Journal of Rural Studies 73 (2020) 68–76

Contents lists available at ScienceDirect

Journal of Rural Studies

journal homepage: www.elsevier.com/locate/jrurstud

Mainly farming … but what's next? The future of irrigated farms in Thailand

Nicolas Faysse[a,b,*], Léna Aguilhon[c], Kassirin Phiboon[d], Man Purotaganon[e]

[a] Cirad, G-Eau Research Unit, Montpellier University, Montpellier, France
[b] Asian Institute of Technology, Bangkok, Thailand
[c] Inter Aide, Lilongwe, Malawi
[d] Sustainable Agriculture Foundation, Bangkok, Thailand
[e] Thai Water Partnership, Thailand

ARTICLE INFO

Keywords:
Ageing farmers
Farming households
Irrigation schemes
Rice
Thailand

ABSTRACT

For many smallholder farmers in East and Southeast Asia, farming represents a decreasing share of their income-generating activities, leading to increasing limits to investing family labour in farming. This process has been particularly marked in regions where farmers face limited access to land, water and markets. This study asks whether irrigated farms in central Thailand are on a similar pathway. It analyses how these farms have evolved to face existing constraints and their future prospects. The farms have adapted to constraints including lack of fresh water in the dry season, floods, and sometimes insufficient labour. In almost all farming families, farming is still the main income-generating activity for at least one household member. Most of the farmers involved in fish and shrimp farming had already identified a successor in their family or considered it was possible. This was also the case of rice farmers who had made quite high investments in their farms, most of whom cultivated relatively large areas. However, another group of rice farmers had become trapped in a vicious circle of low farm profitability, the increasing age of the farmers and the fact their farms held little attraction for younger generations. Thai agricultural policies did not provide sufficient means to break this cycle. The future of these vulnerable rice farms thus appears to be uncertain. Breaking this cycle may require a comprehensive approach that explicitly addresses the issue of farm structure.

1. Introduction

Rural inhabitants in East and Southeast Asian countries increasingly obtain their income from off-farm sources. This is the case in low, medium and high income countries in the region (Haggblade et al., 2010; Rigg et al., 2016) and is taking place not only thanks to increased opportunities in non-agricultural sectors but also because of the difficulty of maintaining or increasing incomes from farming. Many studies describe such processes in situations where farm characteristics and the environment in which farms evolve limit the prospects for obtaining an income, these being small size, lack of irrigation water, or limited market access (Fishman et al., 2013; Hu and Rahman, 2015; Pritchard et al., 2017).

Far fewer studies have investigated the extent to which better endowed farms in East and Southeast Asia, in particular larger farms and farms with access to irrigation, are on the same pathway towards a diminished role of agriculture as a source of income in farming families. What is happening on these farms needs to be analysed to understand the evolution of the agricultural sector in these countries as a whole, especially as irrigated areas usually play a major role in supplying inputs to agricultural value chains and in supporting food security at national level.

This topic is particularly relevant in Thailand, where the average farm is quite big (3.1 ha, according to the 2013 agricultural census) compared with other countries in East and Southeast Asia (Rigg et al., 2016). Several studies have underlined the intensity and rapidity of the decline in the economic role of agriculture in farming households with limited access to land and irrigation water in Thailand. Gödecke and Waibel (2011), Nilsen (2014), Rigg et al. (2012) and Rigg et al. (2019) investigated agrarian changes in villages in the Northern and Northeast Regions, where farming is mostly rainfed and where the average farm (between 1.9 and 2.3 ha in these studies) is smaller than the national average.

The image that emerges from these studies can be outlined as follows. First, ageing of the farming population is even faster than at national scale. In the villages studied by Rigg et al. (2012), the average

* Corresponding author. CIRAD, G-Eau Research Unit, Montpellier 73 rue JF, Breton, 34398, Montpellier Cedex 5, France.
E-mail addresses: faysse@cirad.fr (N. Faysse), aguilhon.lena@gmail.com (L. Aguilhon), kassirinp@gmail.com (K. Phiboon), purotaganon@gmail.com (M. Purotaganon).

https://doi.org/10.1016/j.jrurstud.2019.12.002
Received 6 June 2019; Received in revised form 21 October 2019; Accepted 5 December 2019

age of people whose main activity was farming increased from 36 in 1983 to 55 in 2008. Second, young people are moving out of the villages. Gödecke and Waibel (2011) and Nilsen (2014) identified a wide gap in the age pyramid at village level, as most people aged between 20 and 40 had moved to cities to find work. Third, household members increasingly find opportunities to work in factories and still come home every day (Rigg et al., 2008; Shirai and Rambo, 2017; Shirai et al., 2017).

All these changes have reduced the availability of family labour, and farming households consequently increasingly choose farming systems and practices that require less family labour, e.g., planting trees, mechanisation or the use of paid labour (Formoso, 2016; Podhisita, 2017). In areas located not far from the frontiers of Thailand, hired labourers often come from neighbouring countries (Barney, 2012; Rungmanee, 2015). These changes in the organisation of farming households (in terms of spatial structure and labour) have enabled them to adapt to the constraints and opportunities in both urban and rural areas. However, most of these changes reflect a trend towards less intensive farming (Rigg, 2019). More generally, the increasing labour constraints can limit farmers' capacity to or interest in testing and implementing more productive or more environmentally sustainable farming practices (Bhandari and Mishra, 2018; Phastraporn, 2019).

This description of farm dynamics is representative of what is happening to the majority of the farms in these regions. Nevertheless, in rainfed areas of the North and Northeastern Regions of Thailand, some farms are actively engaged in changes involving the intensive use of family labour (Piotrowski et al., 2013; Plews-Ogan et al., 2017). Moreover, macro indicators do not show that the agricultural sector has become "dormant". Thailand remains a major producer and exporter of agricultural products (Thailand Board of Investment, 2017). Many farms successfully access high-value markets (Kersting and Wollni, 2012) and powerful agro-industries have emerged (Briones and Rakotoarisoa, 2013). The contribution of agriculture to the growth of Thailand's domestic product has not changed much over the past two decades (from 9.1% in 1996 to 8.6% in 2016, according to the World Bank, 2018). However, there have been few recent studies of agricultural dynamics in areas better endowed with resources in Thailand. Formoso (2016) studied rice farms with access to irrigation in the Northeast Region and reported that agriculture was still the main income-generating activity of several farms but did not detail the characteristics of these farms. By contrast, Rigg (2019) reported that in a village located in an irrigated area of the Central Region, almost all the villagers surveyed said farming was no longer their main occupation.

The present study focuses on irrigated areas of central Thailand. Its aim was to understand whether the engagement of members of farm households in farming has declined in a similar way to that described in areas of Thailand where farms have limited access to land and water. Taking into account the diversity in the size and types of production of farms in the study area, our analysis addresses three issues: (i) how farming systems have adapted to key constraints and changes in the environment and within the farms, thus enabling – or not – households to earn their livelihood farming; (ii) what are the future prospects of these farms, especially in terms of the engagement of family members in farming; and (iii) to what extent ongoing policies and local initiatives to support agriculture help farming households deal with prevailing constraints and thus help sustain their engagement in farming.

2. Methodology

2.1. Study area

The study was conducted in the Bang Pakong River delta. This area belongs to a broader zone around Bangkok which also includes the deltas of the Mae Klong and Chao Phraya Rivers. These delta areas are not clearly defined in hydrological terms. This zone represents the largest irrigated area in Thailand and is mainly dedicated to growing rice. Intensive shrimp farming in coastal areas around Bangkok started in the 1980s (Szuster, 2006), but faced a series of crises in the 1990s and in the 2000s, in particular because of diseases. This activity later recovered and expanded thanks to the development of new production techniques and to the introduction of shrimp species capable of adapting to low salinity levels (Lebel et al., 2010). This enabled the extension of shrimp breeding to inland areas. Today, shrimps are the main agricultural product in the downstream part of the Bang Pakong River Basin (Seekao and Pharino, 2016).

The main role of the Ministry of Agriculture and Cooperatives in this zone is to manage water, i.e. to provide irrigation water in the dry season and address flood problems in the rainy season. Four main national agricultural policies have been implemented in the delta region around Bangkok in the past three decades. The first involved a series of schemes to support rice prices on the domestic market but this support stopped almost completely after the military coup in 2015 (Ricks, 2018).

Second, reduction of the extent of land under rice and the promotion of other crops were declared national objectives in the Fourth National Plan (1977–1981) and were strongly reaffirmed in the Seventh National Plan (1992–1996) because of the low profitability of rice farming and because of water shortages (Sirisup and Kammeier, 2003; Srimanee and Routray, 2012). A major diversification programme was implemented in the Chao Phraya River Basin from 1993 to 1999, but had limited results, the main causes being floods, labour shortages and difficulties related to the marketing of non-rice products (Sirisup and Kammeier, 2003).

Third, from 2000 on, the Ministry of Agriculture and Cooperatives promoted an approach aimed at developing a "self-sufficiency economy" for small-scale farms (Egery, 2014). According to this approach, small-scale farmers should avoid intensive monocropping (related to contract farming, for instance). Rather, small-scale farmers should produce both for home consumption and for the market, they should produce multiple crops, and use limited amounts of pesticides and chemical fertilizers.

Fourth, in 2015, the government announced a new policy that was almost completely opposed to previous ones. This policy aimed at helping small-scale farms improve the production and marketing of one crop (or animal). Groups of farmers were invited to work together in "large-scale schemes" and in partnership with public organisations to reduce production costs thanks to economies of scale, to increase yields and negotiate better prices. In the rice sector, the official objective was to reduce production costs by 20% and increase farm sales by 20% (Department of Agricultural Extension, 2016). This was to be achieved thanks to training, enhanced collective action between farmers and improved connection with markets (e.g., certification or contracting with agro-industries).

The main river in Prachinburi Province is the Prachinburi River, which becomes the Bang Pakong River after the confluence with the Nakhon Nayok River. The study areas are four irrigated zones that receive water from the Prachinburi and Bang Pakong Rivers (Fig. 1). These four zones were selected because they include the main farming systems in the downstream part of the Prachinburi River basin. Farmers in Bang Pla Ra Subdistrict concentrate on fish and shrimp farming and farmers in Bang Taen Subdistrict on rice and fish farming. In the two other zones, farmers concentrate on rice production. Many farmers in the Dong Krathong Yam Subdistrict have purchased agricultural machinery, such as a tractor, and farm relatively large areas (more than 13 ha). Farmers in Bang Kung Subdistrict farm much smaller areas. Each study area receives irrigation water through a network of canals connected to the Prachinburi and Bang Pakong Rivers. The pumps that pump water from the rivers into the canals are operated by water user associations in Bang Kung, Bang Pla Ra and Dong Krathong Yam Subdistricts and by the subdistrict local administration in Bang Taen Subdistrict.