IFOAM certification and not the Organic Thailand one. They were happy with the idea of exporting their production in 2019 thinking they might get a higher price, around 20 THB/kg for jasmine rice. Unfortunately, they may be disappointed to learn thatOrganic Thailand certified rice is not accepted in every rice mill and not at the same price than IFOAM rice. For now, they don’t make difference between certifications. The lack of knowledge about marketing possibilities is usual within the interviewed groups, but also in rice mills. A rice mill from Surin didn’t know where to sell the Organic Thailand rice, the owner thought that he could sell this rice internationally; he didn’t know that not every country accepts this certification. Also, we noted a recurrent lack of knowledge about the

characteristics and the implementation of the program. Farmers usually register to the program following their relatives without knowing anything about it. They trusted their siblings or neighbours but didn't inquire about the program before starting it. One of the consequences can be that a farmer from G1 registered only 6 rai as part of the program, while he has 9 organic rai, because he didn't know about the subsidies he could receive.

I.2.3 Lack of global organization

The Rice Department provides subsidies to farmers participating in the program. But these subsidies can lure the "wrong" farmers according to interviewed officers from RRCs and farmers themselves. In fact, some farmers registered in the program only to get subsidies and stop organic farming at the end of the program; these farmers are not ready to convert in the long-term. One farmer, over the 58 interviewed, clearly said that he was doing the program only in order to get subsidies. We can think that it's understandable that farmers want to get monetary benefits from the government but this money was intended for farmers in conversion to organic farming, in order to increase the organic rice area in Thailand. The result can be that the government spend money to reach this goal and at the end of the program, the goal could not be reached because of this issue. This is a money loss for the government, money which could have been used to subsidize more farmers, to provide physical support such as materials for organic practices, rice mills for organic farmers groups or to support the marketing aspect.

The training provided by the program can be criticized. Training days are really quick, RRC officers mention organic principles without showing in practice, this is what is missing according to farmers. The small number of officers prevents this possibility to show in practice because it requires more time to spend with each group. Nevertheless, according to professionals in organic farming and managers of supporters' organizations to organic farming, farmers who are converting to organic farming really need to be accompanied, they can't understand and interiorize the principles of organic farming, the requirements and all the knowledge in one or two days. The noticed lack of knowledge during interviews may be a consequence of the training given by RRCs. In Sikkim, India, trainings are given by role model farmers, which may be a good idea to add more practice instead of theory.

The officer limit is 7 per province, while there are provinces with more than 300 farmers groups. The number of officers isn't proportional to the number of farmers groups. Moreover, the program endured a cut of budget in 2019. Chiang Mai's province passed from 12 to 8 groups in 2019, they had to dismiss groups from the program to be able to financially support the remaining 8 This situation shows the government's excessive ambition compared to its real financial and technical

capacity. There is a gap between the government's willingness and the application possibilities or capacities.

I.3 Limitations of OT standards and quality and compliance control

Organic Thailand (OT) is a national certification created by the Thai government. Organic standards related to this certification are available in the first chapter of this thesis (III.1).

The fact that farmers can use conventional rice seeds the first year of the program in order to use them and to get an "organic" production can appear as a limit. Officers from the certification body assure that farmers can use conventional seeds but they have to wash them. Actually, IFOAM also authorizes the use of non-organic seeds under some conditions:

"*When organic seed and planting materials are not available in sufficient quantity or quality for the required variety or equivalent varieties, in-conversion materials may be used. When none of these are available, conventional materials may be used provided that they have not been treated with post-harvest pesticides not otherwise permitted by this standard*." (IFOAM, 2018)

IFOAM standards seem more framed than OT even if they both authorize non-organic seeds during the conversion period. Yet, rice mills and professionals find weaknesses with OT certification because of his lack of reliability compared to others certifications such as IFOAM. OT is recognized as too indulgent and some actors said that this is the reason of the low demand for this specific certification. Although this research cannot support this statement empirically, one farmer mentioned the proliferation of the slash and burn frequent practice.

However, the reliability of the process to get OT certification is indeed questionable. Once again, this research cannot support this statement empirically, albeit we can shed light on some dubious practices. An illustrative example is the collection of rice samples by officers. According to some, the certification officers go take some samples by themselves from the farmers' storage, according to others, farmers' supply rice samples by themselves to officers, which could entail cheating.

Some farmers talked about the cheating possibilities in this program:

- Because of the lack of inspections (caused for instance by the lack of officers) in the farmers' fields, some farmers, who don't believe in organic farming, continue to use chemical inputs. They count on the low percentage to be assessed by the certification body at the end of the year. Usually, it worked, because the majority of groups pass to the next phase at the end of the year. The example of the one group who failed in Yasothon can illustrate this issue. In a big group of more than 200 farmers, 5 farmers were assessed at the end of T2, 1 of them used chemicals inputs (fertilizers),

the whole group was expelled from the program because of this one farmer. This farmer knew that he wasn't complying with organic standards, but he counted on the fact that he didn't have a high risk to be chosen for assessment.

- One farmer mentioned the common practice of selling organic rice to rice mills with a part of the rice really organic and another part with a conventional rice. This farmer was very disappointed that this kind of cheating could happen because it hinders the trust to organic farmers; he would like a better controlling system which could improve and strengthen the actual organic farmers.

I.4 Marketing's issues

I.4.1 Limitations of the Organic Thailand's certification in terms of marketing

The Rice Department stated the improvement of the competitiveness in terms of marketing thanks to this program. Yet, the government chose to certify farmers in conversion as part of this program with the *Organic Thailand* certification, however it cannot be exported internationally, it is a domestic certification. However, Singapore and Hong-Kong accepted to buy the organic products certified as Organic Thailand. But for other countries this certification, created by the government in the beginning of 2000s, isn't complying with their standards so they can't buy OT products. Actors interviewed mentioned the lack of reliability of this certification as mentioned earlier. According to the employees of the rice leader in Thailand (Charoen Pokphand-Royal Umbrella), customers consuming organic products are used to "their own" label, they have habits when they buy organic products, then, the company isn't ready to change its organic labels because this is a risk of losing its customers. For now, big companies don't want to get involved in the development of this certification. Then, we could think that the promotion's work to improve this label's collective perception should be done by the government itself with advertising or some techniques to increase the trust in this label. Obviously, the trust comes with actions, and if the label is currently not reliable in terms of actions and practices, the government can try to convince farmers, rice mills, companies or customers that this is a good certification, it probably won't work.

Governments that support organic farming conversion are choosing organic certification according to the needs. In India and China, local governments support organic certification destined to the domestic market addressing the domestic demand. In these countries, certification remains expensive to farmers because governments are partially subsidizing the certification costs, which prevent farmers to be entitled to get the certification. In Thailand, the program under study provides 100% financial support that covers certification costs which is a way to attract more farmers and to ensure the organic

conversion, although the government chose an inappropriate certification due to the lack of domestic demand.

I.4.2 The challenge of Organic Thailand rice's demand.

With this National Program for Organic rice Farming, the certified organic rice area should increase from 168,000 rai (2015 data) to 1,000,000 rai, i.e. an increase of 495%. The organic rice area of 2015 was representing 0.55% of the domestic rice market, being a very small part of the market in Thailand. This program is increasing this small part into a bigger small part, with 3.3% of the domestic rice market. The main question at this point is the following: Are the market and demand ready to absorb, 333 000 tons of organic rice, representing 3,3% of the domestic rice market?

This research underpins the idea that the domestic markets are not ready to absorb this new amount of organic rice. Still, the situation could evolve and change in the future. However, interviews with farmers, rice mills, RRC's officers and the biggest company of rice trading in Thailand were, at the given moment, rather negative towards the organic markets' situation in Thailand.

An illustrative example can be given with the MoU rice mill's situation in Yasothon. The rice mill's owner said that he's thinking to stop MoU contracts with farmers because this is too restrictive for him. In fact, he is buying the organic rice from farmers involved in the program, at a higher price than conventional rice (2 THB/kg difference), while he has no (or few) demand for this Organic Thailand rice. He is selling his OT rice as the same price as the conventional rice. Obviously, in this kind of situations, this is understandable that rice mills stop to support farmers involved in this program, it is not lack of willingness but rather a lack of market possibilities. Again, this situation can change since the program isn't finished yet. This research analyses its implementation after 2 years since its inception, but at the end of the program (2021), the market situation might change, as well as demand for organic products. The scope of this research is not to predict markets opportunities or demand, rather to put forward the current situation in regard with the OT program at the time of the interview.

Others countries' conversion studied in the first chapter (Literature Review), gave us a fresh vision of the market management by the government. For instance, in India and China, local governments made up relationships with buyers in order to facilitate the selling of farmers' production. In Austria, the government established laws to create a collaboration between farmers and schools, hospitals and others public institutions; it gave farmers a new organic market. During this research, some actors mentioned that this cooperation could appear in Thailand as well. Also, to block the lack of demand, Thailand could learn something from Bhutan. This country developed means to ensure the education about organic benefits, which can make the demand increase.

I.4.3 Organic prices as part of the program: up to 20 THB/kg?

The Rice Department assured that farmers could get 20 THB/kg for jasmine rice thanks to this conversion program and the organic certification provided in it. Is that possible?

From the beginning of the research, we perceived that this number was way to high compared to prices in reality; on average, interviewed farmers sell jasmine rice at 16 THB/kg. As we mentioned before, rice mills don't have enough demand for the OT rice, they obviously can't give 20 THB/kg to farmers. Even RRCs' officers reported that this price was unattainable for the majority of the groups. Only rice seeds' producers are ensured to earn more than 20 THB/kg. However, as we said before, the program isn't finished, all the interviewed groups weren't in T3, they were in conversion process so perhaps they didn't have the higher price they can get. Maybe they will get more at the end of the program, maybe not, depending on the markets' evolution.

Out of the 39 interviewed groups during this research, only 4 of them declared getting 20 THB/kg or more (up to 22 THB/kg), which represents 10% of the groups. Two of them were located in Chiang Mai and two others in Yasothon. The major common trait with these 4 groups is the rice mill's ownership. This point is raising an important issue in rice farming In Thailand. Farmers' group owning a rice mill are often in a better marketing situation, they can manage their prices and get more incomes by reducing the middlemen. Not every rice mill owner's interviewed group had 20 THB/kg, but this is usually a factor helping them to improve their working situation.

I.5 The evolution of each type of groups according to the program

What did the program bring to each type of group? The figure below helps to understand the evolution of advanced and beginners groups. We can observe their evolution according to these analysis axes over the course of the program:

- The organization and collective action within the group
- The technical skills acquired during the program
- The access to markets, enhanced or not at the end of the program

This figure represents the situation at a given moment, mid-2019. It doesn't mean that it won't change or evolve in the future. This graph is based on the result of 9 study cases (58 farmers in total) but others case studies could have given others answers**.**

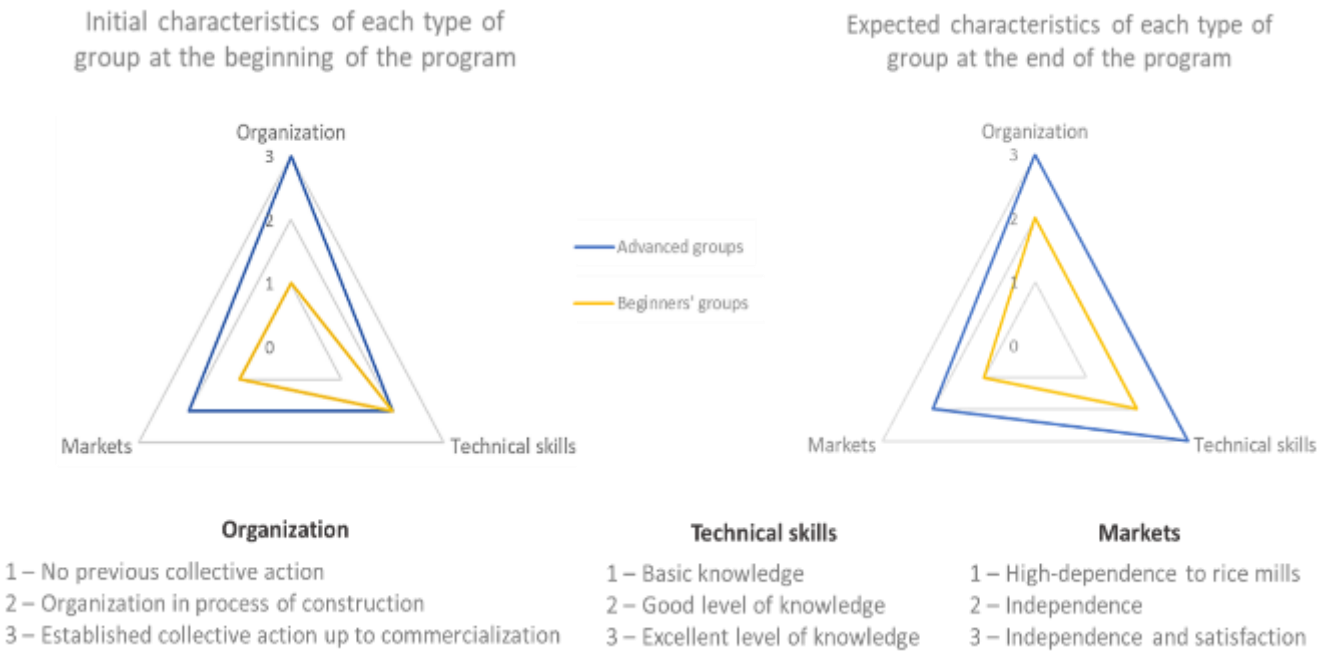


Figure 22 - Evolution graph of 3 inputs: organization, markets and technical skills; according to the type of group

Below are the definitions of each indicator mentioned in the previous figure and an analysis of the program's characteristics allowing the strengthening of farmers' groups:

Technical skills

1) Basic knowledge: Members don't know organic practices and principles, they suppose that stop using chemical inputs means organic, for example they don't think about others way for a crop to be contaminated (the provenance of animal manures, buffer zone…).
2) Good level of knowledge: Members are aware of organic practices, they learnt organic techniques (biofertilizers, cover crops…) by themselves or thanks to the different supporters
3) Excellent level of knowledge: Members are aware of organic practices and organic principles to get organic certification.

To what extent the program enhances the technical skills of farmer groups?

The program brings new knowledge to farmers, an expertise linked to Organic Thailand certification. According to the type and engagement of groups, they more or less integrate this knowledge. As mentioned above, farmers often are not informed about the participation in the program of the Agricultural Department and Land Development Department due to a lack of coordination and governance of the program; therefore farmers dismiss some support opportunities that would have eased their conversion. This is a part of the lack of governance mentioned earlier.

Organization

1) No previous collective action: The group is new; members didn't have any farming experience as a group before. The only dynamic of the group is the creation itself, the gathering aspect.
2) Organization in process: Members are creating a group's dynamic by following the program's rules. They build the group's structure, they distribute roles, they implement ICS with more or less ease.
3) Established collective action up to commercialization: Established organization (structure, roles, ICS…) and the group manages their own product's marketing (they usually have their own rice mill)

To what extent the program enhances the organization and collective action of farmer groups?

The program doesn't enable the creation of a dynamic strong enough to reach the level 3. Nevertheless, the program enables the gathering of farmers into organized groups which can reach this ultimate level. The inherent dynamic of the group is the reason of the development or not of an established collective action (the willingness, the means and the research of means, the initiative of the group). The program is a start and members do the rest if they wish to. The program can be the originator of future groups with an established collection action up to the commercialization.

Markets

1) High dependence: Members who are selling their production individually or collectively to the rice mill who offers the best prices. They are often dissatisfied but they keep selling there because they have no bargaining power, this is why we named this level "high-dependence".
2) Independence: Marketing independence required a rice mill's ownership. Members sell their production on their own market (either local markets or to a national demand). For the external demand, members usually resort to the collective action of the group. However, they have to deal with demand issues with Organic Thailand's rice, they cannot sell their whole production under this certification and have to decrease the price of organic rice.
3) Independence and satisfaction: Members have their own market with high demand and a satisfying price according to them thanks to an established collective action. (Only one advanced group is in this situation but not thanks to the program, they already had this situation before the program so this group's characteristics are not taken in account in this graph.)

To what extent the program enhances the access to market of farmer groups?

Having its own organic market requires a rice mill (old and small one or recent and collective one), organic demand and a place to sell (local market or national market). The program doesn't provide these criteria, in fact, it doesn't involve marketing at all, except by convincing rice mills to sign MoUs with farmers. This enables (in theory) farmers to start their organic activity with better selling prices than without MoU. But in practice, rice mills have to deal with a lack of demand for Organic

Thailand's products and some farmers are still dissatisfied with prices. Collective action and markets are very linked. Without a collective action, groups have difficulty to create their own market. The program, by gathering farmers into groups, can be the booster of a possible future collective action bringing to a marketing independence, depending on the groups' willingness and initiatives.

To conclude, the program provides organic knowledge and guidance to get Organic Thailand's certification to farmers, it makes farmers gather in groups and gives them a framework to structure and organize the group's activity. However, the program lacks support in terms of marketing and doesn't help to increase the demand of Organic Thailand's products.

II Scientific and operational perspectives: improvement of the program and markets opportunities

II.1 Cooperation with organic supporter organizations

As mentioned before, the network created by the Rice Department through this program could be improved. The governance isn't well developed and established. The government could have tried to build a real network by creating interactions with existing NGOs in Chiang Mai where there is a great network of supporting organizations for organic farming, or with public organizations in Isaan such as the Land or Agricultural Departments. Develop organic farming nationally could be easier with a wider network and several supporting organizations to facilitate the work of the Rice Research Centres and reduce the financial cost, to pay officers and rice seeds for example. Helping farmers to integrate in established networks could have been beneficial for the government to reduce costs, but also for farmers to get technical and intellectual knowledge. It could have helped to get farming materials and support to reach markets.

II.2 Future opportunities for OT development

This research highlighted the weaknesses of the Organic Thailand certification, in terms of reliability, marketing and image. In order to increase the OT rice's demand, the government could try to build a good image and reputation of OT rice in order to become famous to consumers including with advertisement.

Bhutan's policy gave us an idea to improve OT's demand, thanks to education. Bhutan established an education related to organic's benefits for health and environment to create the demand by themselves. Once people are aware of conventional farming's risks and organic farming's benefits, they are more willing to buy organic products and then make the demand increase.

The government started Organic Thailand certification with the objective to export organic rice, thus the choice wasn't aligned with the needs. Since OT rice cannot be exported except to Hong-Kong and Singapore, the government could enhance exports by the creation of partnerships with these countries to ensure a steady demand, then, steady incomes to rice mills and to farmers.

The last and more restrictive possibility is to make incentive laws to force companies or public institutions to buy Organic Thailand's rice like Yasothon province is doing, all the hospitals will soon buy organic rice.

II.3 Suggestions from farmers: a rice mill for everyone?

This research has analysed farmers' suggestions to improve the program (*see Chapter 3 - Actors' preliminary assessment of the program*). As we've seen earlier, some farmers suggest to decrease subsidies and others ask for processing materials, including rice mills. What happens if we combine both of these suggestions? It becomes possible. According to farmers, a rice mill costs about 250,000 THB. For a group with 100 rai (the minimum to get into the program), the subsidies provided by the government are up to 200,000 THB in T1, 300,000 THB in T2 and 400,000 THB in T3. Only by reducing subsidies, the government could buy rice mills to every group. An option could be to leave the subsidies to farmers in T1 and T2 in order to continue supporting farmers in their conversion but to stop the subsidies in T3. It would leave 400,000 THB of subsidies used to buy a rice mill and required materials to enable farmers to deal with their own production and selling process, it allows them to reach markets and directly sell to the consumer without middlemen and get more profit. This possibility involved that the group has an established organization and knows how to handle the processing and marketing aspects. The program's training could add this topic for those who want to launch themselves into this enterprise. But, is it within the government's interests? It could weaken former rice mills and add complexity to the national value chain by adding a lot of small rice mills all over the country.

II.4 Lessons learned from the Thai experience

This research focuses on the Thai experience with the National Program for Organic Farming, its implementation, its challenges, its successes and its constraints. The analysis done here could be used as reference for other countries in their own organic transition process. The Literature Review gave some food for thought about how other countries are carrying out the organic transition, but the situation of Thailand is different since the driving force of the organic transition is the government. The government launched the program with the aim to escalate the transition at a national level. The research brings to light some challenges of this type of conversion linked to the incomplete learning process and the lack of governance, the dubious organic controls and the lack of demand. We can take

some lessons from this program for the future in Thailand as well as futures programs initiated by others countries at the national scale:

- Consider the budget possibilities before creating a too ambitious project.
- Create a more complete and denser network for a full learning process.
- Enhance the learning process with knowledge about soil fertility, yield increase and organic certifications and their possibilities. This enhancement could be done in cooperation with NGOs or supporters with an expertise about organic techniques.
- Create a program with less direct advantages (subsidies) for more indirect advantages (materials, knowledge) – leave a financial compensation up to the losses caused by the conversion. Direct consequence: attract motivated farmers for organic rice farming and not for money, which will create a more sustainable conversion (long-term).
- Adapt the offer to the demand OR push the demand.

To conclude, a country aiming to start an organic program at national scale needs a holistic outlook considering: the actors needed and their relationships, kind of support, market demand, and a reliable control of quality and compliance in order to get a complete, trustful and sustainable organic transition.

III Feedback on the research process

III.1 Future research

This research paper places particular emphasis on the market aspect since it has been highlighted as the main challenge of the program. However, it was not the only scope of this paper, thus a more in-depth study on this topic would be needed. Future studies can address the domestic markets for organic products in Thailand by analysing the value chain and interviewing every actor and stakeholder.

Also, the consumers' behaviour towards organic products, and especially Organic Thailand products could be interesting to analyse. Their opinions and buying habits could help to get a vision about what are the real issues of the current organic market's situation.

III.2 More research on the OT certification characteristics

This research raises the question whether sellers and rice mills can sell the rice from farmers in conversion as part of the program as organic? In June 2019, one rice mill from Surin was selling the rice from not yet certified farmers in T2 in the program, with the Organic Thailand logo. The owner of

the rice mill assured that it was allowed. Some actors criticized the reliability of OT certification but this research didn't allow a deeper study on this issue. A comparison between OT and IFOAM or others organic standards could be done to analyse the lack of rigour in the OT certification.

III.3 Fieldwork limitations

We encountered some challenges from the fieldwork, such as the biases on farmers' responses. The interviews were carried out with the help of a translator (from Thai into English) which may present some limitations on this research as well. Another limitation of the fieldwork was the lack of willingness of some actors to answer the questions. The Rice Department in Bangkok, being the launcher of the program, wasn't open to the discussion; some rice mills' owners didn't want to receive us, and the interviewees of the Royal Umbrella's company were not saying everything and were not answering with a total transparency to our questions.

CONCLUSION

The Thai agricultural sector is currently weakened due to the ageing of its population, the desertification of rural areas and the difficulty of farmers to get decent incomes. The organic sector started in the 1980s with local initiatives by NGOs, private organizations and initiatives from province governors. In 2017 the Thai government set the objective of expanding the organic sector at national level and created the National Program for Organic Farming with the aim to increase the organic area of rice farming in the whole country. The ambitious goal of 1,000,000 rai registered in the program has been reached in 2019. This program provides trainings, the Organic Thailand Certification and subsidies for farmer groups to support them throughout the transition process from conventional farming to organic agriculture. Our main research question is the following

To what extent the National Program for Organic Farming strengthens the organic sector in Thailand?

With the aim to address this research question, our study has been organised along 4 axes of analysis: the access to learning opportunities and learning process, the farmer's collective action, the quality and compliance control, and the access to market, including value chain and prices. Nine case studies have been analysed (58 farmers, rice mills and Rice Research Centres) through interviews carried out in Thailand during a period of 4 months mainly in Isaan (Roi Et, Yasothon, Surin) and Chiang Mai provinces.

At the time of the interview (mid-2019), the respondents reported their satisfaction with the learning process through which farmers enhanced their knowledge about organic techniques and organic certification's norms. Nevertheless, their knowledge of organic farming is still insufficient due to the limited training provided by the Rice Research Centres and the lack of linkages between farmers and other organic supporters and trainers. Loopholes in the governance of this program prevent the establishment of a stable and complete learning framework.

The program provides the opportunity to farmers to gather as a group and create a community. In several groups that were analysed, collective action between farmers was caused and/or reinforced by the program. Farmers developed the sense of belonging to a group and carried out their organic transition and farming development as a group.

This program strengthens farmers in their conversion by pushing them to create groups and by giving them organic knowledge; however the end-result after-conversion is still unclear. Within the program, the control is managed by the government but also by the groups. Both of them are criticized by several actors because of their lack of rigor in organic practices and the certification process. These limitations are causing a lack of trust towards the Organic Thailand certification.

Moreover, the program does not pay much attention to the marketing aspect of the transition towards organic farming at a national scale. The Organic Thailand Certification enables farmers' groups

to get higher prices from their crops, in the event hat rice mills get demand for this specific certification, which seldom took place in the cases studied. Organic markets are dubious because of the low prices that rice mills and farmers get, and the lack of demand caused by the inappropriate certification in relation to the markets' needs. The lack of demand hampers the strengthening of the organic sector as part of this program.

Despite being a positive and ambitious initiative taken by the government, this program poses some challenges that hamper the strengthening of the organic sector**.** A country, such as Thailand, that launches a program with the aim to expand the organic sector at national scale should develop a holistic outlook taking into account: actors needed and their relationships, type of support, market demand, and a reliable quality and compliance control in order to get a complete, trustful and sustainable organic transition.

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Acronyms

AD: Agricultural Department

EM: Effective Microorganisms (used to make biofertilizers)

GAP: Good Agricultural Practice

ICS: Internal Control System

IFOAM: International Federation of Organic Agriculture Movements

LDD: Land Development Department

NGO: Non-Governmental Organization

OT: Organic Thailand

RD: Rice Department

RRC: Rice Research Centres

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APPENDICES

Annex 1 – Interview guides

RICE RESEARCH CENTRES

The project

- Why did the Rice Department launch this program in 2017? What are the stakes? (environment, financial, export market…)
- What is the story of organic farming in ***x*** province?
- What was the number of certified organic rai before the program, in 2016, in your province?
- Did the Rice department support collective or individual transition to organic rice before the program? Do you have the data per district in your district?
- On the x rai registered in the province, do you know how much rai were already converted and certified before the program?

The reasons of numerous applications

- According to you, what are the motivations of the farmers applying to the program?
- Do you think it's possible that some farmers apply only because of the subsidies and quit organic farming after the end of the program?
- For the moment I've met farmers in Prachinburi, Chiang Mai and I'm here now (Yasothon, Surin and Roi Et), those provinces are very different in terms of numbers of farmers groups and dynamics. According to you, why there is such a different dynamic in each province?
- Do you think that we can say there is a typology of farmers, of provinces?
- How are you doing to handle 187 RE/ 431 Y/ 287 S farmers' groups? How many officers do you have, how are you organized?
- Do you know if there is any other province with a great dynamic such as Surin or Yasothon?

The organization

- How do you support farmers? (training, certification, marketing…)
- The training of the first year is about what topic?
- The training of the second year is exactly the same than the one in the first year?
- Does the RRC provide rice seeds?
- What are the criteria required for selection?
- Why some farmers didn't get selected/registered?
- The first year, farmers are in preparation phase, what they have to do?
- How large have to be the buffer zone?
- Which water farmers are authorized to use? (rainfall, pounds, canal?)
- Are they authorized to keep using chemicals the first year?
- Is there a sample analysis at the end of the 1st year? What the samples analyse? (soil, water, rice?). Do you know the rates of chemical residues not to exceed? (IOC standards? What are IOC standards)
- Are all the farms are checked or only the riskiest ones? How to decide which farm is risky? How many farms in each group are assessed?
- The second year, what is the schedule? / what happen?
- RRC officers are visiting the farms each year? Even the third year?

- The third year is for certification, who gives the certification? Did some farmers groups experience problem to shift from T2 to T3?
- After the end of the program, the farmers have to pay for certification each year?

Previous experience

Among the farmers' groups that have registered:

  - How many are made fully of farmers that were already certified (please provide an example)
  - How many are made both of farmers already certified and new farmers (please provide an example)
  - How many are made of fully new farmers? (please provide an example)

- Overall, how many farmers registered in the process are new, how many were doing organic not certified and how many were already certified?
- What is the purpose to accept those who already have certification (IOC, IFOAM)?
- Are all the former groups can apply? Is there a number of members limitation? (I ask that because in Yasothon, some former farmers groups had to split up to be able to apply, do you know why?)
- Why the group already experienced have to start the program in T1/have to pass the preparation phase, normally their farms are already organized for organic farming?

Stakeholders

- The program aims to facilitate the access to marketing chain. How do you support marketing?
- What is the list of actors, stakeholders involved in the program, during the farmers conversion and after the certification? (RRC, farmers, commercial office, rice mill, ???)
- Do you encounter any difficulties in the organization or in the converting process?
- How farmers have to manage the ICS (Internal control system)?
- Do you already have the calendar of training and visit days?
- Do you think I could assist to those training days or visit days to farms?

The future of organic farming

- What vision do you have for the future of organic farming in ***x*** province and in Thailand?
- Will the Rice Department continue to support organic farming after 2021

LEADERS OF BEGINNERS' GROUPS – 100% new farmers

General information

- Farm and farmer presentation:
  - How many rai do you grow?
  - When did you start growing rice/farming?
  - How old are you?
  - Are you renting or owning your land?
  - How much crops per year are you growing? Which variety? Why this one (lucrative or for home consumption)
  - What is your crop rotation? What are you growing when it's not the rice season?
  - What is the role of family members in the farm, are they helping during sowing or harvesting?

- Have you been involved in organic farming before the program?

Motivations

- How did you know the existence of the program?
- What did you push you to apply to this program?
- Did you have the willingness to turn into organic before? If yes, why did you wait? What were your reluctance?
- Do you think this program is open to everyone? Do you think it's easy to apply and be selected?
- How did you bring people together to form this group?
- Your group is new, so how do you get to know each other, install trust between members/organization/ambience?

The farming transformations

- What kind of support have you received for the moment?
- Is the one day of training seems enough to you?
- Do you share your experiences between group members in order to improve your techniques, yields?
- Do you know how to contour pest and disease, to control weeds with organic practices?

- The training of the first year is about what topic?
- The training of the second year is exactly the same than the one in the first year?
- How are you preparing, in practices, during the first year?
  - Do you have visits from RRC often? Did they take samples to analyse the quality of soil, water, rice?
- Were you expecting to receive rice seeds from the RRC? How do you get your organic seeds?
- What's happen the second year?
  - The RRC visit your farm? Are there any samples taken to analyse the quality of the production?
- What is the most difficult thing to manage during the conversion process? And after?
- What kind of fertilizers, herbicides are you using?
  - Are you making them or someone gave them to you?
  - How did you learn how to use this?
  - So, what is in there and how are you using it?

- How do you manage with the ICS (Internal Control System)? How do you organize with the members? (Is there situation where some farmers are cheating? How do you handle that?)
- On the x members of your group, how many are converting just a part of their farm? For instance, on 20 rai, the farmer converts 10 rai and keep 10 rai in conventional farming. Why? Are they afraid to don't earn enough money converting all the farm?
- What were your yields before starting the program/organic farming? And what yields do you expect to have in organic farming?
- Where are you currently selling your production? (organic group with own rice mill or middleman)
- And after the end of the program, where do you wish to sell?
- Do you rely on the RRC for the marketing after your certification?
- Do you think you will get a better standard of living after converting to organic farming?
- Do you think you are well accompanied by the RRC?
- Do you gather with other members to share your knowledge or all you know comes from the RRC trainings and visits?
- How is production these days? Do you notice climate changes or fertility diminution? Or everything is ok and the same than in the past?

Future vision

- According to you, why is there such a lot of organic farmers in Surin, Yasothon? What are the specific dynamics here?
- Are you satisfied of this program for now? What do you expect more from the program? (financial aid, marketing aid, training, certification)
- Do you think you will have a better standard of living by converting to organic farming?
- How do you see your future? Will you stay an organic farmer?
- What is your vision of the organic sector future in Thailand?

LEADER OF GROUPS MIXED with old and new farmers

General information

- Farm and farmer presentation:
    - How many rai do you grow?
    - When did you start growing rice/farming?
    - How old are you?
    - Are you renting or owning your land?
    - How much crops per year are you growing? Which variety? Why this one (lucrative or for home consumption)
    - What is your crop rotation? What are you growing when it's not the rice season?
    - What is the role of family members in the farm, are they helping during sowing or harvesting?
    - Have you been involved in organic farming before the program?

If yes

- Which NGO helped you to convert?
- So, you were part of an organic farmers group?
    - How many members there are in this group?
    - How many have decided to participate to the program?
    - Why the others didn't want to apply?
- What certification do you have?
- How this NGO accompanied you during the conversion process?
- Is the NGO still support you in any way? (financial, material, moral support)
- Among the members of your group, how many are already certified organic farmers? Which certification do they have?
- How do you get on with the two parallel certification processes? Is that easy to comply with two different organic standards?

Motivations

- How did you know the existence of the program?
- What did you push you to apply to this program? what are your motivations?
- Do you think this program is open to everyone? Do you think it's easy to apply and be selected?
- How did you bring people together to form this group?
- Why some farmers didn't want to try applying?

The farming transformations

- What kind of support have you received for the moment?
- Is the one day of training seems enough to you, especially for the farmers without experience?
- The training of the first year is about what topic?
- The training of the second year is exactly the same than the one in the first year?
- How are you preparing, in practices, during the first year?

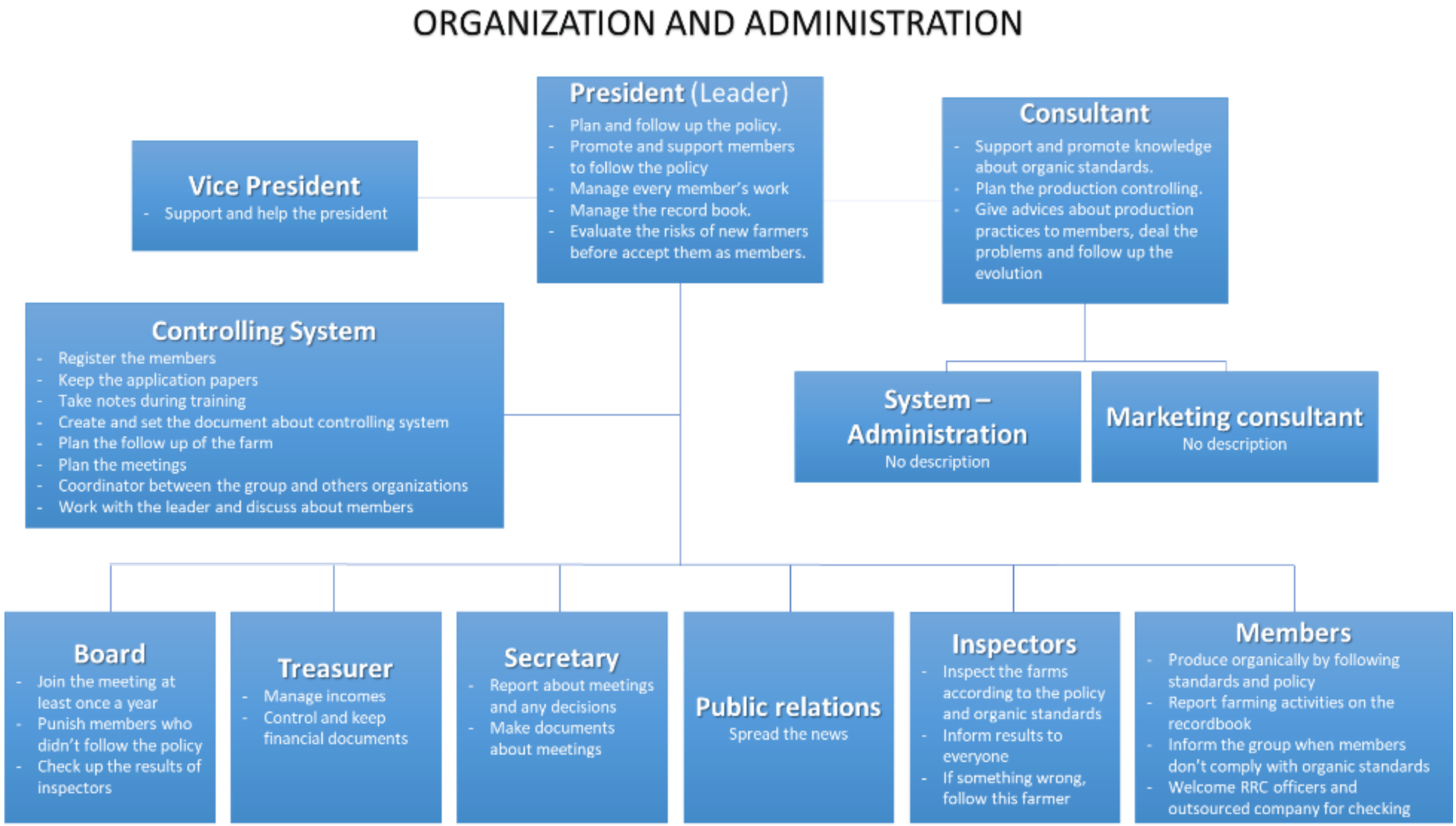
Do you have visits from RRC often? Did they take samples to analyse the quality of soil, water, rice?

- Were you expecting to receive rice seeds from the RRC? How do you get your organic seeds?
- What's happen the second year?
    - The RRC visit your farm? Are there any samples taken to analyse the quality of the production?
- What is the most difficult thing to manage during the conversion process? And after?
- How do you manage with the ICS (Internal Control System)? How do you organize with the members? (Is there situation where some farmers are cheating? How do you handle that?)
- What kind of fertilizers, herbicides are you using?
    - Are you making them or someone gave them to you?
    - How did you learn how to use this?
    - So, what is in there and how are you using it?
- On the x members of your group, how many are converting just a part of their farm? For instance, on 20 rai, the farmer converts 10 rai and keep 10 rai in conventional farming. Why? Are they afraid to don't earn enough money by converting all the farm?
- Do you share your experiences between group members in order to improve your techniques, yields?
- What were your yields before organic conversion? What are your yields today?
- Where are you currently selling your production? (organic group with own rice mill or middleman)
- And after the end of the program, where do you wish to sell?
- How is production these days? Do you notice climate changes or fertility diminution? Or everything is ok and the same than in the past?

Future vision

- What do you expect from the program? (financial aid, marketing aid, training, certification)
- According to you, why is there such a lot of organic farmers in Surin, Yasothon? What are the specific dynamics here?
- Are you satisfied of this program for now?
- Do you think you have a better standard of living by converting to organic farming?
- How do you see your future? Will you stay an organic farmer?
- What is your vision of the organic sector future in Thailand?

Appendix 2 – Official structure of a group



Positions and roles of members according to the RRC document. Translated from Thai language

Appendix 3 – Training's content

PRINCIPLES

1) Land selection: higher than the river. Difficult to get 100% organic in small lands and not continuous lands because of the neighbours, wind… Land should be far from factories or have a big and tall buffer zone with big trees like eucalyptus. If farmers have pounds, they have to filter it with a plant.
2) Rice seeds selection: strong variety, insect and disease resistant
3) Preparation of the rice seeds. RRC gave to farmers this year 5kg/farmer
4) Preparation of the soil (good soil=high yield): plough 3 times/year
5) Sow the seeds: throwing (weed problems) or machine, every farmer chose their own method.
6) Manage the nutrients in the soil
    a. No burning
    b. Increase nutrients with cover crops (5kg/rai is enough)
    c. Don't remove the rice stalk because nutrients are inside
    d. Select good fertilizers: avoid pork and chicken because sometimes they contain growth hormones, if the farmer buys organic fertilizers, it should be certified organic.
7) Planting system: sow at the right time, just before rainy season
8) Control the weeds: by hand with labour or family
9) Disease, pests and weeds control with Trichoderma and Beauveria microorganisms, lemongrass and yellow flowers to repel insects.
10) Water management. Prevent flooding from the neighbouring field with a buffer zone large and tall: 1m of width. Draining the water out of the field helps keeping a good smell of the rice.
11) Harvesting: clean machines and reducing rice humidity
12) Storage: clean bag and clean area
13) Mill the rice: separate conventional and organic rice
14) Packaging

ICS training

- Explanations about checks
- Select members in the group for each work including inspectors

The leader should be patient and strict, the coordinator between the leader and members should have good knowledge about organic and the program, inspectors should have knowledge and a good health because they check under the sun.

FORMS filling

- Form about trainings
- Form for inspectors (check soil, fertilizers, neighbouring fields, burning, storage, use of machines or not, records in the book) : every farming activity of the farmer
- Form of suggestions for the group or for RRC: can complain about a member who is not complying with standards