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PSO

Editorial Note

In this second issue, partly from the international conference "Future Faces of Food and Farming; Regional Challenges, ***World Food Policy*** (***WFP***) covers articles on topics ranging from food policy challenges in integrating food and nutrition security to food policy-related matters on aquaculture, dairy value chain, land policies and geographical indications system.

Tremendous changes both in food policy and in food systems are here considered in three articles. Two of them provide us with case studies in the red river delta in Viet Nam: while Van Huong et al. analyze the present changes in food system affected by rapidly developing freshwater aquaculture in a province of the Red River Delta, Nguyen et al.—based on the case study of Ba-Vi district, a "milkshed", analyze the transition from state-owned concentrated production to smallholder farms. In the case of Thailand as a middle income, globalized, food-exporting nation, Kelly et al. consider Thai enmeshment in the global food trade and impacts on food and nutrition security for farmers and urban consumers.

Food policy-related matters are illustrated by two articles. Regarding geographical indications, Marie-Vivien and Vagneron analyze the challenges faced in building an efficient yet appropriate system of controls in four Southeast Asian countries—Thailand, Vietnam, Cambodia, and Laos. Regarding Land policy, Petit's ethnographic case studies in Laos illustrate how the state has become an inescapable mediator between people and land, transforming the social fabric and reshaping people's agency.

While the majority of articles in this issue cover Asia, Lallau's article looks to West Africa and discusses the notion of resilience as fashionable notion, its relevance to the Sahelian context, and the way policies may "operationalize" it.

WFP will continue under a multi-disciplinary approach to welcome research-based papers on food-related topics as well as those policies with noticeable impact on the world food sector. Its scope also remains to include comparative national food policies as well as issues pertaining to food policy at the global, regional and transnational levels.

A subsequent issue will bring to you papers selected from the 2017 international conference on world food policy, where the main theme is agricultural and food policy transformation. In the meantime, the materials on the conference has been made available on the ***WFP*** website.

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Integrating Food and Nutrition Security in a Middle-Income, Globalized, Food-Exporting Nation: Thailand's Food Policy Challenge

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Abstract

Thailand is deeply linked to the world food system, with food exports key to the country's global connections. It has been a world leader in tackling poverty-related malnutrition and is food secure at a national level. New challenges are emerging with increases in obesity and diet-related disease as well as the relative poverty of farmers constraining capacity to avoid non-sustainable agricultural intensification. Here, we consider Thai enmeshment in the global food trade and impacts on food and nutrition security for farmers and urban consumers. We review past and present policy approaches, and examine the prospects for Thailand to interact with these new challenges.

Keywords: Globalization; nutrition transition; Southeast Asia; sustainability; Thailand

Resumen

Tailandia está profundamente vinculada al sistema de alimentos mundial, ya que las exportaciones de comida son clave para las conexiones mundiales del país. Ha sido un líder mundial en enfrentar la desnutrición relacionada con la pobreza y tiene seguridad alimentaria a nivel nacional. Nuevos desafíos están surgiendo con los incrementos en obesidad y las enfermedades relacionadas con la dieta, así como la pobreza relativa de los agricultores que limita la capacidad de evitar la intensificación agrícola no sustentable. Aquí

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consideramos el enriquecimiento tailandés en el comercio internacional de alimentos y los impactos que tiene en la seguridad alimenticia y de nutrientes para los agricultores y consumidores urbanos. Repasamos acercamientos políticos del pasado y el presente y examinamos los prospectos que tiene Tailandia para interactuar con esos nuevos desafíos.

Palabras clave: Globalización; transición de nutrientes; Sudeste Asiático; sustentabilidad; Tailandia

摘要

泰国和世界粮食系统紧密联系，其食品出口对该国与全球之间的连接十分关键。泰国一直引领全球应对与贫困相关的营养不良，其国内粮食处于安全状态。（泰国）正面临着新的挑战，这些挑战源于肥胖和膳食疾病的增加，以及农民为避免非可持续农业集约化而限制生产、进而产生相对贫困的情况增多。本文考量了泰国涉入全球粮食贸易，并对农民和城市消费者在粮食和营养安全上产生的影响。作者检验了以往和当下的政策措施，然后考察了泰国在迎接这些全新挑战时的前景。

关键词：全球化；营养变迁；东南亚；可持续性；泰国

1. Introduction

Today's globalized food system has increased food availability overall, improving food security. Indeed, since the early 1990s global per capita food energy availability has increased 100–200 calories per capita per year (Traill, Mazzocchi, Shankar, & Hallam, 2014). Consequently, the prevalence of undernutrition, particularly among children, has fallen, especially in East Asia and Latin America (International Food Policy Research Institute, 2013). But food security so defined does not reflect nutrition security of national populations for two reasons. First, food is not shared equitably due to economic inequality within countries, so undernutrition persists. Second, sufficient

caloric availability does not equate to optimal nutrition, particularly where the globalized food trade makes energy-dense processed foods cheaper than fresh healthy foods (Pinstrup-Andersen, 2009). UN agencies are increasingly making a distinction between food and nutrition security, with calls for access to sufficient calories to be complemented by sufficient incomes to purchase health-promoting diets.

This distinction between food and nutrition security can be particularly apparent in major food exporting countries where food production surpluses may ensure food security overall, but high-quality, high-value foods are often exported. This can leave domestic populations food secure but with less diverse, lower-quality diets, threatening nutrition security. As well, greater exposure to the global trade in food is itself a threat to population health. Globalized food chains have a comparative advantage in supplying processed energy-dense foods high in sugar, salt, and oil (Chopra, Galbraith, & Darnton-Hill, 2002; Hawkes, 2008; Popkin, 2006). The increased consumption of processed energy-dense foods is part of a nutrition transition, which has been connected with a global increase in the number of people overweight and obese. Those countries most exposed to the global trade in food are particularly at risk. Integral to globalization of the trade in food is the rapid expansion of bilateral-, multilateral-, and regional-free trade agreements. Agreements opened up markets to food imports and foreign investment in food industries (Hawkes, 2005). As well, market liberalization, particularly in developing countries, allowed the rapid expansion of supermarkets from the 1990s, improved distribution networks, and increased consumer exposure to globalized food (Kearney, 2010).

Thailand is an example of a food exporting, globally connected country. Food production has exceeded food needs in Thailand since 1995 (Food and Agriculture Organisation, 2013), allowing Thailand to expand its food export sector. In the past two decades, the Thai food system has transformed from export of a single food product—unprocessed rice—to become a diverse sector which produces, processes, and exports a large variety of food products. Thailand is now intimately connected to the global food system, and the Thai government has actively supported an increase in both supply of and demand for Thai food products on a global scale. In part, its success as a food exporter has contributed to a prolonged period of economic growth, industrialization, urbanization, and social change, which has transformed the lives of the Thai people. Thailand has also led South-east Asia in tackling undernutrition and micronutrient deficiencies through comprehensive poverty alleviation and nutrition promotion policies. In 1990, over 40% of the Thai population was undernourished; this proportion is now only 7% (Food and Agriculture Organisation, 2012). Yet, Thailand is now facing an epidemic of obesity and related metabolic diseases which follow non-traditional diets.

In this article, we examine Thailand as a useful case study of the impact of globalized food on nutrition security in a middle-income setting. We have conducted an historical overview of Thailand's evolving, complex, and globally connected food system through an analysis of all published literature and relevant policy documents over the last 20 years. Our attention has focused on the effects that Thailand's enmeshment in the global food system is having on domestic food and nutrition security for two population groups at opposite ends of the food chain: (1) agriculturalists and (2) urban consumers. This analysis reveals unresolved tensions between Thailand's two major food policies: the domestically orientated "Sufficiency Economy" and the export focused "Kitchen to the World". Finally, we consider whether these tensions can be managed through the Thai National Food Committee, or whether other integrated food and nutrition policies are required to safeguard food and nutrition security in Thailand.

2. Agriculture, Food Trade, and Rural Food Security

From the 1930s to the 1980s, the dominant economic activity in Thailand was export-oriented rice monoculture. From the 1940s, Thai governments invested in agricultural infrastructure in order to increase rice exports and introduced a rice export tax. By the 1960s, these export taxes began to fund industrialization aimed at self-sufficiency. Government policy kept domestic food prices low and then taxed exports thus expropriating wealth from the rice producers (Goss & Burch, 2001). Furthermore, until the 1950s, land was still in relatively free supply and rice crop yields continued to increase through increasing the land under cultivation rather than any technological improvement (Manarungsan, 1989). This was particularly important in the early 1970s when a substantial increase in logging concessions led to large amounts of land opening up to farming activities. Once the land frontier was effectively reached in 1980, investment flowed to the industrial sector contributing to declines in agricultural viability through the 1980s (Siamwalla, 1996). The Thai government assumed greater interest in rural development during the 1970s and 1980s, partly due to fears of communist influence in rural areas. Rural development took the form of investment in agri-industrialization, attempting to raise rural incomes through greater commercialization. At the same time, inequality between rural and urban dwellers grew, with subsequent mass migration to the cities.

Through the later 1980s and 1990s, agri-business began to increase its role in Thailand, with the Charoen Pokphand (CP) group establishing its massive chicken and poultry product enterprise. Now, one of the world's biggest food conglomerates the CP Group adopted vertically integrated supply chain arrangements common in the United States. It led the way for agro-industry to grow faster than agriculture itself and began the process

of tying Thai agriculture to food processing opportunities (Goss, Burch, & Rickson, 2000). The 1990s saw a huge growth in the export of frozen shrimp and chicken meat (largely supplied by CP), and other processed agricultural goods and canned foods, and rice exports diminished in importance. It is, however, important to note that despite the growth of agri-business firms such as CP in Thailand, independent and small to medium scale firms continued to account for the majority of food processing activity.

Several factors have contributed to Thailand's rise as a major food-producing nation: (1) the strong Thai domestic market allows producers in Thailand a bigger market for their products than nearby developing nations; (2) strength in agro-processing supported by extensive research and development investment from private and public sources; (3) improvements in packaging; (4) very strict food hygiene and safety laws; and (5) successful promotion of the Thai diet as healthy and its spread round the world (Murray, 2007; Poapongsakorn, 2010).

Also important for Thailand's increasing role as a processed and raw food exporter are free trade agreements with major trading partners, particularly Australia and India, with an agreement with the European Union currently under negotiation. As well, as a member of the Association of South East Asian Nations (ASEAN), Thailand participates in several free trade zones. These ASEAN trade zones include Australia again as well as India and importantly China. In fact, Thailand is the most active country in Asia in pursuing these agreements, which have broadened Thailand's export market particularly into neighboring ASEAN countries and China. The flip-side of the free trade regime has been openness to increased food imports, particularly of temperate region produce and cheaper products from China (Prachason, 2009; Zamroni, 2006).

By the late 2000s, Thailand was the only net food exporter in Asia. It has achieved this by both growing food and developing its own food processing industry. Problems remain, however, with the Thai agricultural sector. Thailand's agriculturalists have amongst the lowest productivity levels in the region and have moved into other work sectors at a slower rate than in other comparable countries. This is exemplified by the fact that 40% of the Thai workforce is still engaged in agriculture which only contributes around 10% of GDP (Kelly et al., 2010). As well, Thai farmers remain amongst the most financially insecure groups in the country (Isvilanonda & Bunyasiri, 2009; Jitsuchon & Siamwalla, 2009). The Thai government has two broad policy approaches to the future of the Thai food system and Thai agriculturalists livelihoods: the Kitchen to the World and the Sufficiency Economy. We will now consider the potential of each of those approaches to improve income, nutrition, and food security of Thai food producers.

Table 1. Key Trends in the Thai Agriculture and Food Processing Sectors

Time period	Major policy components	Economic development factors
1850–1930	• Expansion of rice frontier and development of cash cropping rice monoculture • Government assistance with irrigation and land clearing projects • End of royal monopoly on rice trade	• Opening of economy to international (especially European) trade. Including trade and extraterritoriality agreements with Britain and other nations • Ending of corvee labor system and slavery encouraged free peasant landholder class to enter cash economy through rice trade • Inward migration of Chinese merchants who as middlemen helped develop the rice trade.
1930–1960	• Emphasis on national self-sufficiency • Export taxes introduced for rice and tariff protection for other agricultural crops • These taxes fund beginning of industrial development, particularly processing of agricultural products • Continuing expansion of rice frontier meant little investment in productivity or infrastructure • Rice dominates agriculture occupying more than 70% of cultivated areas and employing up to two-third of total labor force (1958) • Main agricultural development strategy expansion of irrigated areas	• Nationalist military governments and Japanese occupation moved trade focus from Europe to Asia • Consolidation of rice trade into few family firms with patronage from Thai army and bureaucrats • Agricultural share of GDP falls from 50% to 40% in the 1950s
1960–1973	• Investment in agricultural diversification and modernization	• Reorientation from state enterprises toward private (and foreign) investment to develop the economy

	• Diversification to crops for industrial inputs, e.g. sugar cane and jute • Land devoted to crops other than rice rose from 18% to 32% in 1971 • Land ownership concentration but remaining dominance of small holder agriculture • Agricultural development subordinated to industrial development	• Beginning of mass influx of US Aid and military spending as well as business investment • Establishment of NESDB and beginning of 5-year development plans
1974–1990	• Rural economic development planning prioritized—aimed at poverty reduction and community health • Aimed to raise rural incomes through commercial agriculture • Private agribusiness grows encouraged by government investment incentives • Beginning of value added agri-food production for export • End of land frontier—agricultural growth could no longer depend on clearing and planting more land • Introduction of Green Revolution crops	• Community development period • Rapid increase in urban economy, manufacturing, and industry lead to increasing urban/rural inequality and rural–urban migration • Sustained decreases in overall poverty but increases in inequality • Manufacturing and trade overtake agriculture for contribution to GDP in 1980 • Farm families cash incomes increase and subsistence agriculture decreases.
1990	• Expansion of contract farming, particularly for poultry and export vegetables • Export share of processed agricultural commodities rapidly increased while the share of rice exports decreased • Decreases in government investment in agriculture replaced by agri-business investment	• Dominance of capitalist free market ideology in Thailand • Reductions in state intervention in economy including agricultural sector

2000	• Kitchen to the World • Free Trade Agreements • Establishment of National Food Committee • One Tambon One Product program • Sustainable agriculture, sufficiency economy, and organic agriculture enter national discourse—farmers encouraged to diversify crops and balance subsistence and market crops	• Abundant cheap processed food • Rice mortgage schemes to help farmer incomes

2.1. The Kitchen to the World and Contract Farming

Since the 1970s, a main Thai government approach to rural development has been to increasingly commercialize agriculture and bring farmers into the cash economy. The assumption was that rising incomes would allow rural Thais to purchase the food products they did not produce themselves and become more food secure. In the contemporary Thai food system described above, this approach is extended to including small holder farmer participation in agri-business dominated, export-oriented production. The Kitchen to the World policy aims to increase production and export of both primary agricultural products and processed foods on a massive scale (Supaphol, 2010). One outcome of this policy approach has been an increase in the use of contract farming in Thailand. Producing for the international market increasingly requires standardized, high-quality, hygienic produce. Contract farming is seen as a way to achieve these standards.

Contract farming began in Thailand in the 1970s with the CP group, but rapidly expanded in the 1990s. Thailand is now the biggest contract farming country in Asia, with more than half-a-million contract growing households (Singh, 2006). The Thai government has been actively involved in this process with the Ministry of Agriculture and Cooperatives and the Bank for Agriculture and Agricultural Cooperatives helping facilitate contracts, providing farmers with credit to help establishing new production methods and also providing tax concessions to agri-businesses to encourage their participation (Delforge, 2007). A key government strategy has become "private-led integrated agricultural development" (Singh, 2006).

Access to markets, as well as increases in production, can be key to poverty reduction and the United Nations Food and Agriculture Organization views contract farming as an effective method to link farmers to global

markets which they would be unable to do without assistance (da Silva & Rankin, 2013). International evidence, however, suggests that contract farming arrangements, , have in many cases benefitted food processors and urban consumers more than the food producers themselves. Pressures to produce the lowest possible priced foods for consumers have been shown to mainly fall on food producers who trade autonomy for more secure, though lower incomes (Constance, 2008). The outcomes for Thai farmers of participation in contract farming and by extension in the Kitchen to the World program have also been mixed. Incomes under contract farming are often more reliable and transparent, and using contracting companies as middle men has reduced wastage and inefficiency in the value chain leading to increased incomes for farmers and food companies. Some food production contracting companies also provide crop insurance, education funds for farmers' children, and other social services not provided by the government, further assisting with poverty alleviation (Bamman, 2007). In addition, contract farming is providing food producers with access to company-mediated extension services, technical knowledge, and ease of credit which farmers can utilize even if they return to selling on the open market (Sriboonchitta & Wiboonpoongse, 2008).

The outcomes of this participation in globalized production, however, are not always positive. Contract terms can be one-sided, especially over time as market conditions change, with farmers being responsible for most risk where production cannot meet contracted amounts. When this occurs and seed, fertilizers and other inputs were provided on credit, indebtedness is often the result. Incomes are also not always improved by entering contract arrangements with prices deliberately set below the market rate, and contract farmers often earning less than the national minimum wage (Delforge, 2007). Some researchers have also observed that any benefits that are gained through contract farming are disproportionately enjoyed by already larger scale and better resourced farmers (Schipmann & Qaim, 2010, 2011b). Other research, however, has shown that small holder farmers can successfully participate in some areas of contract farming where they have particular advantages such as herb growing which requires more micromanagement (Boselie, Henson, & Weatherspoon, 2003).

Contract farming companies also usually stipulate the use of particular levels of pesticides and herbicides, often more than would be used otherwise. This has been observed by Thai farmers to be a negative outcome for their own health and that of their local environments (Delforge, 2007; Singh, 2006). Interestingly, though this is a phenomenon which seems to be changing. International markets particularly in the rich developed countries are increasingly demanding "safe," reduced pesticide, or organic food products. An important component now of the Kitchen to the World policy is for Thailand to market itself as a source of "safe" foods. The Thai Ministries of Agriculture and Public Health togeth-

er with Thailand's leading agricultural university (*Kasetsart*) are developing systems to monitor food safety all along the food chain and to train farmers in safe farming methods enabling them to gain certification under Good Agricultural Practices (GAP) requirements and the Hazard Analysis and Critical Control Point criteria. This will allow Thai products access to lucrative European markets (Supaphol, 2010). So far, however, results of the promotion of organic farming in Thailand have been mixed. One analysis of Thai farmers growing organic rice under contract found their incomes to be significantly enhanced compared to conventional rice (Setboonsarng, Leung, & Cai, 2006). Other studies of vegetable growers, however, have found incomes from organic farming to be significantly lower than for conventional farming, largely due to lower yields (Rattanasutteerakul & Thapa, 2012). "Safe" vegetable growing can also still produce bias towards already more well-resourced and well-educated farmers (Kersting & Wollni, 2012) and is of course still subject to the fluctuations of market demand for certain products.

2.2. The Sufficiency Economy and Sustainable Communities

Following the Asian Financial Crisis of 1997, there were growing calls in Thailand for a reassessment of the outward-looking, growth driven model of economic development which had been followed for the previous few decades. This movement was brought into focus by the Thai monarch in an influential speech in which he proposed a "sufficiency economy" philosophy to guide development. There are many aspects to this philosophy, but in terms of rural development the aim is establishing self-reliant households and communities first before looking outwards to the market (Seubsman, Kelly, & Sleigh, 2013). This is at its basis an anti-capitalist idea and was partly inspired by the Swadeshi movement of self-sufficient communities in early twentieth century India, which aimed to reduce dependence on imported British products, and by the Kibbutz commutarian movement in Israel (Isager & Ivarsson, 2010).

In the years following the king's speech, the ideas behind the sufficiency economy were formalized and a royally approved definition emerged. This definition had several levels. At the household level, the aim of the sufficiency economy is for small landholders to move towards model self-reliant farms. These farms should be divided into four zones where farmers could develop water storage, cultivate rice, plant fruit and vegetable crops, and practice animal husbandry. The emphasis is also on practicing low chemical, sustainable mixed agriculture. Moving forward rural communities could develop trading networks and work sharing arrangements allowing any needs unsatisfied at the household level to still be obtained locally. At the regional and national level, the approach recommends moderation in expenditure, reducing government debt and reducing vulnerability to external shocks through conservative macroeconomic management (Unit-

ed Nations Development Programme, 2007).

The stated aim of this approach is to empower farming households by making them less reliant on fluctuating market forces and to enable more secure incomes for farmers through growing a larger variety of crops (Supaphol, 2010). The health and economic benefits of organic agriculture are also recognized. Importantly, the philosophy distinguishes between subsistence production and sufficiency production, with sufficiency meaning that farmers produce enough for a comfortable existence. At the root of the sufficiency, economy is an appeal to the Buddhist 'middle path' of moderation. Farmers shouldn't live in poverty and deprivation, but also should not sacrifice their happiness, health, and the environment for greater economic gain. In this aspect the philosophy is not a new idea, it continues various government programs since the 1980s which have encouraged Thai people to self-reliance, thrift, self-discipline, and commitment to the community and nation (Pongsapich, 1996).

Since 2002, the sufficiency economy philosophy has been incorporated into official Thai government planning documents, most notably the 5-yearly National Economic and Social Development plans, as a key goal of Thai development strategies. And after 2006, when a military government took control of the country, it became the "official guiding philosophy" for all branches of government. Ten billion baht was invested in creating model villages and training centers where farmers could be trained in sufficiency methods, famers were offered seed money to convert their farm practices, sufficiency economy principles were taught in schools and special television programs, and social marketing campaigns were conducted to inform the Thai public of the benefits of sufficiency economy ideas (Isager & Ivarsson, 2010).

Despite these government efforts, the results of the promotion of the sufficiency economy are unclear. Some reports suggest that participation by famers has been low, but there is no official government data on the program's success. There are several reasons why the sufficiency economy faces limitations in contemporary Thailand. In many ways, it may already be too late to attempt to change farmers' lives and livelihoods in such substantial ways. Although a large proportion of Thais are agriculturalists, Thai rural life is far from static. There are large numbers of rural Thais who engage in seasonal urban–rural migration for example and many farming families rely on off-farm income to meet their needs (Rigg & Nattapoolwat, 2001). Also within rural communities themselves, there is a large degree of economic diversification already underway with government employment and small business ownership providing new livelihoods for rural Thais. Thai farmers are also already dependent on the market at a fundamental level for income and social status reasons. It may, therefore, be unrealistic to expect them to return to a pre-capitalist version of agricultural production. Many also do not desire to

do this. They enjoy the lifestyle changes and consumer power that connection to the market gives them. Although Thai farmers are facing environmental challenges and market vulnerability, they appear to want other ways to face these challenges and it appears that demand for change is not coming from farmers themselves (Walker, 2010).

3. Food and Nutrition Security of Thai Consumers

Beginning in the early 1960s, a series of innovative nutrition interventions were trialed by a group of Thai medical doctors and supported by the World Health Organization. In some of Thailand's poorest regions, these doctors introduced improved protein production, iodine supplementation, fortifying fish sauce with iron, and localized fish oil production, all using technologies which were available and appropriate for rural Thais. As well they developed Thai Food tables to assist with nutrition monitoring (Nondasuta, 1998). By the mid-1970s, these programs were considered so successful that the Thai Ministry of Public Health adopted them for countrywide replication and they were incorporated into the first National Food and Nutrition Plans in the late 1970s (see Table 1) (Winichagoon, Dhanamitta, & Valyasevi, 1992). Also importantly in the late 1970s, Thailand began to modify its approach to development from a top-down to a bottom-up approach (Kelly, Yuthapornpinit, Seubsman, & Sleigh, 2012). Part of this new approach involved the development of a comprehensive Primary Health Care (PHC) program which was rolled out nationwide. Nutrition interventions pioneered in the 1960s formed a key part of the PHC policies (Winichagoon et al., 1992).

The identification of nutrition as a major element of human development and the emphasis on community mobilization have been fundamental to Thailand's success, achieving: changed consumption behaviors; nutritional status monitoring particularly of young children; supplementary foods production; and cost effectiveness through the use of community-based Village Health Volunteers (VHVs). Volunteers were local people, often related to the villagers, who could gain trust and pass on knowledge and skills gained from government training (Tontisirin & Winichagoon, 1999). During the 1980s, these community mobilizations were based on a holistic "basic minimum needs" theory. Seeing nutrition as part of overall primary healthcare and human development was crucial (Kelly et al., 2012; Tontisirin & Winichagoon, 1999) By 1986, 500,000 village health communicators and 50,000 health volunteers had been trained and were active in nearly every village in the country (Tontisirin, 1992).

Since the 1970s, malnutrition has been aggressively targeted and rates have fallen dramatically, interacting with community development and primary healthcare programs which have improved the overall health status of the majority of Thais. By the 1990s, rapid socio-economic development had affected most of the Thai population

and undernutrition had been almost eliminated. The substantial investments in health services, particularly community and rural health, had paid dividends with infant mortality and low birth weight statistics being drastically reduced (Florentino & Pedro, 1992). Key evidence of Thailand's success is the reduction in the proportion of the population undernourished which has fallen from over 40% in the 1980s to now be only 7% (Food and Agriculture Organisation, 2012). The World Bank considers these measures to be among the most successful in the developing world (Heaver & Kachondham, 2002).

However, rapid economic growth has influenced a dramatic health and lifestyle transition in Thailand; from rural and agricultural to much more urban industrial and commerce centered lifestyles (Kelly et al., 2010). Traditional Thai diets are considered healthy and protective against chronic diseases being rich in cereals, legumes, and fresh fruit and vegetables with the majority of protein coming from fish (Seubsman, Dixon, Pangsap, & Banwell, 2009; Suvarnakich, 1950). However, economic growth, modernization, and industrialization are typically accompanied by an increasing demand for both more convenient foods and more modern foods, a diet where animal fats and protein replaced legumes and cereals, sugar consumption increased and fruit and vegetable consumption decreased (Kosulwat, 2002). Thailand's regular series of nationally representative Food Consumption Surveys reveal that between 2003 and 2009, the consumption of snack foods, instant foods (especially noodles), soft drinks, and energy drinks have all increased significantly, particularly among Thai teenagers (Aekplakorn, 2011). Although food security is not a problem in the vast majority of Thai households, the changing makeup of diets and the amount of pre-prepared foods being purchased outside the home are concerns to nutritionists (Kosulwat, 2002). This achievement of adequate caloric consumption in a community does not preclude the continuation of malnutrition in terms of micronutrient deficiencies which is possible when consumption of over-processed foods is prevalent, and fresh food intake is low.

Chronic undernutrition in Thailand has now been replaced by chronic obesity which affects more than 35% of Thai adults (Aekplakorn & Mo-Suwan, 2009). Cardiovascular diseases, diabetes mellitus, and other diet-related health problems are all increasingly prevalent, replacing poverty-related diseases as the major causes of death and morbidity for Thai people (Porapakkham et al., 2010; Wilbulpolprasert, 2008). However, the picture is more complex than diseases of poverty being replaced by diseases of affluence. As in many developing countries, and a growing number of developed economies, a range of states of nutrition (under, normal and over nutrition, and micronutrient deficiencies) coexist (Doak, Adair, Bentley, Monteiro, & Popkin, 2005; Monteiro, Moura, Conde, & Popkin, 2004; Winichagoon, 2013). These changes in the health status and risk profile of the Thai population are part of a health-risk transition in developing countries.

The changes described above are reflected in a succession of 5-yearly National Food and Nutrition Plans (Table 2). In Table 1, we present a brief overview of each of these plans and the prevailing nutrition situation in the country in each period.

Table 2. Thailand's 5-year National Food and Nutrition Plans (1977–2006)

National Food and Nutrition Plan (NFNP) and period covered	Plan summary (Tontisirin et al, 2013)	Nutrition situation
First NFNP (1977–1981)	• Addressed protein energy malnutrition in children through high protein supplements and nutrition education • Emphasis on agricultural extension providing extra food needed within communities • First official adoption of a multi-sectoral approach to food and nutrition policy involving Ministry of Interior, Ministry of Public Health, Ministry of Education	Seven major nutritional problems identified: protein energy malnutrition, vitamin A deficiency, anemia, beri-beri (thiamine deficiency), goiter, angular stomatitis (riboflavin deficiency), and urinary bladder stone (phosphorus deficiency)
Second NFNP (1982–1986)	• Primary healthcare approach adopted, community healthcare centers established and community health volunteers trained. Nutrition programs were a large part of these healthcare center activities • Nutrition surveillance particularly growth monitoring in children established throughout country • Poverty reduction emphasized as solution to nutrition problems • Nutrition education rolled out especially for pregnant and breast feeding women and young children	Protein energy malnutrition rates in children began to fall in this period

Third NFNP (1987–1991)	• Rapid economic growth and social change begin in Thailand • Population growth rate slowed and urbanization accelerated • Nutrition plan continued from last period emphasizing community development and community financing • Wage laborers and elderly added to mothers and children as main target groups for nutrition programs	• Protein energy malnutrition had decreased from over 50% to less than 20% of children in 10 years • By end of this plan, overweight or obesity was affecting around 10% of Thai adults
Fourth NFNP (1992–1996)	• Focus begins to turn from undernutrition alleviation to the link between modern diets and chronic disease, • First set of Thai Dietary Guidelines produced • Nutrition surveillance extended and now incorporates over- and underweight	• By 1995, 23.5% of school children and 15.5% of adults overnourished with BMIs over 25
Fifth NFNP (1997–2001)	• Household food security emphasized—defined as not just adequate calories but also secure access to nutritious foods • Nationwide campaigns to promote physically active lifestyles and healthy diet promotion in school settings	
Sixth NFNP (2002–2006)	• Attention turned to promoting the food industry and aimed to improve the efficiency of food production and distribution • Emphasized private/government partnerships for food processing, food exports, and food technology • Food security approach at household level still important but direct action plans to address nutrition problems de-emphasized in overarching plan	

By the early 2000s, over nutrition and its link to chronic disease had been identified as a growing problem by the Thai Ministry of Public Health and public health researchers. The change in direction, however, from addressing infant, child, and pregnant womens' nutritional needs particularly in rural settings to addressing those of adults in a dynamic urbanizing population is not yet advanced. Some new programs which have begun to be introduced to address new diet risks have included new nutrition labeling regulations, Thai specific guidelines for daily consumption of food types, campaigns promoting physical activity, the high profile "flat belly Thais" campaign (Flat Belly Thais Network, 2013), the "Sweet Enough Network" (Thai Health Promotion Foundation, 2013), which advocates to reduce added sugar, and regulations on food advertising to children. These programs have been developed by various bodies including the National Food Committee. The National Health Assembly has also adopted a resolution to tackle overweight and obesity (Chavasit, Kasemsup, & Tontisirin, 2013).

4. Integrating Policies for Food and Nutrition Security

In a growing number of developed countries, particularly in Europe, national food plans and academics are increasingly emphasizing the need for food policies which incorporate public health and environmental strategies, alongside their more traditional productivist and often trade objectives (Carlisle & Hanlon, 2014). None of these countries to our knowledge have successfully established a Ministry of Food, instead maintaining separate ministries dealing with agriculture, trade, health, and the environment, although from time to time the UK and Australian governments have established high-level food policy interdepartmental committees (Cabinet Office (UK), 2008; Department of Agriculture Fisheries and Forestry, 2012; National Food Administration (Sweden), 2009; The Scottish Government, 2009). Perhaps, the most pertinent example is that of the Japanese government's comprehensive *Shokuiku* or "Food Education" program which promotes consumption of healthy, traditional, locally produced foods as a mechanism for improving food producer livelihoods as well as consumer health. This approach, however, still has limitations, relying on changes in individual consumer behavior rather than structural and regulatory interventions by governments which are also needed (Chopra et al., 2002; World Health Organisation, 2004).

Thailand has now embarked on a new approach to achieve food policy coherence. A peak body, the National Food Committee (NFC), first established in 1992, has been reinvigorated under the 2008 National Food Committee Act and given the responsibility of coordinating policies and actions across all aspects of Thai Food Policy. This body is chaired by the Thai Prime Minister and has representatives from the Thai Food and Drug Administration, the Ministry of Public Health, and the Ministry of Agriculture as co-Sec-

retaries and has stronger legal powers to enforce policies than previous food and nutrition bodies. The centralization of various powers under this one new body also aims to provide greater efficiency of resource use and to provide a unified strategy between various relevant agencies. In 2010, the NFC produced a comprehensive Thailand Food Strategy document which takes the place of previous National Food and Nutrition Plans. This document outlines strategies in four main areas (Thai National Food Committee, 2012):

(1) Food security—defined as "each citizen having an adequate supply of food that is safe and nutritionally suitable for all ages", achieved through land use reform and protecting land for agricultural use, better management of water and ecological resources, finding a better balance between land used for growing food and biofuels, improving food access for families, improving agricultural efficiency and logistics along the food chain, encouraging more young people to remain in agricultural sector, and investing in agricultural research for improved yields

(2) Food quality and safety—establishing one unified system of food standards, applying strict standards for food quality and nutrition value in all agricultural products, including improved systems at the community level to reduce food wastage, improved monitoring of food safety standards

(3) Food management—improve and strengthen management of the sector along the whole food chain, develop and improve legislation around food system management, and improve data and monitoring of food system

(4) Food research and education—support applied research in agriculture and food industries, manage and ensure dissemination of new food production knowledge particularly to food producing communities, and disseminate knowledge on nutrition and healthy diets in the community.

The empowerment of Thailand's NFC is a genuine attempt to produce coherent food policies which address all of these aspects of the food system, including their public health and environmental dimensions. One important consideration emphasized by the NFC is the multiplicity of stakeholders in the food space—government, private sectors, communities, and individuals. This multiplicity means that to manage tensions dialogue between stakeholders is needed and opportunities given to improve mutual understanding and to achieve food and nutrition security, while maintaining fairness and efficiency among stakeholders. Policy and strategy needs to demonstrate a clear plan to engage the community and household level. This requires integration approaches to transfer knowledge and experience into operations (Tontisirin, 2013).

In its Thailand Food Strategy document, the NFC has made several important steps in attempting to integrate the tensions in food policy between agricultural production for the global market and nutrition and food security for Thai consumers, particularly rural agricultural communities.

These include strategies to promote food access for rural communities, the prioritization of food crops over biofuels which had been increasing in importance, and the emphasis of improving food and health literacy particularly for agricultural communities. The Strategy also raises the issue of the diversity of crops raised in Thailand, and the connection between this diversity and nutrition in the community, an important link in the two dimensions of food policy discussed in thisarticle. With increasing plantations of rubber, sugar, and other non-food crops, the impact on domestic food security is important to consider.

Overall, however, in terms of nutrition status improvement, the Thailand Food Strategy still emphasizes nutritional deficiencies and food safety, with the implication that the main threat to food security is insufficient food being available. The problem of overnutrition and growing rates of obesity and diet-related disease, particularly diabetes, is only mentioned in one paragraph of the document. And the cause of this obesity problem is described as a lack of food consumption knowledge without considering the broader food system influences. The related missing factor is the specific role of processed foods in the Thai food industry. With these foods being one of the major drivers of growth in obesity, the role of the local food processing industry is clearly missing in this food strategy. This is one area which is vital to integrate into modern holistic food policies.

5. Discussion

During the twentieth century, Thailand emerged as a world leader in formulating effective policies to combat poverty-related health conditions in its population and in rural development programs which helped to boost agricultural competitiveness and food security. By the twenty-first century, however, many aspects of Thailand's hitherto successful portfolio of food and nutrition policies were challenged by global transformations in production and distribution of food and increasing exposure to an interconnected global food system.

In the agriculture and food production sector, Thailand has emerged as a major food exporter and this together with rural health and development plans have led to improved incomes and quality of life for Thai farmers. At the same time despite success in tackling absolute rural poverty, high levels of economic and health inequality still exist between rural and urban populations in Thailand and there has been insufficient investment in agricultural productivity to allow continued improvements in rural quality of life. Walker refers to "relative poverty" in contemporary rural Thailand, a problem caused by a "…relatively low level of productivity of the rural economy" and a lack of investment in "productivity enhancing inputs" to rural economies. This growing urban–rural inequality has contributed to many of the political and social tensions found in Thailand today (Walker, 2012).

Current policy approaches reveal clear contradictions at play in Thai agricultural sector policies which aim to continue agricultural contributions to economic growth while supporting farmer livelihoods. The expansion of large-scale export-oriented agriculture, promoted through the Kitchen to the World program, is in direct opposition to the encouragement of moderation and local food security first which are encapsulated in the Sufficiency Economy philosophy. But, at the same time, the Sufficiency Economy ideals are seen as unrealistic even by the farmers who could potentially benefit. The improvement of livelihoods for Thai farmers and their economic, food and nutrition security require a new approach to be found.

The Thai government could consider investing in empowering farmers to better compete through training, agricultural credit, and infrastructure investment (Boselie et al., 2003). Government investment in agricultural research, which in the past has been a strong driver of agricultural productivity improvement, has been falling in recent years (Suphannachart & Warr, 2011). A program of empowering Thai farmers through improving their human and material resources and through improved access to technology, training, and credit for agricultural inputs would allow them to participate in and benefit more fully from trade liberalization and improve food and economic security for Thailand's poorest group (Zamroni, 2006). An adaptation of the old idea of agricultural extension for new food systems conditions is warranted. This is particularly important in the context of increasing importance of modern food retail supply chains. In Thailand, supermarket-led supply chains are still being developed but once established small-scale farmers, as well as traditional supply chain traders, will need new capacities to enter and benefit from supplying to this emerging high value sector (Schipmann & Qaim, 2011a). As well, given the positive and negative outcomes associated with contract farming described above, the government could consider taking a more prominent role in ensuring livelihoods are protected and contracts are fairer for small and large scale farmers (Singh, 2006).

The factor, which both the Kitchen to the World and the Sufficiency Economy approaches have in common, is their recognition of the value of organic or low pesticide farming and food safety, because of the growing domestic and international demand for these products, and also for their potential to improve economic and environmental outcomes for farmers. Investment in sustainable agriculture is already a feature of recent Thai National Economic and Social Development Plans. Further emphasis on this sector may advance the goals of both the Sufficiency Economy (safe, mixed farming) and the Kitchen to the World (improved market access).

Thailand's current approach to nutrition policy also needs reassessment. Previous interventionist approaches, which have been highly successful in combating rural poverty and

associated undernutrition, are unlikely to be effective in a modern urbanizing society. Social marketing and public nutrition education campaigns, as well as improved nutrition labeling, are all being utilized to make consumers aware of the importance of healthy diets; and although nutrition is one part of the remit of the Thai National Food Committee, it is considered as a part of the strategy on "Food research and education." This may indicate an emphasis on product reformulation and dietary guideline approaches rather than considering more systemic influences on food choice. Despite this limitation, there has been a clear shift in government attention to the growing burden of diet-related chronic diseases in terms of health system resources. Effort to reduce risk factors for these diseases largely being coordinated by the successful Thai Health Promotion foundation.

Assessing upstream influences on consumption and nutrition will also be important. The relative price and availability of energy-dense, processed foods must be addressed. Food corporations are moving toward corporate responsibility programs in developed countries and some developing ones (Hawkes, 2005; Igumbor et al., 2012), and this may be an important way forward for Thailand although collaboration between industry leaders and the public health sector requires case by case critical appraisal and regulatory measures regarding nutritional content (Stuckler & Nestle, 2012). The increasing economic importance of the Thai domestic food processing industry, which produces for local and international markets, presents a challenge to regulators. Government policy must include soft measures such as nutrition education and food labeling along with hard fiscal and legal measures to regulate the food industry in terms of marketing and product formulation. One recent step being made in the direction of influencing the nutrition environment for Thai consumers is the introduction of a new excise tax on drinks with sugar content which increases progressively with increase in sugar content.

Researchers, policymakers, and food security agencies now realize that effective food policy must address all aspects of the food system in an integrated manner, utilizing an ecological approach (Carlisle & Hanlon, 2014; Lang, 2009; Lang, Barling, & Caraher, 2009). Public health, environmental sustainability, and social inequality are linked, and food policies must acknowledge these dynamics previously seen to be outside the food system. These are now the challenges facing Thailand's National Food Committee, the primary body governing food policies in Thailand.

In this article, we have discussed many of the policy challenges for this body. It should be noted, however, that although the NFC has the responsibility to coordinate policies and actions across all aspects of the Thai food system, the NFC is not supplied with budget and personnel to carry out these functions. Under Thai law, the actual operation of policies is still devolved to individual departments and Ministries

who each have their own budgets and legal mandates thus limiting the ability of the NFC to carry out its functions in the holistic manner envisioned. Nevertheless, the NFC provides an innovative approach that should be monitored by other countries to determine its effectiveness as a model for food policy development and administration.

6. Conclusion

This review demonstrates that the last 50 years of Thailand's involvement in the global food trade has complicated assumptions about how best to deliver nutrition security for agriculturalists and urban consumers. Two important strategies dominate—the Kitchen to the World and the Sufficiency Economy—currently, neither approach is improving farmer incomes. Farmers require additional training, resources, and formal commercially oriented networks (whether cooperatives, locally organized food hubs) to be able to enjoy the benefits of Thailand's food export economy.

In the past, Thai health and nutrition researchers and policymakers have focused on undernutrition, but they are now confronting the unfamiliar challenge of overnutrition arising, in part, from Thailand's involvement in the global food trade. To address the rising obesity and health challenge, it is necessary to understand the complex ways in which this trade impacts on the population's diet. Over the next 20 years policymakers in Thailand will need to manage the productive and distributive complexity of the food system. The remarkable health gains recorded by Thailand in recent decades, including the conquest of undernutrition and rapid increase in longevity, need to be consolidated. Monitored, comprehensive food policy will make a critical contribution to this process.

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New Freshwater Aquaculture Systems in the Red River Delta of Vietnam: Evolution of a Key Role in Food Systems and Rural Development

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Abstract

Freshwater aquaculture production systems are closely related to Integrated Agriculture Aquaculture systems. The systems are traditionally integrated with crop production, horticulture, and livestock husbandry. Improved aquaculture systems are currently able to not only improve the nutrients of local farmers' diets and economic conditions, but are also able to create employment opportunities and lead to better resource-utilization and rural development. This paper aims to present the changes in food systems affected by the rapidly developing freshwater aquaculture in northern Vietnam. It will shed light on how the aquaculture system plays various roles in supporting agrarian livelihoods, their relationships to well-being, and food security using a clear example of small-scale aquaculture in a province of the Red River Delta. The challenges and opportunities presented to small-scale producers and culture systems are assessed, and the likely future of small-scale freshwater production systems is discussed and forecast.

Combining historical, adaptive, and systematic approaches, the study revealed the features and characteristics of inland aquaculture systems at the household level over a decade of the evolutionary process (1997–2015). By investigating 151 aquaculture households in two representative districts of the region, the three existing systems are identified: VAC system (23%) (whereby V=vuon-gardens (horticulture), A=Ao-ponds (aquaculture) and C=Chuong-animal

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sheds/pens (livestock husbandry)); aquaculture/livestock (AF) system (43%); and the commercially intensive fish culture (FS) system (34%). Beyond the positive benefits to the food system and rural development, potential considerably exists for further aquaculture integration within VAC systems in the region, which will contribute to poverty reduction and improvement of the livelihoods of small-scale rural farmers.

Keywords: Freshwater aquaculture, production, systems, food, rural development

Resumen

Los sistemas de acuacultura de agua dulce están muy relacionados con los sistemas integrados de acuacultura de agricultura. Los sistemas están tradicionalmente integrados con la producción de plantaciones, horticultura y la cría de ganado. Los sistemas de agricultura mejorada pueden actualmente no solo mejorar los nutrientes de las dietas de granjeros locales y las condiciones económicas, sino que también pueden crear oportunidades de empleo y llevar a una mejor utilización de recursos y desarrollo rural. Este documento busca presentar los cambios de sistemas alimenticios causados por la acuacultura de agua dulce que se está desarrollando rápidamente en el norte de Vietnam. Resaltará cómo el Sistema de acuacultura juega varios papeles para apoyar la subsistencia de los agricultores, sus relaciones al bienestar y la seguridad alimenticia al utilizar un claro ejemplo de acuacultura a pequeña escala en una provincia del delta del Río Rojo. Los desafíos y oportunidades que se le presentan a los productores a pequeña escala y a los sistemas culturales son evaluados, y el futuro probable de los sistemas de producción de agua dulce a pequeña escala se discute y predice.

Al combinar los acercamientos históricos, adaptativos y acercamientos sistemáticos, el estudio reveló las funciones y características de los sistemas de acuacultura en zonas interiores, a nivel de hogar y a lo largo de una década del proceso evolutivo (1997-2015). Al investigar 151 hogares acuacultores en dos distritos representativos de la región, los tres sistemas existentes se identifican: Sistema VAC (23%) (donde V=jardines Vuon (horticultura)), A=estanques

Ao (acuacultura) y C=establos de animales Chuong (cría de ganado)); Sistema (AF) de acuacultura/ganado (43%); y sistema de cría de peces comercialmente intensiva (FS) (34%). Más allá de los beneficios positivos del sistema alimenticio y desarrollo rural, existe un potencial considerable para más integración de acuacultura dentro de los sistemas VAC en la región, que contribuirá a la reducción de pobreza y el mejoramiento del sustento de granjeros rurales a pequeña escala.

Palabras clave: Acuacultura de agua dulce, producción, sistemas, alimentación, desarrollo rural

摘要

淡水养殖生产系统和一体化农业水产养殖系统紧密联系。这些系统一般都和谷物生产、园艺以及畜牧业合并在一起。改进后的水产养殖系统不仅能提高当地农民的膳食营养和经济情况，还能创造就业机会，并引导更好的资源利用和农村发展。本文致力呈现越南北部因淡水养殖急速发展而产生的粮食系统变化。本文将红河三角洲范围内一个省的小规模水产养殖作为案例，清晰阐述了水产养殖系统如何扮演不同角色，为农业生计、农业生计与安乐的关系、以及粮食安全提供支持。本文评估了小规模生产者和养殖系统面临的挑战和机遇，探讨并预测了小规模淡水生产系统的未来。

本文结合历史方法、自适应方法和系统方法，揭示了内地家庭水产养殖系统经过十多年演变后的特点（1997-2015）。通过调查两个代表区中的151户水产养殖家庭，识别了三种现有系统，它们分别是：VAC系统（V=vuon-gardens，即园艺，
A=Ao-ponds，即水产养殖，C=Chuong-animal，即畜牧业），占比23%；水产养殖/畜牧（AF）系统，占比43%；商业性强的鱼类养殖（FS）系统，占比34%。水产养殖除了给粮食系统和农村发展带来积极益处，未来还很有可能在该区域VAC系统中进一步合并，这将促进减少贫困，提高小规模农民生产者的生计。

关键词：淡水养殖，生产，系统，粮食，农村发展

I. Introduction

Freshwater aquaculture is an important component of the supply of animal-based protein, amino acids, fatty acids, minerals, and vitamins in the diets of predominantly poor populations in the developing countries of South East Asia (Dey & Ahmed, 2005; Dey et al., 2005; Mishra & Ray, 2009; Prein & Ahmed, 2000; Tacon, 1997). Belton and Little (2011) predicted that the aquaculture production systems would become more intensive and uniform and output will, on the one hand, satisfy the growing demand of mass markets for safe animal-source products but, on the other, is unlikely to meet the strong cultural attachment to the diverse and local that is still prevalent in rapidly growing areas of Asia, where the cultural value was characterized as traditional and often "wild" foods. This resilience of food cultures would be possible to anticipate the continued existence of considerable market demand for small-scale producers. The rapid growth and widespread development of aquaculture have been occurring at a critical time in human history, especially increasing unpredictability associated with climate change and greater volatility in food prices and food security would be a reality. Climate change would be expected to bring particularly severe impacts to the densely residential deltas of Asia where small-scale aquaculture is most prevalent and where, if maintained or further developed, it might be responsible for an important role in adaptation approaches oriented to enhance social–ecological resilience.

In Vietnam, freshwater fish contributes to 12.4% of the 29 g capita^{-1} day^{-1} animal-based protein supply (FAO, 2013), of which 37% is supplied by the cyprinid and cichlid species and mainly produced through aquaculture (FAO, 2011). It has been widely recognized that farm product diversification through aquaculture can contribute to a sustainable method of developing food security, alleviating poverty (Edwards, 2000; Prein & Ahmed, 2000; Tacon, 1997), and also may increase resilience to financial shocks in developing countries such as Vietnam. Promoting the aquaculture separate from, or integrated within, broader livelihoods therefore becomes a crucial policy issue. Aquaculture has, in some cases, been inherent in national poverty reduction strategy plans or has become a key part of macro-economic growth. The renewed approach in which various types of aquaculture can contribute to poverty alleviation at household, community, and national levels is critical (Little et al., 2010). Although aquaculture farming has greatly improved in the past decades, few studies have focused on the entire range of benefits within the existing systems of freshwater aquaculture production in the Red River Delta region.

In diverse and highly populated regions in Asia like China and northern Vietnam have a long and acknowledged history of freshwater aquaculture production systems (Edwards, 1993; Luu, 2001; Ruddle & Zhong, 1988),

suggesting that aquaculture is the key component of Integrated Agriculture Aquaculture (IAA) farming, commonly known as the "VAC" model. This acronym is derived from the Vietnamese words for orchard (vuon), pond (ao), and livestock pen (chuong), and was the farming system become popularly to exploit in the 1980s in order to project and to expand food security strategies. The VAC system's success among the local and rural people in terms of food security pushed the Vietnamese government to implement the Sustainable Aquaculture for Poverty Alleviation (SAPA) strategy and to carry out the Programme of Hunger Eradication and Poverty Reduction (Luu, 2002). Initially, the system was introduced in the Red River Delta area and then became widespread and developed in other regions. As a result, freshwater aquaculture became a strategy in sub-sectors to improve nutritional standards and to generate income in small-scale farming households (Luu et al., 2002; Pekar et al., 2002).

In Hai Duong, a central province of Red River Delta in northern Vietnam, rice cultivation is still the traditional and principal source of income for farmers. Alternative land use and livelihood options such as aquaculture, fruit production, and livestock (Hanh, Ton, & Lebailly, 2013) are integrated components in farms and create more cash income, food, and foodstuffs in order to meet subsistence needs (Lebailly et al., 2015). In this province, the targeted areas to develop freshwater aquaculture were those large lowland areas of rice fields which had low productivity and were being inefficiently utilized due to unstable crops during the flooding season. Statistical data and records indicate that, by 2014, the land used for aquaculture had expanded rapidly, increasing by 64% from 5,668 ha in 1996 (Hai Duong Statistics Office, 1999, 2014). Government policy strongly supported these changes. Since 1999, the Vietnamese government and local authorities have promoted the restructuring and diversification of the agricultural sector with the goal of reducing the share of rice in the total agricultural output value while increasing the contribution of aquaculture to economic growth. This policy resulted in the growing importance of aquaculture and is reflected in the following figures: in 1996, aquaculture production contributed approximately 2.7% to the total gross production of agriculture in Hai Duong and in 2014, it made up 12%. Between 1997 and 2014, aquaculture production increased annually by 13% and in surface area by 3.9% annually (Hai Duong Statistics Office, 1999, 2014).

II. Methodology

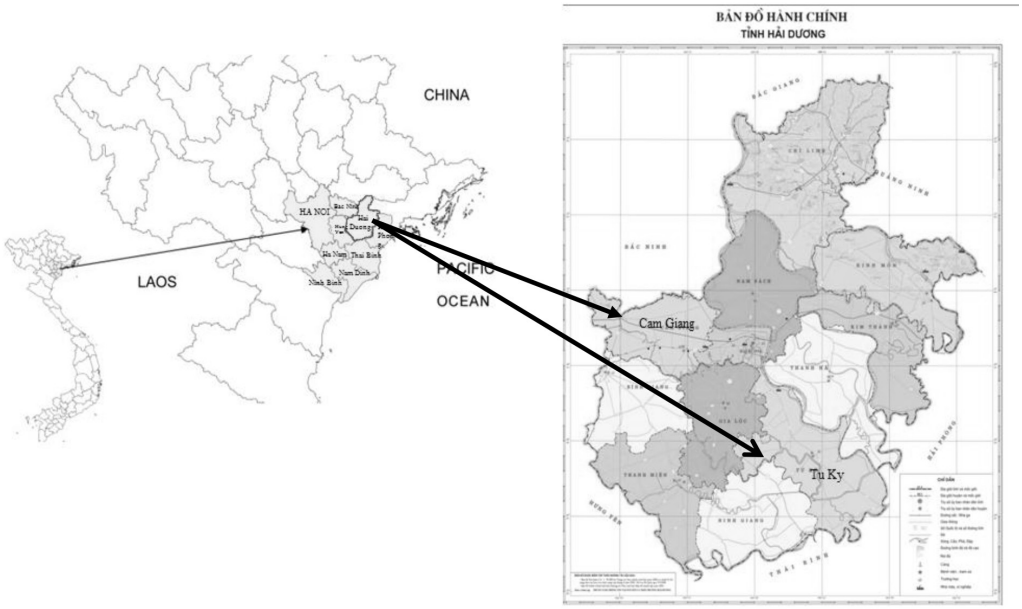
As qualitative and quantitative methods were employed in this study, the secondary data were gathered from the local statistical offices and annual records at the survey sites. In addition, primary data and information (group discussions and household interviews) were used for the research analysis of household aquaculture data, including information such as general characteristics of households, their aquaculture

systems, integrated farming activities, and on-farm income sources related to the fish farming. The data collection and analysis were implemented as follows:

Site selection and sampling design

Central location in the Red River Delta (see Figure 1), Hai Duong province's fishery has, recently and quickly, been developed in both surface area and output. Because this province is situated entirely inland (with no coast), only freshwater aquaculture and the VAC system can be found and were developed early in northern Vietnam—the Red River Delta, its freshwater aquaculture tends to be unique and quite notable.

Figure 1. Site Selection of Two Districts in Hai Duong



Source: Vietnam department of survey and mapping 2015.

Although, over the decades, freshwater aquaculture has been projected to develop in the province, there has been limited data and information or studies about the freshwater production systems. It is also quite difficult to define and verify the classification, category, and characteristics of the aquaculture production systems existing at the research site. Therefore, three stages were applied in order to design the sampling. First of all, the two districts of Tu Ky and Cam Giang were selected in order to investigate the aquaculture households because of their strongly developed and diverse fish production systems. Secondly, two communes were identified from each district. Finally, the more prevalent fish-rearing village was chosen from each selected commune.

Table 1. Samples of Fish Households (HHs) Selected in Hai Duong Province

Location			**Fish HHs**	**Animal/ Fish HHs**	**VAC HHs**	**Total**
District	***Commune***	***Village***				
Cam Giang	Cam Doai	Hoa Binh	13	13	10	36
	Cam Dong	An Lai	8	18	9	35
Subtotal			***21***	***31***	***19***	***71***
Tu Ky	Hung Dao	Lac Duc	19	15	7	41
	Tai Son	Thuong Son	11	19	9	39
Subtotal			***30***	***34***	***16***	***80***
Total			**51**	**65**	**35**	**151**

The sampling design was defined from the selected villages, of which 151 households with fish farming were randomly selected from the lists that were provided by local officials and authorities such as leaders of The People Committee, Cooperatives, and/or Villages. The sampling design is described in Table 1. The number of households was 39 from Thuong Son; 41 from Lac Duc; 36 from Hoa Binh; and 35 from An Lai village.

Data analysis: Multivariate factor analysis was employed to analyze the cross-relationships between aquaculture production systems in order to identify any major underlying factors between these relationships. Three models were established: (1) first for households with VAC farming—VAC system; (2) second for those engaged in aquaculture and livestock husbandry—aquaculture/livestock (AF) system, and the (3) third for commercially intensive fish culture farms—FS system.

According to McConnell and Dillon (1997), the farm analysis was based on the collected data and farm records or received as estimates from memory of members of the household. In reality, the production/disposal data are activity-specific, but the inputs/costs are "all mixed up" with no indication of which inputs have been used for which activities. However, the study protocol managed to obtain a picture of the farm operation as a whole. On the other hand, on small farms, it is usually necessary to distinguish between different classes of outputs: final products that are sold or consumed by the household and intermediate products used in another farm operation as resources. For subsistence-oriented farms, it is necessary to impute the prices/values of products which are not sold for cash. Therefore, the values of all final products (A—All Outputs/Returns) are consolidated as a total gross return for the household and all direct input costs (B—All Purchased Activity Direct Inputs) of all activities are also consolidated to give a total direct cost. This excludes the value of farm-generated

resources. There are General Charges and Capital Equipment Repairs, Operation (C—All Farm Fixed Costs), which are recorded as part of the Total Farm Fixed Costs.

Table 2. Indicators and Derived Measures for Annual Whole-farm Evaluation

Measure	Calculation	Notes	Notes
A.	All outputs/returns (pooled)		
B.	All purchased activity direct inputs (pooled)		
C.	All farm-fixed costs (except depreciation)		Depreciation recorded in D below
D.	All capital depreciation		
E.	Farm gross margin	A – B	
F.	Farm net actual returns	E – C	Depreciation not yet charged.
G.	Farm net sustainable returns	F – D	Depreciation charged; system now sustainable.
H.	Family farm available income	H = F	But only if depreciation is not covered.
I.	Family farm sustainable income	I = G	Long-term sustainable farm income.
J.	Total available family income	(H or I) + S	S is non-farm income, here assumed to be zero.

Source: McConnell and Dillon (1997).

The Total Farm Gross Margin is the easiest to derive: it consists of the sum the gross margins of all activity, or if activity costs/returns have been pooled, the total value of farm output of final products minus total farm direct costs. If required, this is a good measure of performance to compare similar farms supposing their capital structures (levels of fixed costs) are similar or relatively unimportant. An alternative measure is to use the index of Farm Net Returns. But this level of "income" is not stable over the long term because it makes no provision for replacing capital equipment as it wears out. If this is an important consideration, the Farm Net Actual Returns should be decreased by the depreciation charge in order to obtain the Farm Net Sustainable Returns.

In this study, the analysis measured terms of farm performance from records in the following areas: Farm Gross Margin (E), Farm Net Actual Returns (F), Farm Net Sustainable Returns (G), Family Farm Available Income (H), Family Farm Sustainable Income (I), and Total Available Family Income

(J). While these indicators are desirable because E, F, G, H, I, and J are adequate records and over time to indicate the degree of variability in the performance of the subject farm, they do not in and of themselves provide any basis for comparing a farm's income levels to those of other farms. If whole-farm comparison is introduced at this point, the results are summarized in Table 2. Thus, fish farms would be compared in terms of the measures E, F, G, H, I, J with other farms in the village or area having a similar size, soil, water supply, etc. but not necessarily the same mix of activities.

III. Research Results and Discussion

A Key Role of Aquaculture in the Food Production System

To understand the context of aquaculture development, group discussions were used to identify the basic features and characteristics of the existing freshwater aquaculture production systems in the survey areas. The findings showed that fish farms usually have three components: (1) the homestead and perennial trees (fruit orchards created by pond dikes), (2) the pond, and (3) the rice field. The livestock, fruit orchards, and the pond are usually located together. The homestead area consists of livestock, fruit orchards, vegetables, and other trees which are located close to the residence, with an average area of around 433 m^2. In addition, the link between the components, the scale of livestock production, area and number of fruit trees, and the household's economic status as well as their experience in fish production were determined (see Table 3).

It was reported by the households with animal/fish production (AF systems) and commercially intensive fish production (FS) systems that their fish cultures in the past originated with the traditional homestead VAC model which, to a certain extent, has disappeared. However, the modern VAC and other systems still exist due to the number of farmers who believe strongly that the current VAC model has been restructured by increasing and balancing its economic scale level of components, namely fish pond size, orchards, and animal husbandry. VAC households are, thus, not characterized as aquaculture ventures. On the other hand, most farmers belonging to AF or FS household groups answered that they were able to develop their fish production thanks to the accumulation of knowledge and experience in aquaculture, as well as capital investments from establishing the traditionally small VAC model.

The benefits of aquaculture in food systems within the context of rural development relates to health and nutrition, employment, income, the reduction of vulnerability, and farm sustainability. In the municipal survey, the freshwater aquaculture systems provide high-quality animal protein and essential nutrients, especially for nutritionally vulnerable groups such as pregnant and lactating women, infants, and pre-school children. In particular,

Table 3. Freshwater Fish Production System (FFPS) Characteristics in Hai Duong

FFPS	Integrated levels between sub-systems	Farm household situations	Animal husbandry	Horticulture
Intensive orchard—low input aquaculture (New **VAC**)	High with closed nutrient flow of food	Less experience in aquaculture production	With or without small pig production (1–5 pigs/HH), or small- to medium-scale poultry production	Large number and area of perennial trees
Semi-intensive orchard—medium input aquaculture (**Animal + Fish production—AF**)	Medium	Experience in aquaculture and animal production	With or without medium pig production (10–50 pigs/HH) or commercial poultry production	Small number and area of perennial trees
Extensive orchard high input aquaculture (**Commercial fish production—FS**)	Low with more external supplement of food flow	Experience in aquaculture	Self-subsistence poultry production	Small number of perennial trees

Source: Discussion with key informants in the research site, 2015.

it also provides protein at prices generally affordable to the poorer segments of the community. Most survey households responded that fish ponds have created an enterprise for self-employment, including jobs for women and children, and creates income through the sale of surplus aquaculture products. Income from employment opportunities are also possible for the people who work for larger farms, in seed supply networks, market chains, and manufacture/repair supporting services. Indirect benefits include increased availability of fish in local rural and urban markets, which leads to an increase in the local consumption of fish.

The inland aquaculture systems in Hai Duong can shed light on the previous observation of Prein (2002) that integrated aquaculture systems are diverse and have a wide range of small- to large-scale systems that are fully oriented to the market. For small-scale VAC systems, part of the production is used for subsistence purposes with some level of market involvement or communal exchange. In such systems, aquaculture enterprises are only a minor component of the farm as a whole. However, with

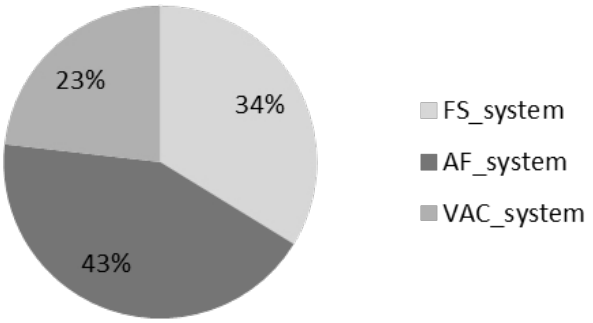
greater farm specialization and market orientation, aquaculture enterprises could become a dominant feature. This supposes a key role of aquaculture in food production systems in the future.

Classification and Structure of Freshwater Aquaculture Production Systems

Misui and Horiuchi (2006) indicated that the Vietnamese government misuses a criterion of agricultural sales that would be suitable in developed countries like Japan and misclassifies VAC farming systems in the Red River Delta. These farming systems have 14 types of farming enterprise combinations, i.e. VAC, VA, VC, AC, V, A, C, VAC+rice, VA+rice, VC+rice, AC+rice, V+rice, A+rice, and C+rice. The systems can be classified by many optimum criteria, the most appropriate of which in VAC farming systems is agricultural income, classified by self-sufficient farm households in Vietnam.

In populated rural regions like Hai Duong, extensive to semi-intensive aquaculture systems are prevalent and produce the bulk of aquaculture products. Extensive farming usually involves unsophisticated methods, relies on natural food, and has a low input to output ratio. As production intensity increases, fish are deliberately stocked and the natural food supply is enhanced by using organic and inorganic fertilizers, industrial feeds, and low-cost feed supplements derived from agricultural by-products. The survey results showed extensive and semi-intensive (stocking rate less than 1 fish/m^2) aquaculture production systems in the region. However, based on the aquaculture integration to agriculture patterns, or IAA system, the structure of aquaculture production systems is determined by analyzing the household survey. The number of households applying the improved VAC system accounted for 23%, the animal/fish (AF) production system made up of 43%, the largest percentage, and 34% for the commercially intensive fish production (FS) system (Figure 2).

Figure 2. The Structure of Freshwater Aquaculture Production Systems in Hai Duong



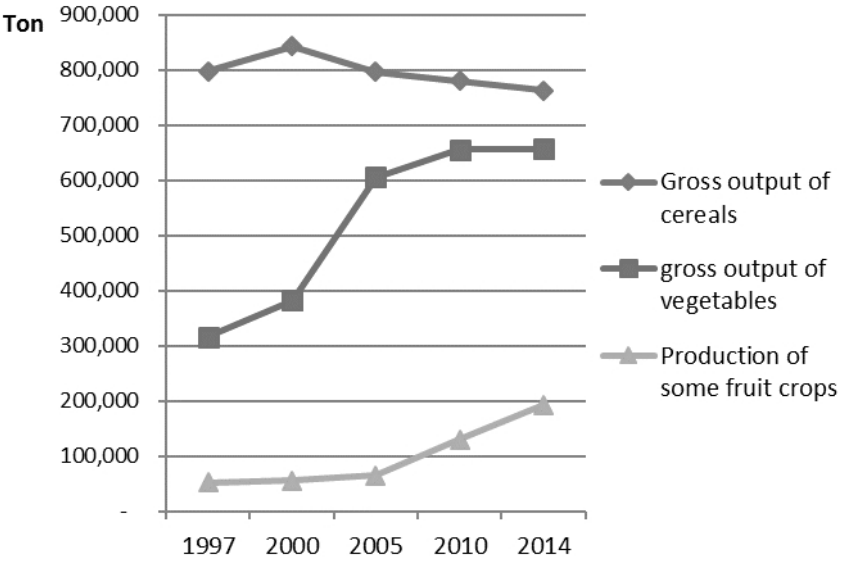
Source: survey, 2015.

The Evolution of Freshwater Aquaculture in Food Production Systems

In recent years, the food production system in Hai Duong has changed significantly. In spite of engaging principally in farming activities, the output of cereal production showed a downward trend before increasing to 842,826 tons in 2000. In contrast, vegetable and fruit crops, livestock production, and fish production grew positively in their annual gross outputs. These outcomes resulted from the strong movement to develop the VAC systems' components in the province (see Figures 3 and 4). Along with this process, the traditional VAC system (model) has been modified and improved in other "hybrid" aquaculture systems in which fish ponds, livestock, and orchards have moved from the residence areas to the rice field areas and developed a more commercial orientation under the impact of urbanization and socio-economic changes.

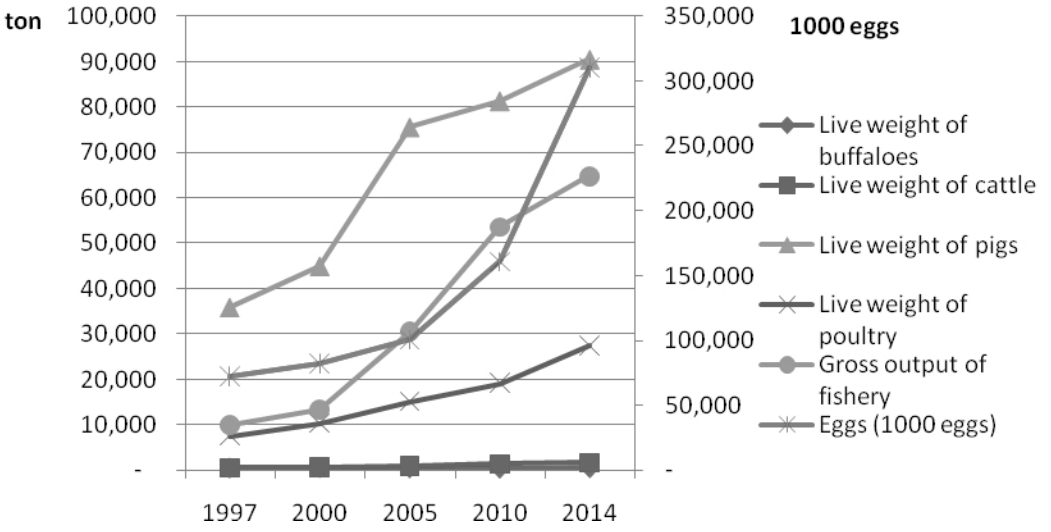
The traditional VAC model was understood and initially developed in 1980s, although it was not a far-reaching system with closed nutrient food flows. In just over a decade, the achievements of the system were undeniable; it provided a large quantity of food and foodstuffs to farmers in rural areas. Thus, the statistical data, records, and information prove that the gross output of vegetables and fruit crops rose also from 315 and 51 thousand tons in 1997 to 657 and 192 thousand tons in 2014, respectively; and this was in addition to strongly developed animal husbandry

Figure 3. Changes in the Gross Output of Different Crop Cultivation in Hai Duong (1997–2014)



Source: Hai Duong Statistics Office.

Figure 4. Changes in Livestock and Fish Production in Hai Duong (1997–2014)



Source: Hai Duong Statistics Office.

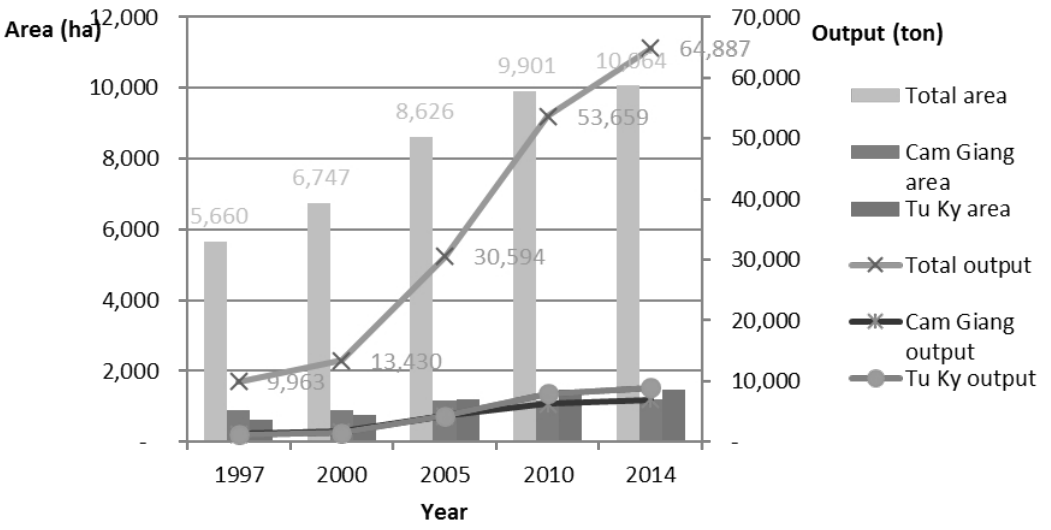
practices. The availability of eggs greatly increased as well, going from 72.5 million in 1997 to 310 million eggs in 2014 (Hai Duong Statistics Office, 1999, 2005, 2014). This period also witnessed a sharp increase in the output of pig and poultry production from 35,895 and 7,524 tons in 1997 to 90,575 tons and 27,421 tons in 2014, respectively.

The current trend increases fish production by intensifying and expanding the areas under aquaculture production, and this trend can be maintained and encouraged. Generic technologies used to intensify the existing production systems are in place, and it is mainly socio-economic and institutional issues that will significantly foster greater contributions from aquaculture to rural development. In Hai Duong, the freshwater aquaculture production system has become complex and diverse, not only at the scale of the ponds, the level of fish intensification, techniques, and technology but also in the integration of other agricultural operations such as livestock and crop cultivation. Because fish production can be integrated within agriculture on current agricultural lands in smallholder and commercial farms, the expansion of freshwater aquaculture in the province has great potential. Therefore, freshwater aquaculture can be assessed to have a key role in food production systems by observing the boom of fish production in the province since its re-establishment in 1997 (Figure 5).[4]

The food production system in Hai Duong evolved significantly over

4 Haiduong was re-established in 1997 from the before province of HaiHung—a merged Hung Yen and Hai Dduong province.

Figure 5. The Area and Production of Freshwater Aquaculture in Hai Duong Province (1997–2014)



Source: Hai Duong Statistical Book, 1999, 2005, 2014.

the last decades. It changed not only in the structure of the food it produces, but also in its production systems, especially for the freshwater production systems. The total production of fish in Hai Duong rose from 9,963 tons to 64,887 tons from 1997 to 2014. There was also a significant increase of aquaculture in the area, from 5,660 (ha) to 10,064 (ha) during the period 1997–2005. The turning point of aquaculture expansion was in 2005 when the Vietnamese government set up a program of food security which prioritized a large area of agricultural lands to maintain rice production (3 million ha) in order to ensure the national food security program. This has clearly impacted the aquaculture expansion in the province. As it was, 70 households (46%) out of the total (151) investigated households started their fish cultures in the period from 1997 to 2005, while only 38% of total households established their fish cultures during the period 1980–1996 (Table 4).

The essential characteristic of IAA systems is the flow of nutrients between enterprises, i.e. wastes from one enterprise become inputs to another in order to increase production. These wastes do not flow exclusively to the pond, but from the pond to other enterprises (in the form of pond mud and nutrient-rich water) such as in vegetable production around the pond. Some of these new enterprises and flows may only have been feasible through the introduction of the pond. Increased enterprise diversity provides opportunities for more nutrient linkages, and a possibility to meet increased nutrient requirements for enhanced production,

Table 4. The Start-Up Period of Fish Production at Farms in Hai Duong

(Unit: household)

Period	FS system	AF system	VAC system	Total
1980–1996	23	27	8	58
1997–2005	17	31	22	70
2006–2014	11	7	5	23
Total	**51**	**65**	**35**	**151**

Source: survey, 2015.

although this requires additional labor. This opens avenues for on-farm or concurrent integration, both on small-scale farms and in large-scale commercial agri-businesses, with manure and fish production taking place on the same farm. At the community level, diversification leads to opportunities for off-farm integration (i.e. between-farms), such as the sale of chicken manure by poultry growers to specialized fish farms.

The one-way ANOVA tests revealed changes in the household size, paddy land, homestead land, agricultural land, number of fruit trees, and the total head number of animals raised because of their systems (Table 5). Farms with VAC systems had a larger number and area of fruit trees than those of two other systems, but also fewer fish ponds in the area. Additionally, the VAC households' ownership of agricultural land was the smallest; the households with animal/fish production systems are characterized by more reared animals, paddy land, homestead land, and more family members in comparison with those of households belonging to commercially intensive fish production systems. Although the fish pond was the smallest area for the households with the VAC system, the pond plays an important role in effectively utilizing households' production resources and recycling wastes. Fish farming was not considered as a high priority because it was employed by poor households with limited agricultural land and capital investment. The main goal of their farming is to meet their food security and subsistence needs. In contrast, among farmers engaged in animal/fish production and highly commercial fish production, the fish production was the major objective from the outset, rather than the pond being simply a development of the homestead and fruit orchards.

Economic Effectiveness and Efficiency of Freshwater Aquaculture Production Systems

In fact, freshwater aquaculture systems were greatly diversified and intensified. There was increased reliance on plant residue/manure, increased inorganic fertilizer inputs, and use of low-cost feeds. Furthermore, some manure and inorganic fertilizer use requires aeration and closer fish

Table 5. The Characteristics of Fish Farms in Hai Duong Province

	Unit	FS system (N=51)		AF system (N=65)		VAC system (N=35)	
Age	Year	52.1	(9.79)	52.5	(8.35)	55.8	(8.36)
Household size	People	3.02*	(1.09)	3.80*	(1.12)	3.51	(1.40)
Number of laborers	Labor	2.45	(0.92)	2.86	(1.10)	2.66	(1.45)
Agriculture land	Sao(#)	18.7	(9.10)	18.3	(7.76)	11.7*	(3.82)
Homestead land	m^2	353.0*	(271)	512.3*	(430)	459.5	(228)
Paddy land	Sao(#)	4.20*	(3.48)	6.17*	(3.10)	5.20	(3.42)
Area of fruit trees	m^2	230	(371)	317.2	(600)	515.6	(878)
Number of fruit trees	Tree	36*	(56.00)	45	(64.75)	103*	(171.20)
Number of animals raised	Heads of animals	23*	(26.36)	188*	(234.4)	39	(36.01)
Area of aquaculture land	Sao(#)	14.49	(9.58)	12.12	(7.01)	6.51*	(2.46)
Number of owned ponds	Ponds	2.27*	(1.56)	1.88	(0.89)	1.34*	(0.48)
Experience in aquaculture	Year	16.5	(7.23)	17.6*	(7.27)	14.1*	(4.85)

(#)1 sao = 360 m^2.
(*) The mean difference is significant at the 0.05 level.
Parentheses are standard deviations.

Source: survey, 2015.

health management. Often in more intensive aquaculture production systems, there is a change in food management during a production cycle, e.g. from an initial basis of manure and fertilizer inputs, to a gradual shift to pellet feeding as the main input. The freshwater aquaculture system's trends are characterized by product specialization, market/commercial orientation, off-farm or between-farm integration, and de-integration (i.e. reduction in emphasis on recycling flows) and greater emphasis on inorganic fertilizers and fish feeds, compared with a previous reliance on manure or sewage as the main nutrient sources. However, a trend toward diversification of the produced fish into the production of high-value marketable species is emerging in the survey sites.

In Hai Duong, polyculture is applicable mainly for fish production in which the number of species of fish ranges from 2 to 6; carp being the most common species found in stock in the survey households. Fish were normally harvested after 10 months of being stocked. The stocking density was calculated based on the total area for fish production (included bankers/dikes of the pond), so the calculation of the

Table 6. The Status of Fish Production at Farms in Hai Duong Province

	Unit	FS system (N=51)		AF system (N=65)		VAC system (N=35)	
Area of aquaculture	Sao	14.49*	(9.58)	12.12	(7.01)	6.51*	(2.46)
Number of ponds	ponds/ household	2.3*	(1.56)	1.9	(0.89)	1.3*	(0.48)
Production cycle time	Months	9.8	(2.59)	10.5	(1.88)	10.7	(2.03)
Stocking density	fish/m^2	0.81	(0.59)	0.84	(0.62)	0.78	(0.47)
Kinds of fish	Fish/stocking	4.31	(1.22)	4.37	(1.18)	4.31	(1.39)
Production	kg/household	4,727	(4,176)	4,254	(2,475)	2,144	(1,233)
Yield	kg/sao	325	(166)	359	(176)	339	(164)

(*) The mean difference is significant at the 0.05 level.

Calculation of stocking density included pond-dike area. Parentheses are standard deviations.

Source: survey, 2015.

stocking density was less than one in every m^2. The total production ranged from 150 to 17,740 kg/household annually. On average, the largest fish production was concentrated to FS households with 4,727 kg/household, followed up by AF households with 4,254 kg/household, while it was only 2,144 kg/household for VAC households. However, the yield (339 kg/sao) of VAC households is larger than that of the FS households (325 kg/sao). ANOVA tests revealed the significant difference in the number and area of fish ponds between the groups of FS and VAC households (Table 6).

In recent decades, a number of studies on the impact of aquaculture production systems on household nutrition have been conducted in rural areas. The studies reveal that considerable benefits result either from the direct consumption of fish by the producing households or from gains in income, so that fish farms can afford to purchase other cheaper foods, which nevertheless leads to an improved household diet (Ahmed & Lorica, 1999; Prein & Ahmed, 2000; Ruddle & Prein, 1998; Sultana, 2000; Thilsted & Roos, 1999; Thompson, Sultana, Nuruzzaman, & Firoz Khan, 1999). Further direct benefits from rural integrated aquaculture, aside from increased household nutrition and income, are the local availability of fresh fish and the provision of employment for household members. Indirect benefits are the increased availability of fish to local and urban markets which may lead to a reduction in prices; increased employment benefits through the development of an industry providing work on fish farms and in related services; and the development of seed supply networks.

In Table 7, All Purchased Activity Direct Inputs, resources, and benefits associated with the three systems are shown. When calculating the economic benefits, only resources that are tradable in the region were taken into ac-

Table 7. Economic Effectiveness and Efficiency of Fish Production per Sao at Farms in Hai Duong Province

Unit: 1,000 VND

	FS system (N=51)	**AF system (N=65)**	**VAC system (N=35)**
Total value of fish	**13,336.7**	**15,610.2**	**15,100.8**
All variable costs *(Purchased Activity Direct Inputs)*	***6,043.8***	***7,596.4***	***6,700.2***
Fingerlings	2,202.8	2,577.4	2,995.3
Feed	5,480.2	6,821.1	5,655.5
Fertilizer	3.6	1.0	9.4
Lime	92.7	113.2	84.5
Chemicals	242.4	283.6	208.2
Energy	187.6	335.7	338.7
Other	48.6	48.6	28.5
Gross margin of fish	**7,292.9**	**8,013.8**	**8,400.7**
All capital Depreciation*	***775.3***	***1,079.5***	***1,028.0***
Family farm available Income of Fish	**6,517.6**	**6,934.4**	**7,372.7**
Working labor (man-days)	**14.03**	**16.43**	**32.64**

**The fixed cost is calculated based on depreciation over 10 years.*

Source: survey, 2015.

count. The operation of the pond was carried out through family labor; thus, the opportunity costs from the labor of collecting leaves and grasses as feed and manure as fertilizer were not included here, as these resources had no monetary value in the research area. Under the VAC system, cereals (maize and rice), rice bran, and some agricultural by-products were resources with a market value and showed a high variation in the amount used as pond input. Under the farming management of AF and FS systems, compound feed was the highest financial input, comprising on average (90%) of the total value of pond inputs. The variable costs were feed, fertilizer, lime, chemicals, electricity, and other operational costs. Labor is excluded in the price of the total cost. However, labor employment was estimated and research calculations showed that fish farms with the VAC system are the most labor-intensive (32.64 man-day

per sao). Chemical, lime, and inorganic fertilizers accounted for 5% of the financial input. The VAC farms' Gross Margin (8.4 mill VND) and Family Farm Available Income (7.4 mill VND) of fish gained much better than those of from AF and FS systems. These results implied that the fish production systems benefited through integration by becoming more effective and better at resource-utilization. The integration of the aquaculture systems would be A-C or V-A-C.

Contribution of Freshwater Aquaculture to the Food System and Rural Development

Taking aquaculture's contribution into account when discussing food systems and rural development, it is, perhaps, not surprising that aquaculture production has grown rapidly since the 1980s and has been the fastest growing food production sector in the survey areas for more than three decades. In 1996, aquaculture production contributed approximately 2.7% and in 2014, 12% of the total gross production of agriculture in the province.

The average gross income of households in which off-farm income was excluded (from 6/2014 to 6/2015) ranged from 10,000,000 VND/year (US$ 500/year) to 333,530,000 VND/year (US$ 15,000/year). This figure for the FS group was 72,136,000 VND/year (US$ 3,200/year), less than that of the AF group, 98,430,000 VND/year (US$ 4,406/year), but higher than those of the VAC group, 53,586,000 VND/year (US$ 2,613/year). However, the difference between the total household income among the groups was not statistically significant. On-farm income includes revenues from various enterprises such as cultivating rice, raising livestock, fish production, growing non-rice crops, and growing fruit trees, which all create an annual cash income for the farmers. Any enterprises that were just for personal consumption or recreation, but not for earnings, were ignored in this study because they do not contribute to the farmers' income. Similar to the results for whole-household income, the Kruskal–Wallis tests did not find any significant differences between the groups in terms of the income of farming enterprises. However, the calculations of the average income from various sources gave a general impression of income differences among the three groups. At the whole-farm level, the AF farmers appeared to obtain the highest returns from their farming, although the difference in terms of gross household income was not significant at the time of the study. This result is consistent with the assumption that aquaculture development aimed to improve the situation of the food and foodstuffs, and the diversity of income sources for poor households in rural communities (Table 8).

IV. Conclusion

Over time, freshwater aquaculture production systems are dynamic and are subject to economic and environmental changes. The development of aquaculture in

Table 8. Sources of On-Farm Income at Fish Farms in Hai Duong Province

	FS system			AF system			VAC system		
	(N=51)	Std	%	(N=65)	Std	%	(N=35)	Std	%
Rice crop	5,265	*5,127*	64.47	8,171	*5,601*	62.40	6,818	*5,044*	45.98
Vegetable crop			-	1,380	*3,273*	10.54	1,053	*2,348*	7.10
Fruit crops	2,902	*3,333*	35.53	3,544	*3,943*	27.06	6,958	*8,591*	46.92
Total crops	***8,167***	*5,878*	***11.32***	***13,096***	*7,709*	***13.30***	***14,829***	*10,769*	***7.67***
Livestock husbandry	***4,905***	*5,289*	***6.80***	***34,162***	*31,865*	***34.71***	***8,078***	*5,949*	***15.07***
Fish production	***59,064***	*61,354*	***81.88***	***51,172***	*37,103*	***51.99***	***30,681***	*23,659*	***57.26***
Total	**72,136**	*66,758*	**100.00**	**98,430**	*60,928*	**100.00**	**53,586**	*28,927*	**100.00**

Source: survey, 2015.

the Red River Delta has shown the evolution from low-input on-farm integrated systems to high-input off-farm integrated and commercial systems, supplying significant amounts of fish to rural and urban consumers. The aquaculture production systems play a key role in the development and diversity of food systems. This is clear evidence that these fish production systems, especially IAA—VAC and AF systems are becoming more and more important in northern Vietnam for food security and rural development.

The mono-aquaculture or intensive fish farming (FS system) seems to be less efficient and stable in terms of resource-utilization and economic fears (production risks, market risks ...). With similar levels of farm resources, and investment capital, farms with the AF system are able to obtain a much better return than that of farms belonging to the FS system. Moreover, the most efficient farms use the VAC system. This strongly supports VAC as a sustainable food system in developing countries in the context of rapid loss of agricultural land to urbanization and industrialization. What will be the sustainable food production system of the future? Which will feed the growing population on smaller and smaller areas of cultivated land?

Aquaculture integration has considerable potential within the VAC system in the region, which is significant for poor farmers in developing countries where access to farming resources, investment capital, and food security are still problematic. Further research on the system that focuses on economic, environmental resource-utilization, and social benefits will shed light on its contribution to poverty reduction and improvements to livelihoods, as well as food security for most small-scale rural farmers.

Furthermore, poor rural people might also benefit from the provision of low-cost fish. If it is well planned and managed, VAC farming can significantly contribute to the process of the agricultural diversification, the reduction of vulnerability and farm sustainability, and rural development, i.e. diversifying the sources of income, increasing the employment and welfare of rural people, and safeguarding against environmental pollution.

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What shapes the governance of the dairy value chain in Vietnam? Insights from Ba-Vì milkshed (Hanoi)

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Abstract

Vietnam has experienced a rapid growth in the dairy sector since the early 2000s. However, the organization of the sector is said to be inequitable and its motivational mechanisms are not sufficient to ensure the development of smallholder farmers. To assess smallholders' prospects in the upgrading process of the whole dairy sector, we conducted a study in Ba-Vì district, the largest "milkshed" in the Red River Delta, which has undergone a remarkable transition from state-owned concentrated production to smallholder farms. The study focuses on value chain governance and upgrading strategies. The local dairy value chain is dominated by smallholders and characterized by contractual relations between private milk collectors and industrial, semi-industrial, and cottage processors. The local chain is featured by a mixed relational-captive governance pattern. Relational governance characterizes the two sub-channels in which small-scale industries operate. Captive governance describes the leading role of a medium-size dairy firm that has invested in UHT processing facilities and benefited from support from the local government. The strong role of public authorities and some challenges for chain upgrading are discussed.

Keywords: dairy sector, value chain governance, livestock development, Vietnam

Resumen

Vietnam ha tenido un crecimiento rápido en el sector lechero desde los primeros años de la década del 2000. Sin embargo, se dice que la organización del sector es inegalitaria y sus mecanismos

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de motivación no son suficicientes para asegurar el desarrollo de granjas pequeñas. Para evaluar los prospectos de las granjas pequeñas en el proceso de renovación de todo el sector lechero, llevamos a cabo un estudio en el distrito Ba-Vì, la región lechera más grande del delta del Río Rojo, que ha tenido una transición asombrosa: de producción concentrada y estatal, a granjas pequeñas. El estudio se enfoca en la gobernanza de la cadena de valor y en estrategias de renovación. La cadena de valor lechera local está dominada por granjas pequeñas y está caracterizada por relaciones contractuales entre recolectores de leche y procesadores industriales, semi-industriales y pequeños. La cadena local está ofrecida por un patrón de gobernanza relacional-captiva mezclada. La gobernanza relacional caracteriza los dos subcanales dentro de los cuales opera la industria a pequeña escala. La gobernanza captiva describe el papel principal de una compañía lechera que ha invertido en plantas de procesamiento de UHT y se ha beneficiado del apoyo del gobierno local. El importante papel de las autoridades locales y algunos desafíos de la renovación de cadenas se discuten.

Palabras clave: Sector lechero, gobernanza de cadena de valor, desarrollo de ganado, Vietnam

摘要

自21世纪初，越南的乳制品行业已经历了迅速增长。然而，该行业组织机构据说是不公平的，其激励机制不足以确保小农的发展。为评估小农在整个乳制品行业升级过程中的前景，本文在红河三角洲最大的“牛奶场区”（milkshed）—巴维区—进行了一项研究。巴维牛奶场区经历了从国有集中生产到小农生产这一巨大转变。研究聚焦于价值链治理和升级策略。当地乳业价值链由小农主导,其特征表现为私人收奶员和产业、半产业、以及农舍加工商之间的合同关系。当地链的特点则是，（其治理模式是一种）由关系型和俘获型共同存在的混合治理模式。关系型治理（Relational governance）是供小规模产业运作的两大子渠道的特点。俘获型治理(captive governance)描述的是中型乳制品公司的主导角色，这类公司拥有超高温加工设备，并从当地政府处获得支持。本文探讨了公共权威的强有力作用以及价值链升级所面临的挑战。

关键词：乳制品行业，价值链治理，畜牧业发展，越南

Introduction

The economic reforms that began in Vietnam in 1986[4] affected agriculture and the whole agro-food sector through land allocation to individual farmers, liberalization of agricultural production, and the gradual privatization of state-owned enterprises (Dang 2009). The agricultural GDP grew annually by 4.2% and by 3.5% in the periods of 1986-2004 and 2005-2013 respectively. The livestock sector has been particularly dynamic with an annual growth of 5.3% for the 2005-2013 period and, in 2014, represented 26.4% of agricultural GDP. Pig and poultry production accounted for 90% of livestock output (GSO 2014)[5] while milk production has increased significantly, both in terms of the national dairy herd and of the average milk yield. The dairy herd quintupled from 41,241 to 227,020 cows between 2001 and 2014, mainly on smallholder farms. During the same period, milk production augmented from 64,703 to 549,533 tons (DLP 2014)[6]. Economic growth induced higher demand while enabling environment favored an increase in both milk production and consumption[7]. National policies were promulgated to encourage the dairy sector, such as the Decision 167[8] supporting dairy development for the 2001-2010 period with a focus on smallholder production. In 2011, 90% of all dairy cows were raised on small farms of less than 20 cows. Larger dairy farms were formed out of partially and progressively privatized state agro-forestry farms (FCV 2011).

Despite these improvements, the dairy industry only satisfies 30% of domestic demand (DLP 2014), and the remaining demand is covered by imported milk powder and dairy products worth US$1,097 million in 2014 (Vietnam Custom 2015). The new livestock development policy (2014)[9] gives priority to the development of large commercial farms. While some authors report efforts by large dairy corporations to exclude small-scale vendors and family farms from value chains in developing countries (GRAIN 2011), others highlight the complementarity between firm-led governance and contracted smallholder farmers (Humphrey and Memodovic 2006).

This paper aims at characterizing the governance pattern of the local dairy value chain, and linking the governance to the economic performance and development of the chain. The respective roles of private firms and of government in value chain governance are explored to assess current upgrading trajectories and future prospects for smallholder dairy production.

4 The '*Đổi Mới*' (Renovation) has moved Vietnam away from a centrally-planned economy to a "socialist-oriented market economy"

5 General Statistics Office

6 Department of Livestock Production (under the Ministry of Agriculture and Rural Development (MARD))

7 Per capita milk consumption increased from 3.7 liters in 1995 to 20 liters in 2013 (FaoStat, 2014)

8 Decision 167/2001/QD-TTg of the Prime Minister (26th October 2001)

9 MARD's Decision n°984/QD-BNN-CN (2014) approving the "Restructuration of the livestock sector towards improvement of added value and sustainable development"

Materials and Methods

Value chain governance and determinants of governance patterns: an integrated approach

The emergence of governance in economics is linked to integration of international trade and disintegration of production (Feenstra 1998). As production is increasingly fragmented across geographical space and between firms, many studies focus on how these fragmentations are coordinated and exchanged (Gereffi et al. 2005). While some economists see market coordination in governance patterns, Humphrey and Schmitz (2000) refer to governance as any coordination of economic activities "through non-market relationships". This relates to various ways of steering activities that are embedded in value chains, not only networks but also more hierarchical forms. Between the two extremes of market and hierarchical governance, three governance modes are identified: "modular", "relational" and "captive" (Gereffi et al. 2005). In these three governance modes, lead firms exert their power by coordinating production vis-à-vis suppliers without direct ownership of the firms. In agribusiness value chains, such patterns include out-grower schemes, contract farming, category management by supermarket suppliers, marketing contracts, and farmer cooperatives (Humphrey and Memodovic 2006; Moustier 2010). These forms of coordination influence the costs of governance through their effects on the complexity of transactions, the codifiability of transactions, and the capabilities of the suppliers required for a specific transaction.

The global value chain approach (GVC) draws on Transaction Cost Economics (TCE) and Network theories, while focusing on the internal logics of sectors, such as industrial structure and production-process characteristics (Bair 2005). The TCE framework provides insights into the factors that determine value chain governance patterns by convening the effect of transaction characteristics (asset specificity, uncertainty and transaction frequency) and the associated transaction costs (both *ex-ante* and *ex-post* costs of contracting) (Williamson 1979). This approach argues that increases in uncertainty and the risks of opportunism result in greater use of complex contracts or vertical integration (Williamson 1991). Complementarily, Network theorists propound that problems as contractual hazards need to be managed at the inter-firm level through social mechanisms, *i.e.* trust, trustworthiness, reputation, norms, mutual dependence and information exchange (Powell 1989; Jones et al. 1997) that are called 'mundane' transaction costs (Gereffi et al. 2005). Institutional economists also suggest that such formal and informal institutions are "embedded" in their cultural and social environment. Hence, they underline historical processes and path-dependency by which specific institutional arrangements emerge in a given context (North 1990). Different forms of social embeddedness raised by network theory refer to the concept of 'proximity' which valorizes the re-

sponse to market demand of arrangements and connections among actors engaged in the value chain (Moustier 2012). Recent literature highlights three levels of proximity: physical proximity (Gilly and Torre 2000), organizational proximity (Torre 2000), and functional proximity (Gereffi et al. 2005).

Governance arises when "some firms in the chain work to parameters set by others" (Humphrey 2005). A lead producer or a lead buyer play an important role in setting and enforcing parameters (product, process, logistic parameters) because they have a strong position in "core nodes" of the chain that allows them to extract different types of rents (Gereffi 2001; Humphrey and Schmitz 2002). The "captain" of the chain can be identified by key indicators: (i) share of chain sales, value added, and profits; (ii) relative rate of profit; (iii) share of chain buying power; (iv) control over key technology; (vi) holder of distinctive competence; and (vii) holder of chain "market identity" (brand-name) (Kaplinsky and Morris 2012).

The GVC framework, which has mostly been used for international chains, puts forward that increasing demand for quality and competition between firms translate into a shift from market to captive governance, driven by processing and retailing firms. From the literature on milk chains in emerging economies, it is hypothesized that milk chains tend to be steered by processing firms that place large-scale investments in processing and quality control, and develop contracts with farmers, those are provided with intermediate goods and technical assistance, in exchange of commitments to deliver milk. This has been evidenced in Brazil, Chile and Argentina (Reardon and Berdegué 2002); Bulgaria, Romania and Slovakia (Dries et al. 2009); India (Birthal et al. 2009). The governance of chains through contracts can be described as modular or captive depending on the asymmetry of power between suppliers and buyers and the strictness of contracts. In India, cooperatives facilitate farmers' access to services and markets, that somehow balances the power of industrial plants (Upadhyay and Ranjan 2007). In the quoted studies, contracted farmers benefit from higher profits and prices thanks to quality premiums. Public and private standards and services are described as complementary. In the paper, we consider if similar trends are observed in Vietnam through variables characterizing the governance (Table 1). We also assess the main economic results of the chain and ongoing upgrading strategies. Finally, our discussion of the role of public services contributes to the debate on livestock development policies.

Study zone

Ba-Vì district, located 60km from Hanoi center, is the largest milkshed in the Red River Delta and includes a cluster of small farms that typically supply both regional and local markets (Hostiou et al. 2012). The dairy farms are mostly smallholding with fewer than 10 cows fed with less than 1 hectare of elephant grass, corn, or other

Table 1: Variables to be analyzed in value chain governance

Variables	Governance pattern				
	Market	**Modular**	**Relational**	**Captive**	**Hierarchy**
Term of the relation	Short-term orientation	Medium/ Long -term orientation	Long-term orientation	Long-term orientation	Long-term orientation
Information exchange	Limited	Frequent	Frequent	Frequent and idiosyncratic	Frequent and idiosyncratic
Enforcement mechanism	Price	Standards and information	Social embeddedness	Parameters set by lead firm	Parameters set by lead firm
Dependence level	Independent	Inter-dependent	Inter-dependent	Inter-dependent	Dependent
Power asymmetry	No	Low	Low	High	High
Physical proximity	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No
Organizational proximity	Yes/No	Yes/No	Yes	Yes/No	Yes/No
Functional proximity	Yes/No	Yes/No	Yes/No	Yes/No	Yes
Captain of the chain	Upstream/ Intermediate/ Downstream/ No captain	Upstream/ Intermediate/ Downstream/ No captain	Upstream/ Intermediate/ Downstream/ No captain	Upstream/ Intermediate/ Downstream/ No captain	Parent firm
Complexity of transaction	Low	High	High	High	High
Codification of information	High	High	Low	High	Low
Competence of suppliers	High	High	High	Low	Low

Source: Authors' synthesis adapted from TCE, Network Theory and the CGV approach

forage. In 2014, the district dairy herd numbered 8,871 cows for a total milk production of nearly 30,000 tons (Figure 2). The development of smallholder dairying contributes to improved rural livelihoods through income generation, employment opportunities and better nutrition (Nguyen et al. 2013). However, the presence of industrial dairy processing companies, which have made well-targeted investments in the dairy chain, and cottage industry raises concerns about the effective and sustainable governance of the local value chain (Duteurtre et al. 2015). The roles of public services and private firms in sustaining transactions and linkages between actors are thus of particular attention in this paper.

Figure 1: Map of study site

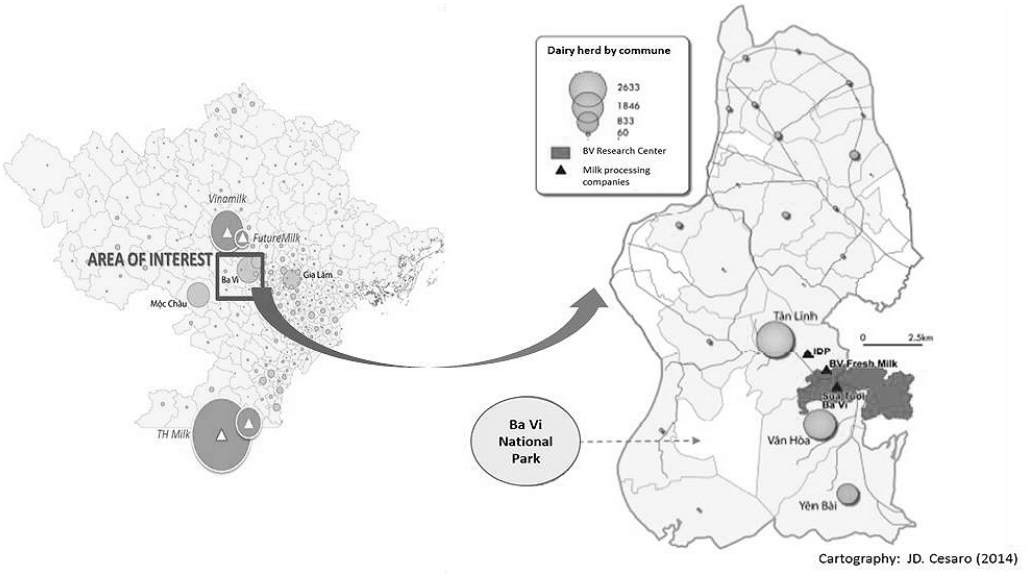
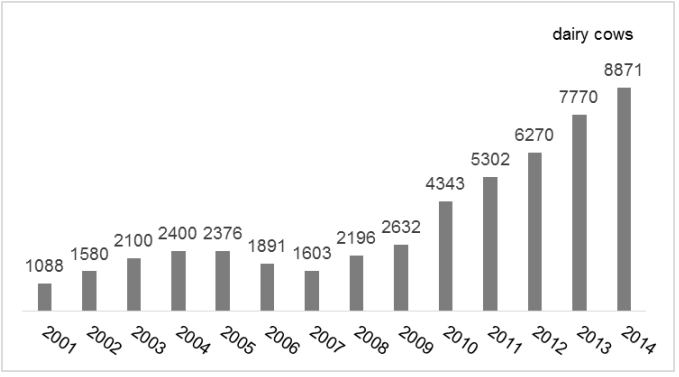


Figure 2: Increase in the dairy cow herd in Ba-Vì



Source: Economic Division, Ba-Vì district, 2014

Data and analysis

The secondary data (socio-economic, agriculture, etc.) from the target district and communes were collected to picture the local dairy sector. We mapped the dairy channels using the value chain scoping exercise developed by ILRI (ILRI 2014) and focused on the three communes of Tản-Lĩnh, Vân-Hòa and Yên-Bài, which together represent 80% of the milk production in the district. Seventy people involved in dairy production and marketing in Ba-Vì were invited to focus-group discussions. Three main

channels were identified corresponding to three types of processing: artisanal, small-scale, and large-scale.

An in-depth survey was sequenced in September 2014 (50 interviewees) and September 2015 (20 interviewees) comprising semi-structured interviews with different actors in the local chain (local authorities, 5 input and service suppliers, 21 producers, 9 collectors, 5 processors, 10 milk shops and 15 consumers) to characterize the value chain and scrutinize sustainability of the value chain. Given this small sample, the study should be considered as exploratory and the results have to be supported by a quantitative survey. Yet, some representativeness was sought in targeted interviewees according to their involvement in the three identified channels steered by the processors. Local actors were questioned about their business resources (assets, capital, know-how, labor, technology used), functions and activities (products purchased or sold, delivery and transport, services provided or received, access to credit, information exchange), economic results and management problems (prices of inputs and outputs, costs and margins, regulations, competition, strategy), relationship with other chain actors (contractual linkages, alliances, dependence, groups or associations, market relationships, information, power asymmetry, proximity), quality management (types of products, quality standards, payment schemes, quality labelling, certification), enabling environment and supports from local government (technical assistance, extension services, livestock insurance, etc.). Possible changes over time of these variables were collected to grasp the dynamics of the whole system. Downstream flows from milk production to milk processing to end-use activities were traced to identify the drivers of innovations and who received the largest share of the margins and value addition produced by the chain.

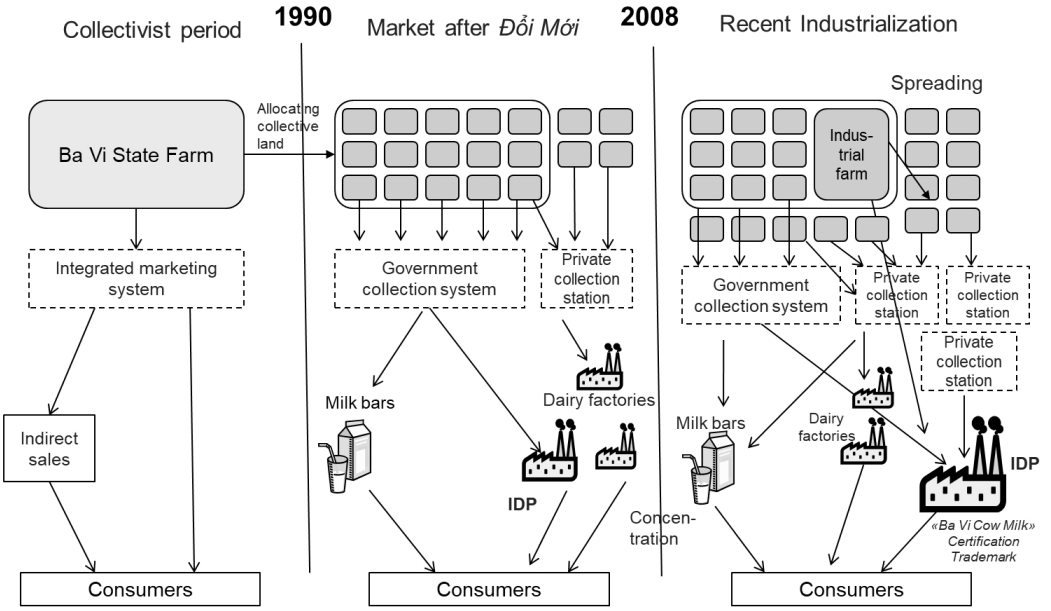
Results

The dairy development trajectory in Ba-Vì

Milk production started in Ba-Vì in the early 20th century. The development trajectories of Ba-Vì's dairy sector correspond with the national trends in the periodized political economy (Figure 3): milk production concentrated on State farms (during the *collectivism* period), milk production on individual smallholder farms (during the *Đổi Mới* period) (Suzuki et al. 2006), and industrialization of the private dairy sector (since 2008) (Duteurtre et al. 2015).

The recent industrialization shift of the local dairy production has turned out since the Government launched its 2020 livestock development strategy in 2008. In the same year, the melamine crisis caused by adulterated powder milk imported from China hit the local chain as some local firms had to suspend their milk collection and to stop their processing activities. Among the processing companies involved in the collection of local milk, only International Dairy Products Joint-Stock Company (IDP) and Bavi Milk JSC. (BVM)

Figure 3: Dairy production development trajectories in Ba-Vì



Source: Authors

continued to buy fresh milk from local farmers, resulting in a concentration of the dairy industry. IDP built a new dairy processing plant (2010) next to Ba-Vì Cattle and Forage Research Center[10] (CFRC) in Tản-Lĩnh commune, and extended its collection network. These investments were further valorized and secured by a memorandum of understanding (MOU) between IDP and the district authorities. IDP then adopted a 2012-2020 dairy development program aiming at expanding local milk production through credit to farmers, improved breeding, new production techniques, supports for an industrial-scale "demonstration farm", and building an animal feed mill.

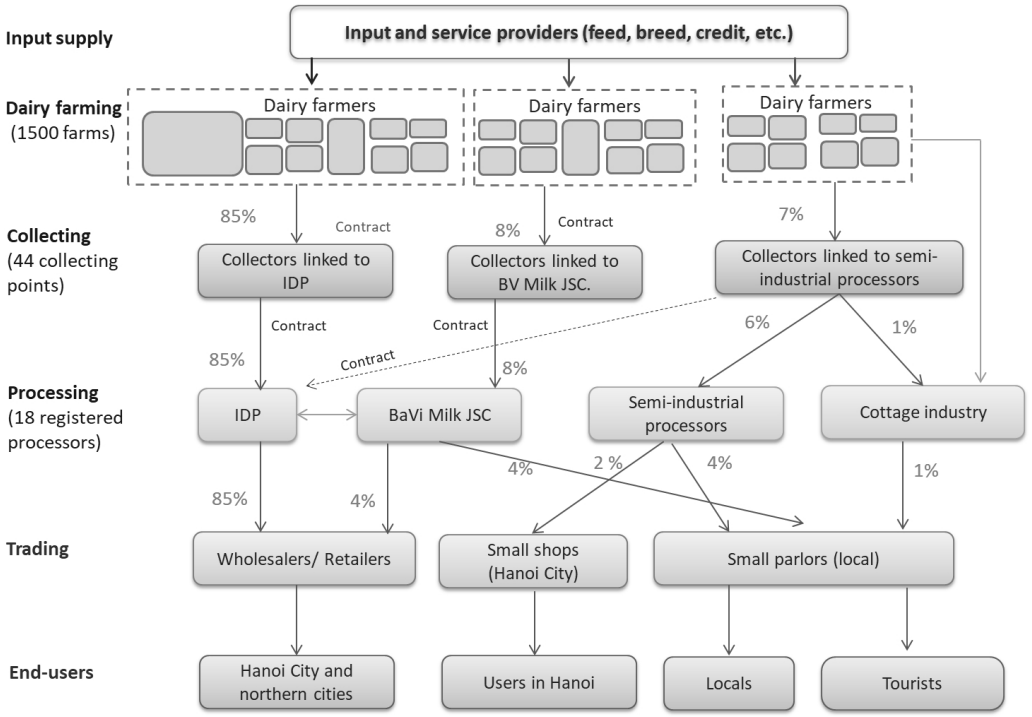
Characterization of the Ba-Vi dairy value chain

The Ba-Vi dairy value chain includes five segments: supply of inputs, milk production, milk collection, milk processing, and marketing and distribution of dairy products (Figure 4).

Input and service provision: Farmers have their inputs sourced from either self-supplied stock, mostly green fodder (representing about 50% of the farms' feed requirements), or external inputs purchased off-farm (industrial feed, artificial insemination, veterinary services, etc.). Beside the network of private veterinarians, local producers

10 In 1989, Ba-Vì State farm was converted to Cattle and Forage Research Center with mandates to conduct research into cow breeding and feeding, animal health and reproduction, and forage cultivation

Figure 4: Ba-Vì dairy value chain



(Note: solid lines represent normative relationship; dash line illustrates non-regular relationship happening in winter when the surplus volume unabsorbed by semi-industrial processors (given their limited processing capacity) are sold to IDP)

Source: RUDEC's survey (Revalter, 2014-2015)

receive support from extension agents, who implement technical assistance programs launched by the local government and the Hanoi Livestock Development Center (HNLDC). The women's union, the farmers' association, and private collectors initiate and contract credits to producers with funds from the IDP, commercial banks and (in the case of the associations) their own members' savings.

Dairy farming: Milk production in Ba-Vì is done on small farms of 0.5-1 hectare (Pham et al. 2011). Regarding feed availability, a "typical" family farm with three dairy cows has around 3000m^2 (around 60% of its cultivated land) under forage crops. Both farms diversified in crop-livestock production and farms specialized in milk production target stable markets based on contracts with industrial and semi-industrial processors. Some rely on verbal agreements with small-scale processors and cottage industry, who generally buy milk on a less strict quality at higher price but at a very limited volume.

Milk collection: Collectors are crucial middlemen who greatly contribute to the organization of local milk

production and marketing. The collection of fresh milk anchors on annual contracts or verbal agreements with fixed prices, or spot market exchanges. Out of 44 local collection points, IDP has the largest network (32 stations) and buy up 85% of total district outputs. Most collection stations belong to private collectors who are supported by the companies for credit access and the provision of equipment and know-how. All private collectors are part of the IDP milk payment scheme, which gives premium to high quality milk. The companies grade the milk delivered by producers through monthly quality analysis. The CFRC organizes its own collection network involving their contracted farmers[11] and then sells the milk to IDP. Semi-industrial processors also rely on collection points where they buy 6% of all the fresh milk produced locally. Business relations between producers and semi-industrial processors stand on verbal agreements through those collection points. Most of the collection points are located along main roads to reduce time spent on transport from farms to the processing plants.

Processing: Eighteen registered milk processors operate in Ba-Vì. However, 93% of the milk is processed by two industrial processors (IDP and BVM) who produce a wide range of industrial products. IDP is the only processor to use the UHT technology. Around 6% of the milk is processed by semi-industrial processors (Ba-Vì Milk Cake - BVMC, Ất-Thảo, Xuân-Mai, etc.), the rest is processed by small cottage processors. The semi-industrial and small processing units produce pasteurized milk, milk cakes, caramel cream, and yoghurts.

Marketing and distribution of dairy products: Increasing income, rapid urbanization, changing diet habits have driven the increased milk consumption in Vietnam. The strong territorial identity of Ba-Vì (nature, tradition, culture, know-how) and quality label (certification trademark) spur the preference of consumers for Ba-Vì milk products. Industrialized products are sold by modern distribution (supermarkets, convenient stores) and shops mostly outside the district, particularly in Hanoi, whereas the semi-industrial and artisanal products are sold locally to tourists in small shops located along highways connecting Ba-Vì and Sơn-Tây town and to Ba-Vì national park.

Family farming is still secure thanks to major constraints on access to land and capital, which precludes the development of large industrial farms. Landless and labor-intensive milk production have allowed smallholders to stabilize their business and guarantee economic returns to family labor. Written contracts with milk collectors are underlined in controlling price fluctuations and enforcing contractual linkages between producers and processing companies.

11 CRFC's contracted farmers are those perform dairy activities based on rental leasing contracts. Some of their cows and all their land are leased from the CFRC.

The mixed governance pattern of the Ba-Vì dairy value chain

Importance of product characteristics in the governance of the local value chain

Coupled with the functional characteristics of chain actors, the technical properties of the milk products affect inter-firm relationships and governance patterns. First, the perishability of raw milk and unsterilized dairy products localizes collecting and processing facilities close to production areas. This perishability restricts marketing flexibility for farmers and traders but increases their marketing risks. Marketing fresh milk products is thus characterized by physical proximity and contractual relationships, whereas sterilized products can be sold very far away through market adjustments. Second, seasonal variation in milk production and consumption raises concerns about the adjustment of milk collection, processing and storage, and more generally about balancing supply and demand. This seasonality creates trading risks for farmers, puzzles cost-efficient utilization of labor and processing facilities and complicates the structure of products for processors. IDP upgraded its processing line to diversify its products and to handle the abundance of raw milk in the off-season and contracted to purchase surplus milk from external collection points of semi-industrial processors and cottage industry. The UHT line installed in 2010, which manufactures storable dairy products, plays a significant role in this respect. Third, although milk is a relatively homogeneous product, its nutrient content varies considerably among producers, upon cow breed, feeding, and farm management practices. The heterogeneous quality requires significant investments and extra costs for grading, especially measuring the fat and dry matter content of the milk procured.

Relational governance: linkage between dairy farmers and collectors

The governance of the milk collection schemes is mainly relational. Linkages between farmers and collectors are defined by physical proximity, organizational proximity and functional proximity (Table 2).

Table 2: Characterization of transactions determining proximity between farmers and collectors

Type of proximity	Characteristics of transactions
Physical proximity	Distance between farmers and collection points is less than 2 km
Organizational proximity	Family relationships between producers and collectors Moral factors that shape mutual confidence
Functional proximity	Agreed sharing of collection areas between collectors (and processors)

Source: RUDEC's survey (Revalter, 2014-2015)

Besides the proximity of collecting points and milk producers, processing facilities have been built in the district to ensure just-in-time processing. Collection points of industrial processors are installed along the main roads to enable access by big tank trucks, whereas the collection points of semi-industrial processors settle farther away. While most of dairy farmers deliver their milk to the collection points within their village, some farmers fetch milk to collection points of another village because of social connections. The social proximity reduces uncertainties related to price, quality, and quantity while enables access to informal credit, information, and knowledge.

Collectors bridge farmers and companies through formal contracts. The bilateral contracts between farmers and processors refer to the collector's name and are signed at collector's place. As the collector is responsible for managing and enforcing the contracts, actors consider those contracts as "tri-party" agreements. Beside terms regulating rights and responsibilities of farmers and processors, the contract defines different tasks performed by the collector (delivering milk to the factory, sampling milk for quality test, proceeding payments, etc.). However, the one-year term implies contractual ties not being the only institution to ensure the regularity of milk delivery and the loyalty of the producers. There is always a risk that a farmer will switch from one collector to another when the contract ends. Thus, financial and moral aspects as well as interpersonal proximity enforce the contract. Trust between farmers and collectors is sustained by other supports: credit at low interest rates to farmers to buy cows or to build facilities (VND 20-50 million[12] for a term of 6 to 12 months with extension possibility), or advances (VND 1-3 million) for the purchase of feed, which farmers can reimburse in milk. Since farmers find it difficult to access to formal credit provided by banks (due to the high interest rate, absence of mortgages or collateral assets such as Red Book[13]), financial support from collectors has largely contributed to the local dairy development. Connections between collectors and farmers hang on social principles and on events taking place in the villages and communes (weddings, funerals, house-warming, religious events, etc.). Milk collectors strengthen their relationship with farmers by buying milk of lower quality rejected by the processors (in this case, milk is bought at a lower price for feeding young calves), delivering veterinary services free of charge, providing technical assistance and information or giving bonuses for milk delivered. These incentives are regarded as tools for collectors' transactional assurance and improving milk quality (Saenger et al. 2013). Other attributes of relational governance are evidenced by frequent information exchanges between dairy farmers and milk collectors. Any changes in the policy or strategy of processing compa-

12 Equivalent: US$1,000–US$2,500

13 "Red Book" is the Land Use Right Certificate delivered by local administration

nies, or price fluctuations are passed to farmers by collectors. Milk collectors are obliged to invest their time and resources in building such networks, but they themselves benefit from relational governance in two ways: (i) it enables them to expand their input business (feed, animal medication); (ii) they are able to obtain necessary information to reduce risks connected with milk quality at farm level. The above-mentioned legal and social mechanism facilitates the symmetric relationship between dairy producers and collectors.

Captive governance: outstanding role of IDP as lead firm

Different from the informal link between farmers and cottage industry, mixed connection between farmers and semi-industrial processors, the relationship between farmers and IDP is formal. Facilitated by the MOU with the district authority (2009), IDP has a quasi-monopoly in purchasing local milk as IDP collects 85% of the milk locally produced and imposes purchase prices and the quality norms (dry matter content, fat content, antibiotics, etc.) that are a reference for the whole district. Semi-industrial processors organize their collection and price their purchases based on the price range defined by IDP. Both the pricing and the payment system (penalty, bonus, and quality standard) are decided by IDP without formal discussions with the farmers, who are in a weak position in the chain. Dairy farmers are not organized to benefit from collective actions, and are thus unable to exert power or negotiate the milk prices and other concerns. Dairy farmer groups are established in only three out of seventeen dairy farming communes. Except for technical training classes and visits to farmers, these groups don't have any collective activities (as bulk purchase of inputs) or action plan to dialogue and negotiate with the processors.

IDP drives the technological advances in local industry by investing in UHT technology. This investment allows IDP to produce pasteurized long-life milk, which helps balance supply and demand in winter, and target larger markets outside the district (i.e. Hanoi city and even Central and Southern provinces). Moreover, IDP has built up professional teams for the different stages (collection, processing and sale) to provide technical assistance to their farmers and collectors. Besides, IDP commits short-term and medium-term credit to the farmers linked to their network. While formal bank loans usually require collateral, informal loans and microfinance enable dairy farmers to purchase cows or make other investments.

IDP officializes its operations by contractual relationships with producers and private collectors aiming at securing supplies and reducing risks. The written contract system has been in use since IDP's debut in the region. Today, most local producers have a contractual link with a processor (large or small, industrial or semi-industrial), although a small number of producers supply their milk to cottage industry

without written contracts. Under the contract terms, together with technical aspects, hygiene requirements, and respecting sanitary norms, IDP agrees to buy all milk that meets quality criteria. The penalty and bonus policy is also defined by quality attributes. IDP encourages farmers to produce quality milk by offering premiums tied to the milk quality and quantity. Other bo-

Table 3: Specifications of governance patterns in the local dairy value chain

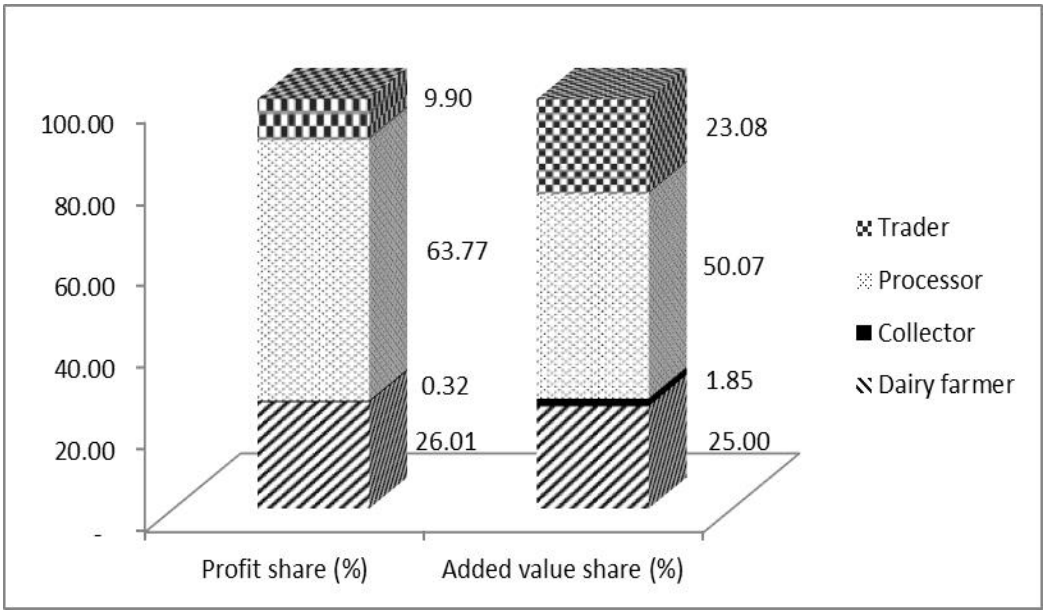
Variables	Relational Governance	Captive Governance
Term of relation	Long-term orientation	Long-term orientation
Information exchange	Frequent information exchange between producers and collectors (at collecting points, social events, etc.)	The connection between dairy farmers and processing companies is created and maintained by a network of collectors
Enforcement mechanism	Social relations between dairy farmers and collectors are driven by relational linkage, mutual trust	The terms and conditions in the contract between dairy farmers and processing companies concern the milk that is purchased and processed
Dependence level	Inter-dependence of farmers and collectors	Inter-dependence of collectors and processors (processing companies)
Power asymmetry	Relatively balanced/symmetric partnership between farmers and collectors	Farmers are highly dependent on processing companies who decide on the required milk quality and purchase price.
Captain of the chain	IDP	IDP
Complexity of the transaction	Tri-party milk procurement contract	Tri-party milk procurement contract
Codification of information	Norms and standards to ensure the quality of milk to be collected and processed	Norms and standards to ensure the quality of milk to be collected and processed Certification trademarks are granted to 2 local processors (IDP and BVM)
Competences of suppliers	Improvement in technical knowledge and economic situation thanks to training and credit	Improvement in technical knowledge and economic situation thanks to training and credit

Source: RUDEC's survey (Revalter, 2014-2015)

nuses are awarded for respecting the code of practice (certified by IDP), use of tanks and equipment for transporting milk, and compliance with farm sanitary standards. A stable year-round purchase price discourages farmers from switching to another processor. Although the prices set by IDP are somewhat lower than cottage industry on spot market, farmers appreciate selling to IDP because of regular milk purchase during year. Along with the quality-based payment, IDP frequently monitors compliance of its contracted farmers with hygienic and farming practices. Captive governance led by IDP, on the one hand, has contributed to the rapid adoption of the Code of practice at the farm level and, in turn, to the company's success in creating a stable source of raw material for its large-scale processing. On the other hand, under this governance pattern, by founding a decentralized collection network, IDP aims at reducing its transaction costs (particularly search, screening and transfer costs) since third-party collectors take over coordinating exchanges with small farmers. Yet, the costs of monitoring and enforcing the contracts with dairy farmers, in particular supervision of husbandry practices and control of milk quality, are still relatively high since most local producers are smallholders spreading out over a large area.

The milk chain is therefore characterized by a two-facet governance (Table 3): relational governance between farmers and collectors, and captive governance between farmers and IDP, the industrial processing firm.

Figure 5: Distribution of profit and added value among actors in the dairy value chain



Source: RUDEC's survey (Revalter, 2014-2015)

Economic performance of the value chain

Economic returns for chain stakeholders reflect chain operations and forms of governance. The unequal distribution of the profit and value added highlights the supremacy of processors, especially IDP, in the local dairy chain (Figure 5). IDP takes the largest share (63.77%) of the profit, whereas farmers receive less than one-third (26.01%) of the total profit made in the chain, which is disproportionate with respect to their investment costs (which account for up to 50% expenses of the chain as a whole). The dairy value chain is a typical chain in which the processors lead the chain forward, and the majority of added value of the chain is subsequently captured by processors like IDP. This asymmetric distribution has weakened the bargaining power of the dairy farmers. It is prevailing that all investments made by the processors (even small) are counted in their production costs and value addition. On the contrary, family labor, self-supply of grass for feed, and opportunity costs are neglected in earnings obtained by the farmers. If all costs were included, the added value gained by dairy farmers in the chain would be significantly lower. This unequal distribution proves the captive governance led by IDP, but raises concerns about the sustainable development of the dairy sector in general and of the dairy chain in Ba-Vì in particular.

Enabling environment: the role of public services in value chain governance

Following the National Dairy Development Plan (2001), a number of research and scientific efforts were made in the dairy sector with the participation of international development actors. CFRC strengthened its research activities through government funds and international research and development (R&D) projects (JICA-funded dairy projects, Vietnam-Belgium Dairy project, the establishment of Moncada frozen semen centre, etc.). The international R&D projects built capacity for the local farmers and collectors as well as empowered the CFRC and contributed to transform its role from production development to the scientific research and technical consulting.

The dairy production in Ba-Vì is high on the agenda of Hanoi's rural and agricultural development strategy. Many actions have been done to support all the chain actors. CFRC land was allocated to former state farm workers to raise dairy cows. A long-term land lease was granted to IDP for its investment in the large-scale farm and processing plant. Technical assistance has been provided through extension programs delivered by CFRC, HNLDC, and IDP to farmers (concerning farming practices such as animal care, feeding, heat-stress control, etc.). Around 100 training courses were provided to 7,000 farmers between 2000 and 2014. Furthermore, the local government also cares genuinely for the territorial identity of Ba-Vì milk by

applying for certification mark "Ba-Vì cow milk", in 2009, as intellectual property rights protection. The district government's control over the certification mark aims at maintaining the quality and reputation of Ba-Vì milk; but reserving the mark rights for only two companies (IDP and BVM) may prevent other companies who are qualified from obtaining the certification mark and, to some extent, ensures IDP's monopoly on collecting milk locally as IDP and BVM have partially merged.

Since 2012, the district dairy development strategy appears to be closely linked with the IDP development plan. Beyond the use of certification mark, the district government supports IDP in many institutionalized operations in the 5-year MOU. Together with the government's favorable policies (agricultural insurance for producers[14], favorable loans and taxation regimes, etc.), the district administration controls the entrance of other dairy companies by gauging daily collection capacity of minimum 600kg for placing collection points. This structural mechanism endeavors to a stable supply of milk to IDP and BVM.

Discussion and Conclusion

Structural transformation and organization of the value chain

As a snapshot of national dairy sector which has been experiencing a rise of medium and large farms, Ba-Vì district, in the 2010-2014 period, witnessed a relevant change in farm size: decreasing number of small farms of 1-5 cows (from 89.55% to 61.17%), and increase in number of farms of more than 5 cows (farms of 6-9 cows: from 8.14% to 32.17%; farms of more than 9 cows: from 2.31% to 6.66%). Priority is given to the medium and large farms in view of higher economic returns, better epidemic and quality control and improved effluence management.

Despite the rapid structural changes in parts of the sector, smallholders till dominate dairy production. Low entry barriers to production are set by both dairy processors and local government to ensure smallholder farmers access to credit, public services (extension and veterinary services), and training as well as improved infrastructure. Higher barriers concern land constraints, dependence on concentrates, demanding quality standards and permanent contracts with companies. Smallholder production shows more resilient against market fluctuations, but it is difficult to generate sufficient volume to meet increasing demand and face higher competition from imported milk products. Accordingly, a niche marketing seems to be an important opportunity that help Ba-Vì milk overcome barriers to trade (special demand for fresh milk, quality local product, local market for tourists, restaurants, etc.). Increasing domestic demand and improved roads would facilitate sale

14 The State provides grants to cover the insurance fees: 100% of insurance fees for poor farmers, 80% for quasi-poor farmers, 60% for non-poor farmers, and 20% for cooperative groups (who are part of a pilot project on livestock insurance).

of the products in the urban markets. Besides, technology is highlighted in transforming the chain and shaping the value chain governance (crossbred cows, new technology, and market dynamics such as prices).

Governance structure and upgrading strategy

The governance of the value chain relies on very complex social networks including dairy producers, collectors, processors, and public authorities, and resulting from long historical processes. Informal relations play a crucial role alongside formal contracts in this regulation (Culas and Pannier 2014). Although IDP makes contracts with farmers and defines quality standards and prices (which are attributed to captive governance), collectors are a key node between farmers and IDP, and the link between farmers and collectors is embraced by relational governance. Captive governance emerges in relation with large-scale investments by IDP and quality management objectives. Despite IDP's attempts to introduce strong vertical coordination of the local chain, private collectors have been able to maintain their position and keep some power in their relations with dairy farmers. Like dairy production in Son-La province, Ba-Vì dairy farmers suffer from a very weak professional organization, meaning they have very little bargaining power to negotiate the prices dictated by IDP (Bui et al. 2013; Nguyen et al. 2013). Hence, captive governance is parallel with chain upgrading, but it translates into an asymmetric sharing of incomes. Yet our data is lacking to assess whether contracted farmers earn more or less income than non-contracted ones, in particular through coercive measures on quality.

The investments made by IDP have had a major impact on the upgrading trajectory of the local value chain. Among the upgrading dimensions, vertical integration and upgrading of both processes and products appear to be the most significant changes. The capacity of IDP to invest in farmers' development projects and in UHT processing technology has provided new opportunities and value addition for farmers and for other small-scale processors, through improved processing and packaging. The future of processing firms may depend on their capacity to set up contracts with appropriate incentives. The role of the authorities in managing the Ba-Vì certification trademark and milk quality control will certainly affect success chances of semi-industrial processing plants in the future.

While the problems of melanine contamination in China are linked to the rapid and unregulated development of the sector (Pei et al. 2011), a weak cooperation of firms in the Vietnamese fast-growing dairy sector has led to new challenges and compromised the ability of the value chain to maintain the viable link among actors and food safety. The different forms of local collective organizations (the processor federation initiated by IDP, BVM and BVMC in 2013 to guarantee the quality of local dairy products, to

protect the interest of those concerns and to reduce risks; association of 14 collectors in Tản-Lĩnh commune established in 2013 aiming at mutual aid, strengthened solidarity, and limited competition among collectors) have no operational protocol to undertake their mission in reality. Meanwhile, the dairy farmer groups cannot perform collective actions. A national dairy management board encompassing different stakeholder representatives (producers, processors, state and consumers) is recommended to improve coordination between local actors and to handle all emerging issues and conflicts of the value chain.

Value chain governance and territory governance

As Vinamilk, the biggest milk company in Vietnam, IDP and BVM rely on large supply network of smallholder farmers and intermediary collectors within a milkshed where milk is collected into a tank mixing milk from different producers. Bimonthly payment to farmers for delivered milk bases on the quality test done by the companies, while collectors receive a collection fee. The current decentralized collection system is beneficial to processors by reducing their investment, but is argued unfair and untransparent by both farmers and collectors since milk tests are done at the dairy plants and they have to accept the results and prices published by the companies. Such quality and payment system crystalize the tensions between farmers and processors; thus, an independent quality test agency is crucial in stabilizing the dairy zone.

Dairy smallholders in Ba-Vi, like in other milksheds in Vietnam and other countries in the South, are facing challenges related to strengthened health regulations and increasing resource competition among operators that weakens the participation of small producers in the market. Innovations in the dairy industry, such as conception of new products manufactured in the territory (cheese for example), will allow small producers and processors to have easier market access, to diversify their products and to increase their revenues. This would also help to meet other issues such as addressing seasonal fluctuations of milk products, lower costs to food, or the improvement of the quality of milk.

The recent strategy for eco-tourism development of Hanoi to 2020-2030 opens opportunities and challenges to the sustainable development of the dairy chain. From economic perspective, a fashion trend would be to create more diversity in dairy products and tours integrated with homestay at and visit to dairy farms. Community eco-tourism contributes to higher income for the locals. From social perspective, with a strong territorial identity, the local chain should involve more the local farmers and artisanal and small processors. From environmental perspective, for the non-grazing dairy system characterized by the confinement of animals, attention should be paid to effluence management and sustainable development of the territory.

The current certification trademark has contributed to the higher price of the local milk in the market. However, the upgrading to protected geographical indication (PGI) would be strategic in view of a stronger quality label as an integral attribute to the sustainability of the products in the market. Plus, PGI strategy will further valorize local natural resources, local know-how and the proactive participation of territorial organizations and actors to the sustainable and inclusive development

Institutional framework and enabling environment

Reardon et al. (2012) argued that the dynamics of the food chain in Asia is driven by economic development and public actions. Public services contribute to the upgrading and modernization of the value chain. The MOU between IDP and district government (2009) and the processing plant built by IDP on the land of CFRC are outstanding examples of public-private partnership in the agri-food sector. The Livestock Restructuring Plan (2014) converges with the Livestock Development Strategy (2008) in orienting the focus of dairy production in traditional regions, including Ba-Vì. Apart from controlling imports of milk powder and milk prices, the support provided by the State (technical assistance, credit, and building infrastructure) incentivizes dairy production, improves market connections and promotes market integration. At the provincial and district levels, strong local government involvement is apparent in economic, technical, organizational and other angles. However, the definition of quality is not shared by all the actors in the chain.

Dairy industry, as a component of livestock sector is proved to be negatively affected by increasing international integration, notably TPP (VERP 2015). Import of livestock and livestock products, especially dairy products, from countries of comparative advantages (New Zealand, United States) is on rise. From the perspective of consumers and importers, the dairy market becomes more competitive after tariff removals, but it uncertainly could help domestic prices fall. While dairy (processed) products will suffer more from acute competition of imported products, raw milk can take advantage of natural trade barriers (i.e. perishability of fresh milk). Competition pressure mainly comes from powder milk. Short-term impact is not really clear, but to ensure the long run, it is necessary to push sector restructuring to raise quality and competitiveness (dairy zoning, feed crop production, control over imported powder milk). Vietnamese dairy enterprises have to invest into modern and advanced technology and sustain their market shares. Additionally, given imprecise packaging regulations and insufficient quality control as institutional bottlenecks (Pedregal and Nguyen 2009), it requires transparency in defining fresh milk, publicizing information of milk products to protect benefits consumers and businesses. Moreover, the prices of milk products must be under good control to ensure

the access of consumers to products of quality and of reasonable prices and to encourage enterprises to invest in milk production rather than being dependent on imports

Policy implications

Our analysis highlights the role played by private companies and government intervention in promoting the dairy sector in Ba-Vì, which has emerged recently and undergone a rapid transition. The context of the local dairy industry led to the emergence of three factors that influence transaction costs and hence shape a "mixed" type of governance needed to facilitate transactions along the local dairy chain. The three factors are (i) the structure of the local dairy value chain, which is driven by private industrial-scale processing companies; (ii) specific agricultural characteristics, and (iii) strong backstop of public services. Strong state involvement has taken different forms but is responsible for the initial impulses to the local dairy sector. Entry barriers to production and trade have increased significantly over time. The State uses the barriers by partnering with private firms to facilitate the flows of products and information. Smallholder dairy farmers still have a role in local economy in the context of land constraint and livelihood assurance, but further support is needed to ensure their access to stable markets and help them understand quality and food safety regulations through training, improved support services and protection of intellectual property rights. These measures should be combined with specific regulations aimed at preventing or reducing potential negative effects (exclusion of small producers and processors, environmental degradation, unfair distribution of added value, market competition, etc.). Unilateral decision making by the "captain" of the chain should be replaced by new rules of the game co-constructed with all the actors to ensure a sustainable and inclusive value chain.

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Land, State, and Society in Laos: Ethnographies of Land Policies

Pierre Petit[1]

Abstract

Land policies are a contentious topic in Laos. The banning of swidden agriculture in the 1990s prompted widespread resettlements, while land allocation was implemented during the same period; the following decade saw massive land grabs. Unfavorable to small farmers, these processes transformed everyday social relations with land, which used to be managed at the village level but presently fall more and more within the administration's domain. However, State employees are not alone in using a new lexicon to refer to land issues; those impacted by such measures are also adopting it to protect themselves, sometimes with relative success. Gossip and rumor can affect the authorities' decisions. And land policies can never be implemented without vernacularization, which ends up constructing a practical order on land negotiated—in uneven terms—by the local administration and the local actors. Ethnographic case studies throughout Laos illustrate how the state has become an inescapable mediator between people and land, transforming the social fabric and reshaping people's agency.

Keywords: Laos, Anthropology of the State, Micro-Politics, Land Policies, Land Grabbing, Resettlement

Resumen

Las políticas de tierras son un tema controvertido en Laos. La prohibición de la agricultura itinerante en los años 1990 resultó en muchos movimientos de personas, mientras que la asignación de tierras fue implementada durante el mismo periodo; la siguiente década vio apropiaciones de tierra masivas. Al no ser favorables para los pequeños granjeros, estos procesos transformaron relacio-

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nes sociales cotidianas con la tierra, que antes eran gestionadas a nivel de aldea pero que actualmente yacen más y más dentro del dominio de la adminstración. Sin embargo, los empleados estatales no están solos en su uso del nuevo léxico para referirse a los problemas con la tierra; los que fueron impactados por aquellas medidas también están adoptándolo para protegerse a sí mismos, a veces con un relativo éxito. El chisme y el rumor pueden afectar las decisiones de las autoridades. Y las políticas de tierras nunca pueden ser implementadas sin "vernacularización," lo que termina construyendo un orden práctico de la tierra negociada—en términos desiguales—por parte de la administración local los y actores locales. Los estudios etnográficos de caso a través de Laos ilustran cómo el estado se ha convertido en el mediador inescapable entre la gente y la tierra, transformando el tejido social y dándole nueva forma al poder de la gente.

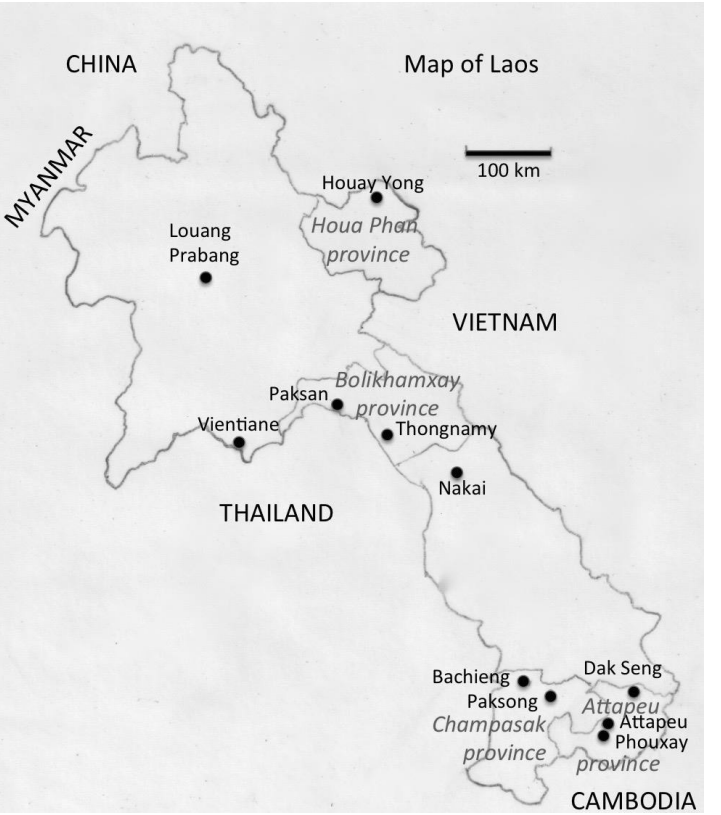
Palabras clave: Laos, antropología estatal, micro políticas, políticas de tierras, apropiación de tierras, reasentamiento

摘要

土地政策在老挝是一个争议性话题。20世纪90年代老挝禁止了刀耕火种农业，这推动了大范围的土地安置。尽管土地分配也在此期间开始实施，但接下来的10年发生了大规模土地争夺。 不利于小农户的是，这些过程转变了日常社会与土地间的关系。土地过去由农村管理，而如今却越来越多地进入了（国家）行政领域。然而，使用新术语来代指土地问题的并不是只有国家员工；受此类措施影响的那部分人也采取同样的方式试图保护自己，有时还取得了相对成功。绯闻和谣言能影响权威（政府）的决定。土地政策在没有被地方口语化（vernacularize）之前是绝不会实施的。本地口语化最终将对地方行政和地方行为者在不平等谈判中的土地建构实际秩序。本文对老挝进行民族志案例研究，阐述了该国如何在成为人民和土地间不可避免的调停者的同时，改变社会结构、重塑人民机构。

关键词：老挝，国家人类学，微观政治，土地政策，土地争夺，安置

Figure 1. Map of Laos



Introduction

In 2013, I was chatting with a taxi driver in Vientiane, explaining that I had come back from Attapeu Province where I was working for a food security project. I mentioned it was difficult to work in a context where rubber tree plantations were implemented so extensively. The driver went on with humour, saying that the government had sold all the land north of Louang Prabang to Chinese, and all the land south of Paksan to Vietnamese. He concluded without further ado that "*lattabaan kôn boo dii*"[2], "the government is made up of bad people".

I was surprised that a taxi driver would talk so casually on that topic. I thought land issues were a "public secret" (Taussig, 1999) and could not be debated so openly. However, their publicity seems on the rise nationally. For example, the state-owned Vientiane Times dedicated its "Opinion" column on 18 June 2013 to the question: "Do you think that community resettlement

2 Lao transliterations are based on Mingbuapha & Becker (2003); usual spelling has been conserved for toponyms.

is fair in Laos?" The four people interviewed were all critical, mentioning possible corruption within companies and stipulating that the government should more responsibly defend public interests. On Facebook, a media much less controlled by the State, users post and share videos showing trucks loaded with timber from illegal logging in protected areas, lamenting this as an alienation of national wealth by foreign companies. Land issues are often imbued with nationalistic emotions, with the feeling that national sovereignty is at stake. This makes them a potential leverage point for collective action.

Land policies are one of the main topics through which the morality of the state has been debated in Laos for two decades. International watchers have played an important role in the rise of such anxieties. People involved in the defense of human rights, the environment, and ethnic minorities have repeatedly denounced the disastrous impacts of the Laotian state's "grand schemes" as well as the global land grab perpetrated by foreign companies.[3] For example, in May 2013, Global Witness published a report titled "Rubber Barons", with a telling subtitle: "How Vietnamese companies and international financiers are driving a land grabbing crisis in Cambodia and Laos". It denounced at once Vietnamese rubber companies, political authorities in Laos and Cambodia, and international donors like Deutsche Bank. The companies would have been granted concessions on hundreds of thousand hectares without any regard for the basic rights of local farmers.

Such large-scale concessions to foreign companies (mainly in the sectors of agro-industry, electricity, and mining) are presently the main topic of land policy discussions, but this has not been always the case. In the 1990s, debates centered on policies barring shifting cultivation in the highlands and the ensuing resettlement of villagers to the lowlands. A large national report described the often-dramatic consequences of these policies for those resettled (Goudineau, 1997), beginning a long series of publications that took a critical stance toward such policies and their consequences for rural populations.

Resettlements took place when land-use planning was implemented with the support of international aid agencies. The land and forest allocation policy was supposed to define licit and illicit use of land around the villages, while farmers were provided temporary land-use certificates that would guarantee them access to land (Evrard, 2004). Ducourtieux, Laffort, and Sacklokham (2005, p. 521) criticized this land reform unambiguously, arguing that "the impact of the policy has been negative both for rural development and for environmental conservation" and that it would engender counter-effects like food shortages, especially among the poorest.

Later, High (2008) took a different approach in considering the issue of

3 See Dwyer (2013, pp. 309–312) regarding the coverage of land grabs in Laos by the Western media.

resettlements, focusing on the need to consider individual agency in mobility; some Laotians have indeed been driven by aspirations of "escaping poverty", as the official motto declares, and entering what they see as a "modern" life (see also High 2014). The problem is not so much mobility per se, but the failure of the state to provide the conditions for its success. High tries to go beyond the domination/resistance paradigm, showing how people have appropriated and reformulated the state's discourses on development in light of their own desires.

Another critical viewpoint has been developed by Lund (2011), who is concerned by the way land policies are linked to and participate in the creation of political subjectivities. He argues that these policies do not reflect the Laotian state's pre-existing sovereignty over land, but rather create it. In local contexts, land issues have long been settled by village or family authorities. The land reforms were not intended to protect villagers' access to land, as officially announced, but instead to impose the state's sovereignty over land. This made both the people and the land visible and legible, and the administration became an inescapable actor in defining their rights. "This started to change people's political subjectivities: the authority to grant rights to land inserted government onto the lives of people" (Lund, 2011, p. 901). Tan (2012, pp. 84–86) suggests that the large land concessions and enclaves provided to Chinese companies in northern Laos cannot be equated with losing sovereignty; counter-intuitively, they instead entrench the Lao state and its "technologies of governing" in places that had hitherto largely escaped the state's reach. Similarly, Dwyer (2013) presents two detailed case studies showing that the literature's focus on the foreign or corruptive dimensions of land grabbing misses the most important point, namely their strong embedding in the national and local political landscapes of Laos.

Even if High, Lund, Tan and Dwyer's approaches are different, they share a common interest in the way land policies have become central to spreading "state relations" in Laos. Such state relations refer to social relations predicated on bureaucratic procedures, administrative authority, political decisions, or reference to anything emically indexed to "the state" by the interacting parties. I use this concept as opposed to "state–society relations" to refrain from an overly substantive view of the state as different by nature or separable from society. Even if the state/society dichotomy is a pervading representation in modern societies, it should not be taken at face value: it is a construction, not a fact (High & Petit, 2013; Li, 2005; Mitchell, 2006; Sharma & Gupta, 2006). Further, a too binary concept of state–society relations does not capture interactions between state officers themselves, who may have divergent opinions or interests, nor does it capture interactions between local employees and citizens who use the law or other state rhetoric in promoting their views.

I shall try to unpack the modal-

ities of state relations created through land policies in different contexts, mainly in rural areas. Most studies on the topic are based on a detailed case study. To refrain from the tendency to present a specific situation as a paradigmatic example, this article will rather develop ethnographic vignettes to describe state relations related to land in a wide range of situations. I will first emphasize their pervasiveness, showing how they have created a new lexicon, a specific "language of stateness" (Hansen & Stepputat, 2001) that is obligatorily used when discussing land issues. And second, I shall show that this does not deprive stakeholders of their agency in their often-tense interactions, but instead reframes such interactions entirely.

The Practicalities of Land Policies

Based on my visits to Laos since 2003, I have observed how land policies are central to ongoing socio-economical changes throughout the country, though the range of situations is wide.[4] In some places, land policies seem at first glance to have minimal impacts. This was the case in Dak Seng, a small Talieng village in the remote mountains of Attapeu Province, in the far south of the country. During my fieldwork in 2012, no land or forest allocation had been carried out yet, nor any land-use certificates granted. Land use was managed through customary practice and swidden cultivation was still extensively practiced (Fig. 2). The village chief claimed that all residents knew the rights of each family, so he seldom had to settle land disputes. Similarly, in the same period, the Tai Vat inhabiting Houay Yong Village in the mountainous northern province of Houa Phan reported that access to their upland fields relied on knowledge shared by all of them, for they all knew which families had cultivated which plots of land in the past (Petit 2015).

However, Dak Seng, and Houay Yong were indeed affected by national land policies. The 1990s were marked by campaigns against swidden cultivation. Though cultivation practices themselves may not have been changed by these campaigns, the villages have both been affected by the concomitant promotion of migration to the lowlands. About half of the population of both villages left within a decade as part of an ongoing process. And in 2007, Dak Seng was resettled closer to

4 As a Belgian anthropologist, I have been working successively in a research on rural development in Bolikhamxay Province (cooperation between the French-speaking universities of Belgium [CUD] and the National University of Laos, 2003-2008); in an assessment of Nam Theun 2's social development plan (Agence Française de Développement, 2004); in Annâdya, a food security project implemented in Attapeu and Ratanakiri (EU, 2012-2015); and in a joint research on the socioeconomic transformations of Houay Yong village (ULB-NUoL, 2009-2017). See Fig. 1 for locales. Fieldwork was carried out in collaboration with Lao research assistants/interpreters. Beside the data collected formally throughout these researches, much information was gathered through observation and casual discussions with Lao people. My intermediate-level understanding of Lao enables me to have basic conversations in that language. I warmly thank all the institutions previously listed, the many Lao colleagues who took part in the researches, and the anonymous readers of a former version of this paper.

Figure 2. Swidden Agriculture in Dak Seng

the road serving it, about 1 km from its former location; although this was not presented as an imposed measure, it clearly followed the priorities of the administration.

In all the other places where I have worked, the constraints introduced by land policies are much more onerous: land relations have become increasingly mediated by a series of objects, practices, discourses, officers, and institutions related to the state. In most regions of the country, district employees are now the mandatory mediators through which one can access land; they are in charge of land allocation and establishing land-use planning. Most villages now have a colored map specifying land uses within their divisions (Fig. 3). Villagers are often unable to understand the representation of space on these maps and do not seem to care a lot about them, but are more concerned with obtaining highly valued temporary land-use certificates from district officers specifying the location, surface characteristics, and shape of their residential and cultivated areas[5].

5 Paradoxically, such zoning—intended to protect villagers' rights—has been used by companies and authorities alike to legitimate massive land deals, targeting agricultural or nonagricultural land depending on the context (Dwyer, 2013). Recent (2017) field researches in Houay Yong revealed that land-zoning and land certification are currently being implemented in the area.

Figure 3. Land-Zoning Map in Phouxay

© P. Petit 2012

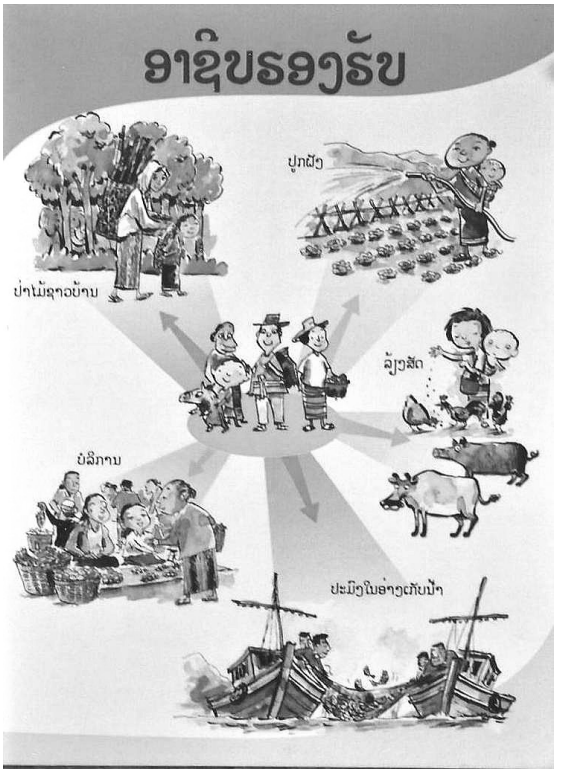
Another practicality of the land policies was the organization of village meetings. People keep a fresh memory, in Houay Yong, of the way district employees came to hold meetings informing residents of the problems with shifting cultivation, the protection of water sources, and government assistance to villagers migrating to the lowlands. In 2004, I also observed meetings in villages slated for complete resettlement due to the construction of the Nam Theun 2 dam. The Laotian officers in charge of these "participatory consultations" for those being resettled on the Nakai Plateau brought along materials such as scale models of the houses to be built as part of resettlement (Fig. 4) and colored posters with optimistic cartoon drawings describing life after resettlement (Fig. 5); they also had specific instructions to involve women and train small groups of locals to "raise awareness" among other villagers before a community gathering. Such sophisticated equipment and gender sensitivity are unusual in resettlement procedures in Laos; international attention aimed at this large-scale, partially Western-funded project seemed to have prompted an effort (and budget) to anticipate possible criticisms and to promote the role of the involved agencies.[6] But if the paraphernalia was innovative and uncommon, the bureaucratic routines were rather more familiar. Officials followed well-oiled village meeting mechanisms for inducing allegedly popular "decisions", which had been in fact taken by the authorities long before

6 The main focus of this aid was the catchment plateau itself; much less concern was devoted to the populations in the downstream areas impacted by the dam (Manorom, Baird, & Shoemaker, 2017), probably because of the lower media coverage.

Figure 4. Model Houses for the Participatory Consultation in Nakai

© P. Petit 2004

Figure 5. Board about Occupations for the Resettled (Participatory Consultation in Nakai)



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the meeting; outreach teams were composed of district officers and members of Party-affiliated mass organizations such as the Women's Union and the Youth Union. Despite the participatory rhetoric and the conspicuous presence of international staff, the whole process revealed how the Lao state managed the mobility of the "target" population.

The practicalities of land policies also include public events and artifacts—seminars, reports, glossy publications, TV broadcasts and the like—depicting win–win situations, empowerment of the poor, smiling children confident about their future, natural resource protection, and gender mainstreaming. All these elements were most conspicuous in the case of Nam Theun 2. Such public outputs, which also include official pictures showing decisions being endorsed by those in the circles of power, display the political legitimacy of such projects.

Let us now turn to a very different case, namely the rubber plantations in Attapeu mentioned earlier. In some villages, this project was given no publicity, and the inhabitants alienated from their land were neither consulted nor given information. This does not mean that state mediators were absent from the process. After Vietnamese workers began to cut down the forest (Fig. 6), relations with the villagers soured and the district head eventually had to invite the chiefs of all affected villages to a meeting. He explained that the plantation company aimed to develop (*pattanaa*) the region as well as the whole country and made it clear that the decision was not his own nor even the governor's: it had been taken at the central government level and could not be changed. A few weeks later, the village chiefs received a letter from the governor asking them to comply with the order and allow the company to proceed.

Figure 6. The Border of the HAGL Plantation (200 m. from Phouxay village). The place beyond the trench used to be a forest a few months before.

The next step was the payment of compensation to villagers. This had to be carried out properly, for the villagers already possessed land use certificates. Each village chief collected information from the villagers affected by the project. Then, agents from the company came to carry out payment; villagers signed the documents quickly and took their money, fearing that if they did not, they would lose everything.

It turns out that even when basic procedures for dispersing information and engaging with the public have not been completed by the state as it should, the latter remains the legitimizing authority. This was evidenced by the meeting in the district chef's office, in the letter from the governor requiring village chiefs to comply with the project, and in the payment of compensation based on land-use certificates. The language of stateness is certainly visible in these late information and mitigation procedures.

Most plantations in Attapeu Province belong to the HAGL (Hoang Anh Gia Lai) Company, which acquired extensive land rights as compensation for building infrastructure when Laos hosted the Southeast Asian (SEA) Games in 2009. HAGL has since built a sumptuous six-floor hotel in the small city of Attapeu. The presence of this building, much higher than any other in the city, is a clear public reminder that the company benefits from a special status. The large and usually deserted lobby of the hotel contains large framed pictures above the lift doors depicting Doan Nguyen Duc, the president of HAGL group, in the company of Laotian high officials during ground-breaking ceremonies or official openings. One picture shows him smiling and receiving a giant golden key—a symbol of his "access", perhaps (Fig. 7). Another picture shows him standing with Choummaly Sayasone, the former president of Laos (2006–2016) who was born in Attapeu, with the flags of Vietnam and Laos flying behind them (Fig. 8)—a reminder of the "special relationship" linking Vietnam to Laos since 1975. HAGL is clearly welcome in the Lao PDR.

In short, the case studies discussed above show that people–land relations cannot be grasped without reference to the state. National land policies and land-lease agreements between the state and private companies have drastically transformed the relationship people have with their living space. Ironically, land policies implemented with the support of international aid agencies aiming to empower local communities have instead involved the state in formerly micro-local land relations. This eventually empowered state administration more than villagers.

Taking Over the Language of Stateness

Does the winner—the State and allied companies—take all? For sure, the new language of stateness related to land has come into general use and has transformed the state administration into a compelling intermediary for anything to do with land use. This has not deprived locals

Figure 7. Doan Nguyen Duc (right) and Lao Officials. Picture exposed in the lobby of the HAGL hotel, Attapeu

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Figure 8. Doan Nguyen Duc (right) with Choummaly Sayasone, the Former President of Laos. Picture exposed in the lobby of the HAGL hotel, Attapeu

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Figure 9: The Hmong Leader Showing his Documents (Thongnamy)

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from their agency regarding land, but has transformed the whole framing of negotiation for access and use.

The story of a Hmong leader born in Louang Prabang Province and presently living in Thongnamy, Bolikhamxay Province, is a revealing example of the ways people can call on the law to protect their rights when they have been scorned. In 2000, he learned that shifting agriculture would soon be prohibited and that villagers would need to vacate their land. He and his fellows looked for a place to stay, and chose a plateau area in Paksong District, Champasak Province, in the south of the country. They eventually received legal documents and a map of their new fields issued by the district authorities of Paksong.

They settled in Paksong, but in July 2001, the army came quite unexpectedly to expel them from their new village. According to the Hmong leader, this decision was motivated by the "confusion" of the Hmong community for spies working for the insurgency.[7] Soldiers came and ordered them leave at gunpoint. The leader said he told the soldiers to kill him if they dared, as the disruption was totally illegal. During our interview, he clutched administrative documents and law books. When he told us about his confrontation with the soldiers, he held up a booklet and proclaimed, as if he was reliving the scene, "It is not your law, it is not my law: this is our law and you have to respect it" (Fig. 9).

The Hmong managed to suspend

7 In that decade, there were still small groups of insurgent Hmong, mostly descendants of the Secret Army soldiers trained by the CIA during the civil war in Laos.

the decision for 3 days, but eventually had to move; the army transported them in trucks to the village of Thongnamy. Provincial employees promised them compensation upon their arrival: land, rice, irrigation. They got most of what was promised, but the land they were provided never got the expected irrigation system—so in 2006, they started building a canal by themselves. Their leader continued still furious about these events. He showed us a document stipulating the investment made in Paksong by the families: 93,375,000 Kip, or about 12,000 USD at the time.

This evidence is revealing on many points. Of course, the most obvious element is the authoritative way state authorities enforced a decision with no regard for previously granted rights of resettlement. But the Hmong did not simply give up. Their leader collected books on land rights, gathered official documents regarding the resettlement in Paksong, and compiled a list of the assets and investments his people had made in order to calculate a very precise bill of 12,000 USD. His attitude clearly indicates a clear understanding of land rights according to the law, as well as how to use evidence to pressure authorities. This goes beyond mere economic considerations: his insistence demonstrates that the issue of compensation was a way for his group to express their strong disapproval about the whole affair, and to phrase it in terms that emphasize their right to such compensation under the law.[8]

Thongnamy provides a second example of the ways land policies can be used by groups on the social margins. This village where the above-mentioned group of Hmong was forcibly resettled has in fact attracted thousands of migrants from the north of Laos. The hamlet of 40 families in 1995 has now become a small rural city of more than 6,000 inhabitants (Petit, 2006, 2008). The migrants who came after the year 2000 could not be provided with land by the authorities, despite access to land being an important commitment of the resettlement propaganda. This led to the creation, in 2002, of a committee of 52 landless families from various ethnic backgrounds, with a majority of Khmu. On the advice of two Khmu generals contacted by a leader of this committee, they officially presented their demands at different levels of the state administration: the district, the province, and the capital.

In 2003, a land allocation program was designed under the aegis of the Ministry of Agriculture and Forests, and in 2004, each family was allotted a few hectares in the forest of a neighbouring village, Na Bouay. However, residents of Na Bouay considered themselves the legitimate owners of their village's land and refused to give it for free to the new migrants. The situation was very tense and the district authorities ended up not enforcing the new land allocation, siding instead with the inhabitants of Na Bouay. Altogether, only five to seven families benefitted from the land allocation.

8 Green and Baird describe a similar process among the Heuny resettled in Champasak Province (2016, p. 13, 18).

A third example comes from Phouxay, a small Laveng village in Attapeu Province. When it became evident to the villagers that Vietnamese HAGL workers had surveyed the border of a future plantation to be well inside their village's territory, the village chief gathered a delegation of six people to meet the workers, explaining that they would not allow the work to proceed if the company could not produce an authorization from the governor of the province. Though the Vietnamese agreed to sign a document in which they promised to seek the governor's approval before doing anything, they did not end up respecting this commitment.

What is revealing here is the villagers' reaction: they assembled an official delegation, including the chief of the village, a policeman, a militiaman, a village forest warden, etc.; they asked for a permit from the governor; and they made the Vietnamese sign a document. They were framing their contestation in legal language to most effectively protect themselves from the company. Miles Kenney-Lazar (2010), who wrote a detailed report on land concessions in Attapeu, lists other instances in which households tried, based on what they knew of their land rights, to oppose sub-standard financial compensation offered by the company in addition to cases of villages that refused to sign away their land (2010, p. 25–28, 46–47). In at least one case, this opposition was successful.

As these examples demonstrate, the new land policies and their various implementations cannot be simply equated with a story of dispossession without resistance. New bureaucratic language allowed the villagers to formulate legitimate claims that were not always in line with the dominant groups' interests. To be sure, our case studies are not success stories: the Hmong were resettled against their will with limited compensation; the 52-family committee was not granted the land it claimed; and the bulk of Attapeu villagers ended up with no choice but to sign away their land to the Vietnamese company. But in all three cases, individuals drew on state relations to contest decisions and/or claim compensation. This eventually helped to bring benefits they would not have gotten, had they reacted passively. The apparent insufficiency of the compensation and its limitation to a few people should not obscure the fact that using the bureaucratic idiom was met with partial success in the three areas, and allowed for voicing discontentment in an authoritarian regime.

Hidden Transcripts

This point addresses another modality of the social relations emerging from land policies, namely forms of resistance popularized by James Scott as "hidden transcripts", a concept referring to these "low-profile forms of resistance" of "subordinate groups" that fight an "ideological guerrilla war" against power holders (Scott, 1990, p. 19, 137). These are distinct from the contestations discussed above that use the legal lexicon to defend one's rights; hidden transcripts circulate under cover, and have more to do with moral economy than with legal rights.

Everyone in Laos has learned what (s)he can say and what (s)he cannot. Self-control is an embodied quality and everyone seems to know what the touchy topics to avoid in public are (Petit, 2013). "*Boo waô*", they say, "Don't speak about that"—or you can create problems; "*Gaanmüang* ... ", "It's politics ... "—a friendly reminder that the conversation is starting to lean toward a sensitive issue. This of course applies to land policies. I had a discussion in Attapeu with a Laotian project manager whose program partly dealt with land-use planning and allocation. I told him that I shared his interest in land issues, but he immediately denied having any interest in "land issues". I presume his reaction was motivated by a fear of being seen as critical of the Vietnamese rubber plantations in the province, as many NGO workers were. This would then be a case of self-censorship. Censorship is well-attested in relation to land issues, as evidenced by Baird's (2010) experience with a Canadian NGO working on land rights in Bachieng District.

However, widespread censorship and auto-censorship do not seem to impede the diffusion of "politically incorrect" information. Laotians enjoy chatting about touchy issues in private circles and among people they trust—or when they feel confident, as the anecdote with the taxi driver illustrates. This kind of critical conversation or gossip is called *jôm*, which can be translated as "grumbling" or "complaining". *Jôm* topics range from the corruption of local authorities to the government's immorality in granting land concessions to foreign companies.

Jôm can be a means of political action. In Vientiane, a 1,640-hectare shopping, industrial, and residence area was recently slated for construction on a 50-year concession in the vicinity of That Louang marsh. The project, run by Chinese companies, was compensation for China's help in the building of sporting infrastructure for the SEA Games in 2009 (Stuart-Fox, 2009; Tan, 2012). The inhabitants of Vientiane were shocked with this project and took every opportunity to express their dismay and anger. This anxiety was certainly fueled by some land owners, including Party members, who were afraid that their expropriation would not be properly compensated, as often happens. It was also stoked by a nationwide fear of the invasive Chinese presence in Laos: it was rumored that Chinese alone would settle in this area and that 50,000 of them were expected (Stuart-Fox, 2009, pp. 142–143). It is unclear to what extent gossip was instrumental in the reorientation of the initial project—which was reduced in scope though not cancelled—but it seems to have been an important factor.

At the southern end of the country, Attapeu was another place where complaints were voiced about the huge concessions granted to companies in exchange for infrastructure provided for the 2009 SEA Games.[9] Villag-

9 Providing infrastructure for an international event like a conference or a sporting competition is a common bargaining chip for companies negotiating access to land at the national level; see Dwyer (2013, pp. 314–321) for another telling example.

ers were alienated from their lands, as in the village of Phouxay, and sharply expressed their dismay. They declared that they were not given a choice, that their rights were violated, that they did not have any more rice fields to cultivate, and that the Vietnamese had polluted and depleted the forests and rivers upon which they had previously relied for their livelihoods. Two women who lost their fields spoke with me in 2012 in a small shop, complaining that the village chief had been unable to preserve the rights of his fellows; they said there had been no real resistance (*dtaan*), in contrast with how locals had bravely fought (*dtoosuu*) against the French in the past; they thus adopted the rhetoric of patriotic resistance, which is still very popular today in Laos (Tappe, 2013).

In downtown Attapeu City, the Laotian population felt as having become a minority by 2012. This led to fierce *jôm* regarding the villagers' complaints about land grabbing, as locals denounced the collusion of corrupt authorities with foreign companies and their lack of concern for their fellow citizens. However, new rumors also began to circulate: the Vietnamese were whispered to be taking part in large-scale amphetamine trafficking, with the complicity of the police, in order to addict Laotian plantation workers as well as schoolchildren; a river was so polluted by the outflow of chemicals from a Chinese-operated gold mine that villagers living downstream got skin problems from contact with the water; infuriated, they would have thrown stones at the Chinese workers of the mine; etc.

I do not intend to discriminate between what is true or not in such denunciations. I am rather interested in the use of these "horror stories" peddled as evidence against the companies, the Vietnamese presence, and the local authorities. It would be difficult to verify whether stones were really thrown at mine workers, but similar rumors according to which a villager shot a Vietnamese worker were reported regarding rubber plantations in Bachieng District (Baird, 2010). Such rumors are not grounded, according to Baird, but "are created to discursively support what many villagers might hope would happen, even if nobody dares to take the risk" (2010, p. 27); they are very telling examples of the "weapons of the weak" popularized by Scott (1985).

Despite the pervasive sense that state officers and the rest of the population are on opposite sides of a great divide, "weapons of the weak" are not used only by the weak. In some contexts, state officers state similar critiques regarding the livelihood consequences of the plantations. In private conversations, they complain about the massive Vietnamese migrant presence and express their fear that Vietnamese will eventually own all of the province's land, pollute and deplete its rivers and forests, and push local ethnic groups to the most peripheral zones. Such grievances were articulated to me by two officers of the Provincial Agriculture and Forestry Office of Attapeu during a long car drive appropriate for discussion.

Accommodations

The case studies discussed so far involve denunciation and confrontation, whether based on official rhetoric or circulating underground. The implementation of land policies, however, usually leads to less antagonistic relations, using "practices of compromise and collusion to fill the gap between project plans and on-the-ground realities" (Li, 2005, p. 391). Land policies often appear too restrictive to villagers as well as to state officers, who substitute more pragmatic arrangements for them. Such arrangements often do not abide by land regulations, but they respect some formal aspects attached to them.

Such accommodations were observed in Thongnamy. The rapid influx of migrants stimulated the need to find new lands to cultivate. However, residents of neighbouring "old" villages like Na Bouay and Nam Khou were not eager to provide "their" land rights for free to these new settlers—even if, in theory, land in Laos belongs to no one but the state.

A pragmatic system emerged in which the district employees became middlemen between the former inhabitants and the migrants. The old inhabitants registered unused plots of land on their village territory through temporary land-use certificates; they then sold the certificates to the migrants, with district land officers "legalizing" this illegal[10] sale and taking their share in the process through an alleged "tax" on the procedure. The name of the former land user was replaced on the certificate by the name of the new one (the migrant). With this validation, the latter was assured of his right to cultivate peacefully.

Such arrangements were not really legal, but were still framed as if they were official. This sort of exchange has given rise to neologisms and euphemisms, like referring to the "changing names" procedure; in hiding the commoditization of land, people did not say that plots were sold or bought, but claimed that they were "exchanged for a motorbike" or other assets.

Another related accommodation involved legalizing illegal acquisitions through a regime of fines. When the pressure on land was high in Thongnamy, some people cleared plots in protected forests. Paradoxically, when they were found guilty and fined by the village authorities, the perpetrators then felt endowed with rights to their previously illegal lands after paying the fine.

Such practices showcase how the land regulation system is vernacularized. Accommodations take place through (relative) consensus and with an eye to meeting the demands and needs of various stakeholders. This goes together with a strong will to (arguably) respect the rules, explaining why people

10 The land-use certificates, valid in theory for three years, must be distinguished from (full) land titles. The former are mostly used in the countryside, while the latter are mostly restricted to urban and suburban areas. Only the latter can be sold (Evrard, 2004; Prime Minister's Office, 2008, art. 3 and 16).

resort to certificates, district officer signatures, fines, and meetings with village authorities. The language of stateness is conspicuous in these transactions that paradoxically do not abide by the law. This could be labeled, to quote Strauss (1978), a "negotiated order" of land. In contrast to the contestations and denunciations addressed in the two preceding subsections, the present case studies demonstrate how state officers and users of land can find common ground between the strict application of land laws and a total departure from them.

Lestrelin (2011) elaborated on this topic in fine-grained ethnographies of two villages close to Louang Prabang. In his own terms, territorialization, as a powerful technique of regimentation of rural populations (especially ethnic minorities), cannot be addressed without taking into account the counter-territorialization processes through which official plans are rephrased, mitigated, or ignored once implemented at the local scale. Such accommodations clearly blur the state/society divide, as employees are enmeshed in the local networks of power. This pragmatic dimension of land issues has been under-studied, but seems to be a most interesting research avenue for an ethnography of bureaucratic routines.

Conclusion

Land policies are one of the main vectors through which the Laotian state imposes itself onto the population's daily life. The expansion of these policies' scope has progressively transformed the local administration into the inescapable mediator in land issues, increasingly replacing or overlaying the village institutions that used to govern such issues in the past. Land policies have thus often been approached with a critical stance and framed as the imposition of decisions made by the state or companies working under its aegis. However, this article has traced ethnographic vignettes showing how people and groups react; how they comment, appropriate, and possibly transform such measures; and how they sometimes resist their implementation. I have demonstrated that the lexicon of land policies is not used by state employees alone, for it is often appropriated by those the administration intends to control. Land policies arouse critical comments in private among the weak as among the powerful; such "hidden transcripts" can, through a war of attrition, reorient policies. Finally, land policies exist only through their concrete implementation, entailing processes of vernacularization in the local arena. A negotiated order on land eventually emerges from these usually tense interactions.

However, unpacking the dynamics of state relations on land from an ethnographic point of view and stressing the agency of impacted populations should not lead to the underestimation of the disruptive consequences of such policies. The recent transformations of land relations worldwide have deeply affected small farmer societies. As recently reported by Li regarding the rural highlanders of Sulawesi (2014), such process can create a great divide between the few who can take advan-

tage of the new system and the many who fail to do so. In Laos, as elsewhere, struggles over land create conflict among groups that are not equally endowed with political, social, and economic capital. Obviously, national and local elites have the upper hand in defining, for example, which "commodities" are eligible for compensation or not (Green & Baird, 2016). The inhabitants of Vientiane, who for the most part belong to the Lao ethnic group, were able to oppose and eventually transform the plans of the Chinese building project because academics, local bourgeoisie, and city political elites left on the sidelines of the project were able to unite under the banner of national integrity. This shows that in such circumstances, nationalist arguments seem particularly efficacious for justifying opposition. At the other end of the continuum, the ethnic minorities of Attapeu—rural, illiterate, and often despised by local Lao who decry their "backwardness" and "laziness"—had very limited means to face a massive land grab organized by a multinational Vietnamese company and supported by both the Laotian and Vietnamese governments, in a remote province with little media coverage[11]. The other case studies developed here would fall somewhere in-between in terms of capacity for mobilization and media coverage.

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11 See also Kenney-Lazar (2010, p. 13) about this difference of visibility.

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One Size Fits all or Tailor-Made? Building Appropriate Certification Systems for Geographical Indications in Southeast Asia

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Abstract

Geographical indications (GIs)—i.e. indications identifying goods originating in a specific place and having quality, characteristics, and reputation attributable to their geographical origin—are developing fast in the Southeast Asian food sector, with a wide range of new products such as *Khao Hom Mali* and *Thung Kula Rong-Hai* (fragrant rice), *Kampot pepper*, or *Nuoc Mam Phu Quoc* (fish sauce). After concentrating their efforts on registering GIs (to protect the name against counterfeit), GI promoters needed to decide how to control product compliance with GI specifications for specific quality. This paper analyzes the control and certification procedures for GIs in four Southeast Asian countries—Thailand, Vietnam, Cambodia, and Laos—and the challenges faced in building an efficient yet appropriate system of controls in these countries. Influenced by the "gold standard" of certification in place of organic agriculture, finding appropriate GI control systems is one of the dilemmas faced by these countries. The article discusses the main differences between GIs and other agricultural standards—specifications that are unique to each GI, endogenous, and based on local production practices—and the consequences in terms of certification. Indeed, in the case of GIs, other options than private third-party certification could better ensure that GI rules are followed, which may rely on the knowledge producers and connoisseurs have of the product.

Keywords: geographical indication, control, third-party certification, standard, ASEAN

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Resumen

Las indicaciones geográficas (GIs)—por ejemplo, indicaciones que identifican bienes que originan en algún lugar específico y que tienen una calidad, características y reputación que se le pueden atribuir a su origen geográfico—están teniendo un rápido desarrollo en el sector alimenticio del sudeste asiático, con un rango amplio de nuevos productos como *Khao Hom Mali* y *Thung Kula Rong-Hai* (arroz aromático), *Pimienta de Kampot* o *Nuoc Mam Phu Quoc* (salsa de pescado). Después de concentrar sus esfuerzos en registrar GIs (para proteger el nombre contra las falsificaciones), los promotores de las GIs necesitan decidir cómo controlar el cumplimiento del producto con las especificaciones de las GIs para una calidad específica. Este documento analiza los procedimientos de control y certificación para las GIs en países del sudeste asiático—Tailandia, Vietnam, Camboya y Laos—y los desafíos que se enfrentan al crear sistemas de controles que sean eficientes y también apropiados en estos países. Bajo la influencia del "estándar dorado" de la certificación en lugar de la agricultura orgánica, encontrar sistemas de control de GIs apropiados es uno de los dilemas que enfrentan estos países. Este artículo discute las principales diferencias entre las GIs y otros estándares agrícolas—especificaciones que son únicas para cada GI, endógenas y basadas en prácticas de producción local—y las consecuencias en términos de la certificación. De hecho, en el caso de las GIs, opciones diferentes a la certificación privada de terceros podrían ser mejores para asegurarse que las reglas de las GI se sigan, lo que podría depender del conocimiento que los productores y expertos tienen del producto.

Palabras clave: indicación geográfica, control, certificación de terceros, estándar, ASEAN

摘要

地理标志（Geographical indications，GIs）—即能够识别商品源自特定地点并具备可归因于该地理来源的品质、特性和声誉的标志—正在东南亚粮食产业中迅速发展，许多新产品由此诞生，例如Khao Hom Mali 和 Thung Kula Rong-Hai (泰国香米)，Kampot pepper（贡布胡椒）和Nuoc Mam Phu Quoc（越

南鱼露）。GI推动者集中精力注册地理标志（用以保护产品名称，抵制假冒）后，需要决定如何控制产品达到GI规范，获得特定品质。本文分析了东南亚四国地理标志的控制和认证程序，这四国分别是泰国、越南、柬埔寨和老挝。同时分析了以上国家在建立高效且适宜的控制系统时面临的挑战。受到有机农业产地的“黄金标准”认证的影响，找到适合的地理标志控制系统是这些国家面临的困境之一。本文探讨了地理标志和其他农业标准间的主要差异，后者对每一项地理标志而言都是独特的、具有内源性、且基于地方生产实践。文章还探讨了认证结果。的确，针对地理标志，比第三方认证更能确保GI规定得以遵循的选择方式可能要依赖生产者和内行对产品知识的把握。

关键词：地理标志，控制，第三方认证，标准，东盟

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Introduction

A geographical indication (GI) identifies a good as originating in a place, where a given quality, reputation, or any other characteristic of the good is essentially attributable to its geographical origin. GIs encourage diverse agricultural, food, and handicraft production and contribute to the socioeconomic dynamics of the regions in which they are anchored. They enable producers and operators to dedicate themselves to the commercialization of traditional products in response to the demands of quality-conscious consumers while promoting regional development (Bowen 2010). The aims of the legal protection conferred by the GI are to protect the producers against unfair competition and misappropriation, to protect consumers against a misleading description of the origin of the product, and to foster international trade

(Crespi and Marette 2003; Rangnekar 2004; Barham and Sylvander 2011). Since the implementation of the WTO Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS Agreement 1994), GI protection has expanded remarkably worldwide (Evans and Blakeney 2006), in particular in Asia. Despite different economic contexts and different GI schemes, Cambodia (François and Prak 2006), Thailand (Ngokkuen and Grote 2013), Vietnam (Pick, Marie-Vivien, and Bui-Kim 2015), and Lao PDR (Marie-Vivien and Chabrol 2014), all have opportunities to develop high-quality products with a strong geographical identity, and have already engaged in the identification and registration of GIs as a tool to expand their presence on international markets.

Examples of emerging GIs in South-East Asia include: *Khao Hom Mali* and *Thung Kula Rong-Hai* fragrant rice (Thailand), *Kampot Pepper* (Cambodia), *Nuoc Mam Phu Quoc* (Vietnam), or *Bolaven coffee* (Laos). Despite encouraging developments, challenges to maximizing GI development in the region persist at institutional and operational levels. One of these challenges is to enhance capacity for GI control. A GI is a signal that a product possesses certain qualities and characteristics, and enjoys a certain reputation related to its geographical origin. Such information is described in the GI specification, and compliance with the GI specifications by the value chain operators must be properly controlled to maximize trust by local and international buyers/consumers. An independent efficient GI control system is consequently vital to allow the system to benefit all the parties involved. Failure in the control system is likely to significantly reduce the benefits of GI protection, and to damage the image of the GI product and its economic prospects, both locally and abroad. In addition to GI control requirements expressed in national laws and regulations (when these exist), exporting GI products to foreign markets may also require compliance with the requirements of the importing country (Bramley, Marie-Vivien, and Biénabe 2013). In the EU, while GIs are qualified as an Intellectual Property Right (IPR), their control system is increasingly similar to those developed for agri-food voluntary standards such as "*Label Rouge*" ("Red Label" superior quality standard) in France {Marie-Vivien, 2017 #609} or organic agriculture, in which third-party certification prevails. For example, in France, GI control must be carried out by an ISO 17065 accredited certification body. We hypothesize that EU regulations influence domestic schemes for GI controls in countries willing to export their products to Europe, for example in Vietnam, Lao PDR, Cambodia, and Thailand.

Many authors have studied the importance of third-party certification for voluntary standards such as organic agriculture or fair trade, and explain it in terms of neoliberal governmentality (Gibbon and Memedovic 2005; Guthman 2007; Hatanaka, Bain, and Busch 2005). Third-party certification also appeals to techno-scientific values such as independence, objectivity, and transparency in an attempt to increase trust

and legitimacy among customers and to limit liability. In contrast, the literature on the control of GIs is much more limited, with some works describing the evolution of the governance of controls in France {Marie-Vivien, 2017 #609}, the effect of the certification costs in Italy (Belletti et al. 2007), or the issue of State intervention in controls in African developing countries (Hughes 2009). Other works aim to compare the governance of GIs with that of other voluntary standards (e.g., ecofriendly labels) by analyzing how the standard is set (its content) rather than how it is controlled (Marie-Vivien et al. 2014).

Third-party certification is now clearly expressed as the preferred option by the EU regulation on GIs and is mandatory in France. It is, therefore, important to understand how the need for third-party certification is handled in countries with a burgeoning GI system, and how it builds on control mechanisms already in place for other voluntary standards.

The purpose of the paper is thus to analyze the options for GI control in four Asian countries—Thailand, Cambodia, Vietnam, and Laos—and to highlight the challenges faced by these countries, which have very different control capacities. We highlight the close relationship between the diffusion of the third-party certification model for GI certification in Asian countries and the shift in GI control in the EU (with a specific focus on France) from public bodies and collective producer organizations towards third-party certification. Based on desk research and qualitative interviews conducted in each country, this paper details for each of the four countries: the GI system, the control mechanisms implemented for GIs (when these exist), the control mechanisms implemented for voluntary/compulsory standards (when no GI control exists), and the control mechanisms in place for pilot GIs. Ultimately, the paper aims to provide policymakers with relevant information on how to build efficient but appropriate GI control schemes at the country and regional level.

The rest of the article is organized as follows: Section 2 describes the GI control system in the EU; in Section 3, an analytical grid is used to compare the GI control schemes in the four countries. Section 4 is dedicated to a discussion of the results of our survey.

A GI Control Model Advocated by the EU

1.1 Towards third-party certification

Drawing largely on the tradition of appellation of origin, born in France in 1905 (Sylvander, Casabianca, and Roncin 2008), GIs have been homogeneously protected in the EU since 1992 by Regulation 2081/92 on the Protection of Geographical Indications (PGI) and Designations of Origin (PDO) for Agricultural Products and Foodstuffs. This is a two-tier system: the PDO/PGI application is first processed by the competent authority of the Member State in which the geographical area is located—e.g., the National Insti-

tute for Origin and Quality (INAO) in France[3]—the application is then examined by the Directorate General for Agriculture of the EU Commission.

In 2006, the EU Regulation was amended[4] to enable foreign GIs to benefit from protection within the EU and to introduce third-party certification, as defined in the EU food law. The regulation was again amended in 2012, to merge all quality certifications for food. The general EU food law principles reshaped the organization of controls by differentiating between what fell within the ambit of public authorities, and what could be delegated to private bodies.

Since EU regulation 510/2006 was promulgated, the overall control of the whole PDO/PGI system has to be ensured by the competent authority of the Member State. Monitoring compliance with the specification of each PDO/PGI can be ensured by the competent authority of the Member State and/or by a certification body, i.e. an independent body in charge of inspecting and certifying the conformity of the PDO/PGI product with its specification, and accredited against the European standard EN 45011 or ISO/IEC 17 065. The certification body is accredited at the level of the Member State by the national accreditation body, which is the body responsible for officially recognizing the capability of the certification bodies to inspect and certify PDO/PGI specifications. The term "certification body", introduced by the 2006 regulation, marks the inclusion of PDO/PGI in the general standards for product certification (Gonzales Vaque 2006). Member States that choose a public entity to verify compliance with the specifications must offer adequate guarantees of objectivity and impartiality.

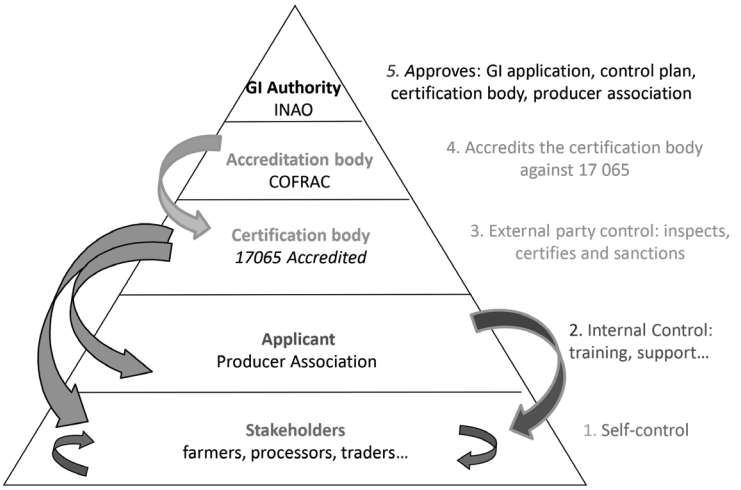
1.2 The French case

Although it was not mandatory, France chose to shift from controls undertaken by the competent public authority (INAO) to controls undertaken by ISO 17 065-accredited certification bodies {Marie-Vivien, 2017 #609} accredited by the national accreditation body, COFRAC (French Accreditation Committee) and approved by INAO, which remains the supervisor of the control system. Before 2006, while controls were officially under the authority of INAO (public third-party control), in practice they were delegated by INAO to GI producer associations and were consequently considered as insufficiently impartial, especially concerning wines for which "arrangements" between producers were notorious (Olszak 2007). The objectives of shifting to third-party private certification bodies were to meet the expectations of consumers, who often questioned the impartiality and the effectiveness of controls, and to reduce public spending.

3 Even though INAO is governed by a Board composed of both public and private stakeholders (see Marie-Vivien et al. (2017)), INAO is recognized as the national competent authority in conformity with the EU Regulation.

4 Regulation (EC) No. 510/2006 of March 20, 2006 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs.

Figure 1: French system of GI control



Source: Authors' survey, using initial figure of Certipaq.

Since 2006, in collaboration with the appropriate GI producer/processor organization (GI organization), for each PDO/PGI, the certification body has been designing a control plan based on the GI specification drafted by the GI organization. The certification body carries out the inspections and, based on the inspection reports, decides whether or not to grant certification. All costs incurred in monitoring compliance with the specification are borne by producers/processors. The sensory tests—which mainly involve tasting and were maintained for PDOs despite being criticized as subjective—are carried out by a panel of skilled producers and experts who can ensure that the inspection of the product is independent and impartial. The producer organizations are responsible for training their members and forming these panels, which still play an important role in characterizing the typicity/distinctiveness of PDOs and in recognizing the know-how of the producers. In addition to external controls by the certification body, the control plan includes self-controls by producers/processors, and internal controls by the producer organization (audited by the certification body). Control by third-party certification bodies ends INAO's responsibility and the practice of delegating the organization of controls to GI organizations. In this process, the philosophy of control shifts from peer review to third-party control.[5]

2.3 From gray zones to windows of opportunity

It is the French/EU control and certification model that is now disseminated to countries implementing GI protection schemes. Indeed, EU Reg-

5 A similar shift was described for organic agriculture by Sylvander (1997) and by Muttersbaugh (2005).

ulation 510/2006 clearly requires that, in the case of foreign GIs, verification of compliance with GI specifications is to be ensured by one or more public authorities designated by the third country and/or one or more product certification bodies, which, from May 1, 2010 onwards, shall be EU standard EN 45 011 or ISO/IEC Guide 65 (now 17 065)[6]-accredited. Interestingly, when the EU Regulation on PDO/PGI was amended in 2012[7] for GIs from third countries, the reference to the EN 45 011 accreditation was dropped. In this context, third countries are left with a range of options: in October 2012, the Vietnamese GI Nuoc Mam Phu Quoc was registered in the EU as a PGI with a control system based on a Control Board[8] headed by a representative of the Agro-Forestry-Fisheries Division of Phu Quoc district; in 2013, Thai GI Khao Hom Mali Thung Kula Rong-Hai rice was also registered in the EU as a PGI, but was certified by Bioagricert, a European ISO 17 065-accredited certification body. Despite this apparent flexibility, control by a private accredited third-party certification body is strongly advocated and largely influences the architecture of GI control systems in many countries, in particular, in the four countries in our study.

Appropriate for the Control of GIs in Southeast Asia?

1.3 National architectures for the protection of GIs

Geographical Indications have been protected by *sui generis* law in Thailand since 2003,[9] in Vietnam since 2005,[10] in Cambodia since 2014[11], and in the Lao PDR since 2011.[12] Thailand is the region's GI champion, with 90 registered GIs—among which are 76 Thai GIs and 14 international GIs. Vietnam is also quite dynamic with 52 GIs for Vietnamese products and 6 GIs for foreign products. Finally, two GIs are currently registered in Cambodia for Cambodian products—Kampot pepper and Kompeug Speu palm sugar and two for foreign products. The Lao PDR has none yet, but has two possible

6 Art 11.2 of EU Regulation of 2006.

7 Regulation (EU) No. 1151/2012 of November 21, 2012 on quality schemes for agricultural products and foodstuffs.

8 October 19, 2005 decision by the People's Committee of Kien Giang Province approving the Regulation on the organization and operation of the Control Board for the Appellation of the Origin Controlled of Phu Quoc fish sauce.

9 Geographical Indication Protection Act, B.E. 2546 (2003).

10 Geographical indications were first protected by recognition of the appellation of origin introduced in the Civil Code of 1995, and later by the Intellectual Property Law drafted for the country's accession to the WTO.

11 Royal Kram No. NS/RKM/0114/006 dated January 20, 2014 promulgating the Law on Geographical Indications and its Ministerial Regulation (Prakas) on the Procedure for the Registration and Protection of Geographical Indications of December 29, 2016, replacing Prakas no. 105 MOC/ SM 2009 of May 18, 2009.

12 Law on Intellectual Property (No 08/NA, December 24, 2007) revised and amended by the National Assembly in 2011 (No. 01/NA, December 20, 2011), Regulation for the implementation of the law of October 25, 2016.

GIs for Bolaven coffee and Khao Khai Noi rice and one application from a foreign country (Champagne).

In Thailand and Cambodia, the competent authority in charge of registering GIs is the Department of Intellectual Property (DIP) under the authority of the Ministry of Commerce, whereas in Vietnam and Laos, the competent authorities are under the authority of the Ministry of Science and Technology (the National Office of Intellectual Property in Vietnam and the Department of Intellectual Property in the Lao PDR).

The competent authorities are in charge of examining the GI applications, which will be the "standard" to be controlled, like in the EU. In contrast to the EU system, in which the nature of the applicant, a producer/processor group is always the same, the rules for a GI applicant are quite diverse in the four Asian countries. In Thailand, the GI applicant can either be a private entity (an individual person or a company), a group of producers/processors (association, cooperative, or non-formalized group), a group of consumers, or a public authority[13] (Provincial Authorities, the Rice Department, the Queen Sirikit Department of Sericulture).[14] In Vietnam, the right to register a GI belongs to the State, but the State can delegate it to organizations and individuals who produce the product bearing the GI, collective organizations, or the administrative authorities of the locality to which the GI pertains.[15] In practice, applications are often filed by the provincial Department of Science and Technology, the Peoples' Committees of the province/district, or the Department of Agriculture and Rural Development of the province/district. In Cambodia and in the Lao PDR, the producer association is the only body authorized to apply for a GI.[16]

In contrast to other standards, what matters for the GI is the protection of a name (usually the geographical name of the location where it is produced). National GI logos indicating that the name is registered as a GI are increasingly used, especially since the GI concept is new in Asia. Thailand has its own GI logo,[17] which reads "Thai Geographical Indication" and "GI" in Thai and in English characters against a gold background. In Cambodia, the national logo for GIs was launched in 2015 and in Lao PDR in 2016. Vietnam is in the process of launching its own logo.

The four countries have been following distinct pathways in implementing controls and certification systems: while Thailand's implementation of controls was quite gradual, Cambodia immediately jumped on the certifi-

13 Public authorities are sometimes involved in the preparation of the GI Book of Specifications, in cooperation with the local communities and with the DIP GI Office.

14 Section 7 of the GI Law 2003.

15 Art. of the IP Law 2005.

16 Art.2.5 of the Lao Decision 2016 on Geographical Indications and art.7 of the GI Law of Cambodia.

17 The use of the GI National Logo is regulated by the "Department of Intellectual Property's Regulation for Thai Geographical Indication Logo Approval B.E. 2008".

cation bandwagon with strong support from France, but applied it to only two GIs. At the other end of the spectrum, control systems for GIs are still far from operational in Vietnam and the Lao PDR, although certifications systems have been introduced for other standards and new avenues for certification are being explored (e.g. Participatory Guarantee Systems), which could be a source of inspiration.

1.4 National accreditation systems

Accreditation bodies in charge of recognizing certification bodies' capability to certify standards exist in Thailand and Vietnam, both members of the International Accreditation Forum (IAF). While in Vietnam, the accreditation to certify the "GI standard" does not yet exist, Thailand already has a specific accreditation system for GIs. In Cambodia, institutions have been created but the accreditation scheme for product certification bodies is not yet in force. In the Lao PDR, the national accreditation system is under development as several initiatives are currently underway to connect emerging institutions with the global arena (no specific action has yet been taken for GI certification).

Accreditation of certification bodies in Thailand comes under the National Standardization Act B.E. 2551 (2008) and belongs to one network, the National Accreditation Council, under the Ministry of Industry.[18] The network includes several accreditation agencies including the National Bureau of Agricultural Commodity and Food Standards (ACFS), which is in charge of accrediting certification bodies for agricultural commodities and food products.[19] In 2012, the DIP signed a Memorandum of Understanding with ACFS and the Thai Industrial Standards Institute on Cooperation for Certification and Recognition of Geographical Indications. The ACFS must now submit to the IAF an official request to include GIs as a standard to be certified besides other standards such as GAP (good agricultural practices) that are already recognized by IAF. Once this procedure is completed, the ACFS GI accreditation scheme will be internationally recognized as ISO 17 065-accredited by all members of the IAF.[20] In the meantime, the ACFS can accredit certification bodies using Thai standards for GI certification.

In Vietnam, the accreditation body is the Bureau of Accreditation (BoA) established in 1995 under STAMEQ, the Directorate for Standards, Metrology and Quality of the Ministry of Science and Technology.[21] The BoA offers accreditation programs for laboratories, certification bodies, and inspection bodies, for the certification of compulsory and voluntary standards, be they domestic, foreign, regional, or

18 https://www.tisi.go.th/home/en.

19 http://www.acfs.go.th/eng/.

20 Certification bodies that are already accredited by ACFS to certify standards such as GAP, GMP, and HACCP will be able to certify GIs.

21 http://www.boa.gov.vn/en.

international. Voluntary standards in agro-food products include VietGap (Vietnam Good Agricultural Practices), safe vegetables, and organic agriculture. The BoA's accreditation programs operate according to international standards. The Vietnam Certification Accreditation Scheme (VICAS) is one of these programs. At the time of writing, certification bodies are only accredited to certify VIETGAP (not GIs).

The Cambodian Ministry of Industry and Handicraft has set up an Institute of Standards. A new product certification scheme conforming to the requirements of the ISO/IEC Guide 65 is currently being developed. The Department of Accreditation, created in 2016, is the authority responsible for Accreditation of Conformity Assessment Bodies, but Cambodia does not yet have an accredited body for GI certification.[22]

The Lao PDR is currently setting up the Lao National Accreditation Bureau (LNAB) to be hosted by the Ministry of Science and Technology (Department of Standardization and Metrology) with the support of ASEAN's Consultative Committee on Standards and Quality (ACCSQ), which organizes training courses to strengthen accreditation services in Cambodia, Lao PDR, Myanmar, and Vietnam. The LNAB will be in charge of granting, maintaining, extending, suspending, and withdrawing accreditation to laboratories and conformity assessment bodies, among which are certification bodies.[23] Once the LNAB is fully operational, certification bodies will be able to be accredited locally and will no longer have to rely on foreign accreditation services.

1.5 Certification and control schemes for Geographical Indications

In Thailand, the law does not require a control mechanism for the use of the GI, i.e. the use of the name protected as a GI. This is different for producers/processors willing to use the Thai national GI logo. The producers/processors group must file an application with the DIP and develop a GI operating manual and a control plan.[24] In practice, the control plan is generally prepared with the support of the public authorities and is first implemented by the group of producers/processors (internal control) followed by external control by a Provincial Committee composed of individuals from the DIP, the local authorities, and producers/processors. The external control can be delegated by the Provincial Committee to the Province or to another public agency.[25] If there is no producer/processor group, the Provincial Committee

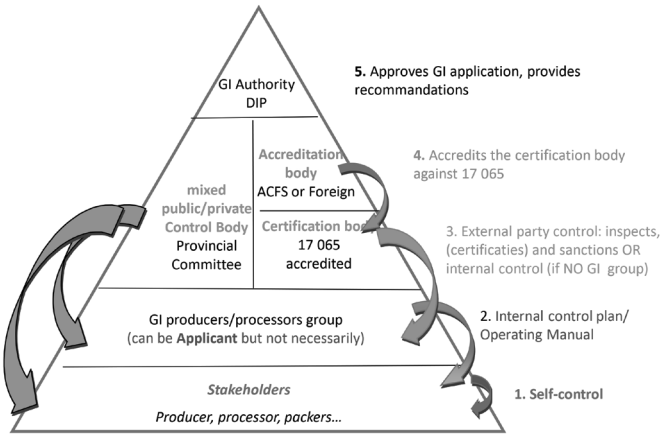
22 http://www.da-canc.gov.kh/en and http://www.isc.gov.kh/en/.

23 *Decree on the Implementation of the Law on Standardization* (June 2012).

24 ACT 2534 revised by ACT (No.5) BE 2545 (Art.1 point 5.1)

25 In 2015, 15 GIs used the Thai National GIs Logo; 39 GIs had the GIs Manual; 35 GIs had an Internal Control Plan; and 27 GIs also had a Committee to coordinate the control activity, take decisions, and verify the internal control. Of these 27, 19 had a "Provincial Committee". However, this system is not recognized internationally.

Figure 2: GI control system in Thailand



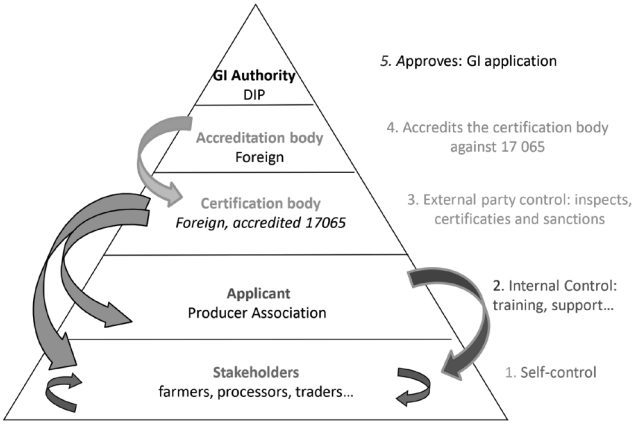
Source: Authors' survey.

can directly control all producers/processors.

The new 2012 regulation allows ISO 17 065-accredited certification bodies to inspect and issue certificates for Thai GIs. This is a voluntary choice of the GI producer/processor groups. Such a certification body can be accredited by the EU or by the Thai ACFS once the new GI accreditation scheme is effective. The Thai system thus allows GI producers/processors to choose between several control options.

In Vietnam, in the absence of a homogeneous national system, rules for managing GIs, i.e. granting and revoking the right to use the GI, are very diverse. The right to use the GI is granted by the management body (the public authority that registered the GI), but is not conditional upon control of compliance of the product to the GI specification, even if in some cases control boards were created. The control board usually comprises representatives from the Directorate for Standards, Metrology and Quality (STAMEQ) under the MoST, at the Provincial level. Initially involved in the creation of the GI for Nuoc Mam Phu Quoc (fish sauce), NAFIQAD (National Agro-Forestry-Fisheries Quality Assurance Department, under the Ministry of Agriculture) mainly controls compliance with mandatory food safety regulations and with some voluntary standards such as VietGAP through a network of laboratories scattered around the country. It considers that State agencies should not be involved in the control of voluntary standards such as GIs. NAFIQAD is funded by the State and by certification fees. Hai Phong Branch employs 15 people for laboratory analyses, 15 people for certification, and 10 people for administrative work. Each department of the Ministry of Agriculture and Rural Development (MARD) is in charge of accrediting certification agencies against specific standards, which creates considerable confusion: e.g., the Department of Crop Production is in

Figure 3: GI control system in Vietnam



Source: Authors' survey.

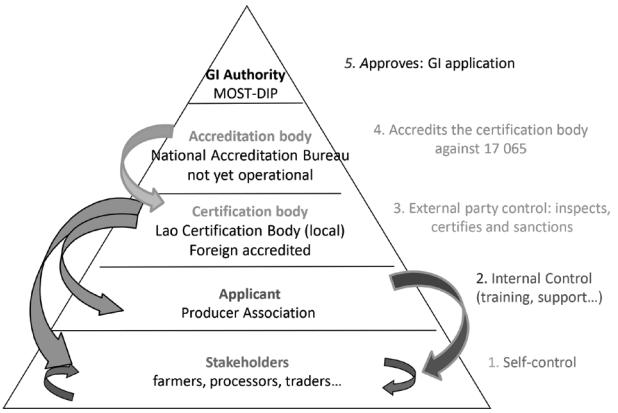
charge of accrediting agencies for VietGap for crops, while the Department of Livestock is in charge of accrediting agencies for VietGap for livestock.

No certification bodies inspect GIs, although there are many private Vietnamese certification bodies accredited by foreign accreditation organizations, such as Vinacert, which certifies mangoes from Hoa Loc, tea from Van Chan, and tea from Yen Bai against VietGAP. In the absence of Vietnamese organic agriculture standards, foreign certification bodies—e.g., Organic Agriculture Thailand (ACT) in Thailand—certify that Vietnamese products comply with foreign organic agriculture standards. This is the case of organic tea from Yen Bai, or organic star anise from Lang Son, two GI products.

The GI control system developed by Cambodia is very similar to the French system. It is detailed and includes an internal control by the GI association, and is funded by a fee paid by all members (producers, processors, packagers) of the GI association, an external control by a private or public ISO 17 065-accredited certification body, chosen by the GI association and approved by the Ministry of Commerce, the authority responsible for official controls.[26] The certification body audits the internal control system and inspects a subsample of GI association members. As Cambodia does not yet have an accreditation system for GI or Cambodian certification bodies that would be internationally recognized, the two Cambodian GIs are controlled and certified by foreign certification bodies accredited in the EU. Indeed, the only certification body in the country is the Cambodian Organic Agriculture Association (COrAA), a small private organization in the sector promoting organic agriculture in Cambodia that is not recognized internationally but conducts a few inspections each year for foreign certification bodies willing to certify foreign standards (e.g., GAP,

26 Art.26 and 27 of the GI Law 2014 and art.37 to 41 of the Prakas of 2016.

Figure 4: GI control system in Cambodia



Source: Authors' survey.

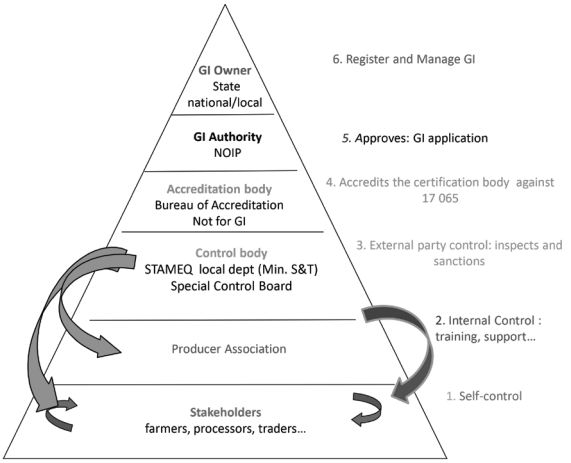
organic). No laboratories are accredited to carry out analytical tests.

The Kampot pepper GI is a perfect illustration of how a multi-tiered system can work. It combines: (i) self-control at the producer/processor level (each producer/processor verifies the requirements of the specification using the "auto check list"); (ii) inspection of all the members of the GI association by the 18 inspectors working for the association's internal control system; (iii) inspection of 30% of the producer/processor and of the internal control system by Ecocert, the certification body. In 2014, 20% of the pepper producers and 100% of the companies were reinspected by the external body. The organoleptic characteristics of the Kampot Pepper GI were verified by a sensory analysis panel. These checks showed that 95% of the producers kept their records properly, and that only a few needed to improve their record-keeping. Both the internal and the external control systems were satisfactory. Certification costs were borne by the GI association, owing to successful domestic and international sales of Kampot pepper.

The GI certification system in the Lao PDR is patterned after the French system. The DIP is the competent authority for official controls. Control of compliance with the GI specifications must be carried out by a certification/control body that is (1) legally registered or authorized to provide control or certification activities in Lao PDR and (2) 17 065-accredited. The certification/control body has to send an annual report to the DIP including a list of certified producers, operators, products, quantities, and measures taken, if any. This system has not yet been implemented.

Since 2008, the national institution Lao Certification is in charge of providing certification services to the agriculture and food sectors. Currently it inspects and certifies that producers and producer groups comply with Lao national organic standards and national

Figure 5: GI control system of the Lao PDR



Source: Authors' survey.

standards for Good Agricultural Practices issued by the Ministry of Agriculture. The LCB is under the auspices of the Standard and Accreditation Division of the Department of Agriculture within the Ministry of Agriculture. It currently employs 12 permanent staff. The inspectors at LCB were trained by inspectors from the Department of Agriculture, Agriculture Certification Thailand (ACT), and the Thai Organic Trader Association (TOTA). Around 20 organic inspections of organic farms are currently conducted throughout the country each year. As there are no inspectors at the provincial and district levels, the inspectors cannot monitor the producer groups under their responsibility very closely. Operational ICSs have been developed for organic rice and vegetables (Vientiane Capital), the future GI *Bolaven coffee* (Champassak Province), and the future GI *Khao Khai Noi* (Xiengkhouang and Huaphanh provinces). Farmers are usually inspected once a year. The inspection process lasts between 2/3 days and a week, depending on the number of farmers to be inspected in a group. Inspection of paperwork is usually followed by field inspections. Total certification costs depend on the size of the area to be inspected and certified and on the number of farmers involved, and may vary from 100,000 to 1,000,000 LAK (US$13-125). Organic Agriculture Certification Thailand (ACT) is the main certification body that performs inspections and certifies that products comply with foreign organic standards. For products for export, ACT currently invites LCB inspectors to take part in the inspection process to gain experience. However, the final certification process is carried out by ACT alone. Other foreign certification bodies operating in the Lao PDR include: BCS (Germany), ICEA (Italy), and Bioagricert (Italy), all of which operate from Thailand.

Table 1 summarizes and compares the GI systems in the four countries, underlining the difference between the approaches.

Table 1: Comparison between the GI systems in Southeast Asia

	Thailand	Vietnam	Cambodia	Lao PDR
Year of IP Law	2003	2005	2009	2011
Competent authority	MoC DIP	MoST NOIP	MoC DIP	MoST DIP
GI applicant	Private entity, group of producers, public authorities	Local public authorities (can delegate to the producers, collective organizations)	Association	Association
External control	Certification bodies or public authorities—operational	Public authorities (Little operational)	Certification bodies (operational)	Certification bodies (not operational)
Accreditation body	National Standardization Council (member of IAF)	Bureau of Accreditation (member of IAF)	Department of Accreditation (not a member of IAF)	National Accreditation Board (not operational, not a member of IAF)
GI national logo		In process		
N° of registered GIs	76+14	52+6	2+2	-

Source: Authors' survey.

Discussion

1.6 Choosing the "right" certification model

Existing laws and regulations in Southeast Asia already provide for a GI control system. As they are not yet fully operational, we consider that several options are still open for drafting a credible certification system that is not prohibitively costly for the producers and remains manageable by local institutions. As certification is costly, to be sustainable it must be off-

set by higher prices, which is seldom the case for new products that may not yet enjoy a reputation of uniqueness and quality beyond the borders of the producer country. Financing internal and external controls through member fees like in Europe does not seem appropriate for a burgeoning GI system that is not well remunerated because it not very well known by consumers. The EU model was successful for Kampot pepper, which benefits from a high premium on the international market, but its costs may be the reason why so few GIs have been registered in Cambodia since then.

Moreover, certification requires an entirely different attitude by the farmers, as they not only need to do things differently, but must also be able to prove that they actually do so. Experience in the four countries shows that it is often difficult for farmers and local communities to cope with the detailed technical requirements and to understand the need to "write what they do and do what they write" on a regular basis, as is often requested. This is likely to be the case for GI products that need to be traced from the farm to the fork. It may also be difficult for farmers to understand and follow the application process without external support (e.g., from an NGO) and in the absence of properly trained extension officers. The Lao Certification Body is severely understaffed and has no representatives at the district level to regularly train the farmers on certification procedures and paperwork, and on the importance of documenting farming practices.

Verification and certification systems are likely to be shaped by the distance to the final market on which the GI product will be sold, their cost, and by the financial and human assets available at both the farmer's and institutional level.

In the end, three main options exist for GI control:

(1) Control by *17 065-accredited certification bodies* seems to be the best guarantee for access to distant markets. It guarantees that all members of the GI group apply the GI specifications in the same way. This is an important step to avoid the misuse of the GI name and logo. This certification system makes it more difficult for fraudulent operators outside the group to produce GI product counterfeits as these operators will not have the GI certificate to prove the authenticity of their products. Such a system could be implemented either by foreign certification bodies or, better by far, by domestic certification bodies. Indeed, domestic certification bodies are more appropriate and efficient than foreign certification bodies, as they do not have to face the problem of language barriers, they can adjust producer's visits to the production cycle, they cost less, and share the same culture with those they control. Domestic certification bodies can be locally accredited, which is the case of Vinacert, Mekongcert (Vietnam), ACT (Thailand), and the Lao Certification Body. Local certification bodies are evidence of a sense of ownership by local stakeholders. However, as accreditation is also a long, costly, and difficult process, in coun-

tries where different standards may be under the responsibility of different ministries, it may be difficult to avoid the multiplication of accreditation and certification bodies, each ministry considering itself as fully legitimate. This is more likely to be the case as the number of voluntary standards increases (e.g. organic, safe, clean, VietGap, ThaiGap, ASEANGap).

(2) C*ontrol by a "Board" or "Committee*": the Thai system, which offers the possibility for the GI association to choose its system of control (accredited certification body, Provincial Committee), allows the GI to be launched without charging the operators for certification costs from the very beginning. The problem of cost also justifies the choice made in Vietnam. Indeed, in most cases the producers/processors cannot afford such costs at the beginning of the activity, but are able to do so later on once the GI product is better remunerated on the market. These Control boards or Provincial committees bring together experts from DIP/NOIP, local authorities, experts on the product, and experts in control/certification. One possible disadvantage of this control system is that control is not always optimal or may even not work at all because of lack of skilled human resources to conduct inspection and possible difficulties in coordinating such multi-stakeholder boards.

(3) Control by *participatory guarantee systems (PGSs)*[27] are particularly appropriate for short value chains (local and domestic markets) as they enable producers to reduce certification costs and communities to engage in a learning process. They are also a very interesting instrument to raise consumer awareness about issues related to food quality. Indeed, PGSs allow greater communication and learning between farmers and consumers, as well as more information-sharing not only between the farmers themselves, but also with other segments of the value chain. PGSs are currently very popular in Vietnam.

In terms of overall strategy, there seems to be some rationale for the creation of "one-stop shops for certification". Bringing all agri-food certifications under the umbrella of a single certification body (national or regional) would make it possible for operators willing to access multiple certifications to benefit from economies of scale, provided that several certifications can be granted after a single inspection (*e.g.,* organic, GAP, GIs, mandatory food safety regulations). This system would also enable inspectors from the certification body to attain a critical mass of activities to be fully operational, and not lose their skills. Such a system already exists for voluntary food standards, with certification bodies proposing certification packages that include a broad range of certifications (Djama, Fouilleux, and Vagneron 2011).

In parallel, and during the transition period until fully operational na-

27 Defined by IFOAM as "a quality assurance system for clusters based on an active participation of all the stakeholders and on the establishment of trust, social systems and knowledge exchanges between farmers, consumers and members involved" (IFOAM, 20xx). These alternative certification systems PGS are close to peer-to-peer systems.

tional certification bodies are in place, it is important to encourage ongoing efforts toward regional cooperation in the area of certification. As multiple accreditations are costly and time-consuming, certification bodies tend to develop partnerships based on a strategy of specialization in either a geographic location or an accreditation. The Certification Alliance, a collaborative platform for regional certification, is an interesting example of such cooperation. Based on the premises that local certification may not be viable in countries where there are only a small number of operators, Certification Alliance offers an internationally accredited inspection and certification service to local operators as well as collaboration between members on information-sharing, learning and capacity-building in inspection and certification. On this platform, collaboration among different certification bodies allows each member to benefit from a menu of certifications. Local inspectors accompany experts from other member organizations during their inspections, and learn from the experience. In 2008, the Lao Certification Body joined this platform along with eight other Asian organic certification bodies.

Finally, while the European system designates a GI-competent authority to supervise the control scheme for GIs (INAO in France), such supervision of the control scheme by the GI national competent authority is questionable in the four countries concerned here. As they are currently learning the fundamental principles of internationally recognized certification procedures, it may be wiser not to further complicate matters by adding mandatory coordination of controls between the authorities in charge of accreditation and certification and those in charge of geographical indications (intellectual property department or office) to avoid extra costs of co-management.

1.7 In the end, are GIs really equivalent to standards?

Standards imply a certain level of codification. In this respect, GIs are different from other standards: each GI specification is a unique standard, and inspectors need to truly understand the history and specific quality/uniqueness of the GI product. Furthermore, the uniqueness of the GI product may make it difficult to translate all its properties in the technical specifications without ending up with a very complicated document that is both unverifiable and unmanageable. For example, the experience of Kampot Pepper shows that having too many points to control (42 control points) is overly difficult and inefficient. The control points should be classified between major and minor points and the sensorial analysis should not be undermined: more importance should be given to the sensorial analysis and tasting panels as GIs give added value to typicity and organoleptic quality.

Another specificity of GIs is their collective nature. Each GI is a standard built on the practices of a group of producers/processors located in a specific place that created a product with a reputation. The group of producers/pro-

cessors is thus essential not only when setting up the GI application, but also when implementing the internal control. Internal control was the main control in France before 2006, under the supervision of INAO. Internal control is critical as it paves the way for lighter, easier external control, enables farmers to share and learn from each other, and reduces the risk of non-compliance. External control can be facilitated by strong efficient internal control: for Kampot Pepper, only 16 farmers were subjected to external control.

Conclusion

This article presents the GI control systems that are currently emerging in Southeast Asia, and highlights the difficulties encountered at various levels in making these systems both operational and credible, yet at a reasonable cost. While certification by internationally accredited third-party certification bodies is generally presented as the gold standard, it might not be the most suitable system for GIs, in terms of costs, sharing, and learning. Furthermore, a careful look at the latest version of the EU Regulation of 2012 shows that, for foreign GIs, third-party certification might not even be a precondition for entering EU markets. Finally, an increasing number of foreign GIs are protected in Europe through bilateral agreements that include a list of GIs to be protected in the signatory countries of the agreement, without having to rely on the provisions of the EU Regulation on GIs. In this sense, GIs are much more flexible than the EU organic agriculture standard, which requires a 17 065 certification system or a system judged to be equivalent to the European system. This means that countries willing to export GI products still have considerable latitude in the design of their certification schemes, and should consider several options in the light of the cost, the level of farmers' knowledge and awareness, and the domestic control capacities, with the aim of implementing efficient control.

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In Search of the Resilient Sahelian: Reflections on a Fashionable Notion

Benoît Lallau[1]

Abstract

This paper examines the figure of the "resilient Sahelian" identified or sought by numerous aid actors and funding bodies in West Africa. Does this notion of resilience contribute to something genuinely new, and if so, how? What methodological challenges does it raise? Can it be operationalized? And, above all, which policies does it require us to implement? These questions need to be addressed head-on if the "resilient Sahelian" is to be more than a poetic metaphor.

Keywords: resilience, food insecurity, Sahel, vulnerability, capabilities.

Resumen

Este documento examina la figura del "saheliano residente" identificado o buscado por numerosas entidades de ayuda y organismos financiadores en África occidental. ¿Contribuye esta noción de resiliencia a algo genuinamente nuevo?, y si sí, ¿cómo? ¿Qué desafíos metodológicos incluye? ¿Puede ser operativizada? Y, sobre todo ¿qué políticas require que implementemos? Estas preguntas tienen que ser abordadas de frente si el "saheliano resiliente" va a ser más que una metáfora poética.

Palabras clave: resiliencia, seguridad alimentaria, Sahel, vulnerabilidad, capacidades

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摘要

本文检验了“有适应力的萨赫勒居民”（resilient Sahelian）这一被无数援助行为者和资助机构在西非所寻求的形象。这个关于适应力的观念是否促进形成了真正的新事物？如果是的话，又是如何形成的？它提出了怎样的方法论挑战？它能投入操作吗？最重要的是，它要求我们实施哪种政策？如果“有适应力的萨赫勒居民”不只是一个诗意的暗喻的话，就需要迎面解决这些问题。

关键词：适应力，粮食不安全，萨赫勒，易受影响性，能力

Introduction

The aid sector is subject to fashions. And regularly, “experts” are convinced, or claim to be, that they have found a framework that will allow us solve the ills of humanity. In the 2010s, that “miraculous” notion is resilience. This notion came from outside the aid sector, in two disciplinary fields: in psychology, it relates to how a person recovers from a shock or a succession of unfavorable events (Luthar 2006); in ecology, it refers to an analysis conducted to establish if an ecosystem manages, following a disruption, to maintain its vital functions and to adapt (Holling 1973). The focus of this analysis then shifted to social–ecological systems combining nature and humans, such as urban systems (Walker et al. 2004). Centered on shocks, resilience was first used by institutions such as the UNISDR[2] in the field of natural disasters and their impact on human populations (UNISDR 2002). It then spread far beyond this field. Initially referring to the ability to recover from a major shock, resilience was then also considered to refer to the capacity to learn and adapt, particularly in protracted crisis or poverty situations, and to the capacity to anticipate and prevent. Its wholesale use has considerably widened definitions of the notion, such as the one used by AGIR[3]: “Resilience is the ability of an individual, a household, a community, a country or a region to withstand, adapt, and quickly recover from stresses and shocks such as drought, violence, conflict or natural disaster” (European Union 2012). It risks becoming a catch-all notion onto which anyone can project whatever meaning they wish.

It can also be seen as the result of a long process of reflection on the fight against food insecurity and its failures.

2 United Nations International Strategy for Disaster Reduction.

3 Global Alliance for Resilience in Sahelian areas, implemented by European Union.

These failures, as demonstrated by the regular recurrence of food crises, subsequently presented a challenge to a narrow conception of food insecurity that saw hunger as primarily the result of insufficient food production, and ignored the fact that hunger is also due to "abnormal" variations in price, insufficient means of production, and problems accessing food, as revealed in the work of Amartv Sen (1981). They also highlighted the need to look beyond the usual "emergency/development" divide to address the structural causes of food vulnerability and not simply its cyclical occurrences (Pingali, Alinovi, and Sutton 2005).

Added to these considerations are financial arguments. Set against a background of shrinking public budgets, the "right" hunger prevention model is the one that now gives priority to increasing value for money. Resilience, which by definition is based on the local agency and on preventive rather than responsive action, therefore finds increasing favor. The efficiency argument is also used as part of efforts to improve coordination between aid actors, not simply between emergency and development, but also between the technical response sectors, such as food security, water sanitation and hygiene (WASH) and health, and between actors operating in the same territory, and so on. Integration has become the new Discourse on humanitarian Method, which included skills, timeframes, scales of analysis and action, and the usual funding categories—poverty reduction, climate adaptation, and disaster risk reduction. Resilience as the purpose, integration as the method, and value for money as the common constraint, are the new triptych of the aid sector in the 2010s.

Since resilience is conceived as a tool for the integrated action on humanity's various ills, the world regions where these ills are most highly concentrated represent priority areas for experimenting resilience policies and programs. They include vulnerable coastal areas of South Asia, Horn of Africa countries, and the Sahelian fringe of Sub-Saharan Africa. This Sahelian fringe has to cope with climate change local consequences, still high rates of poverty and food insecurity, political instability, adverse incorporation in world markets, etc. In West Africa, resilience is therefore central to multiple initiatives, European (AGIR), British (BRACED[4]), American (Global Partnership), and sub-regional (Zero Hunger). In the Sahel as a whole, it would be unrealistic to apply for funding without including resilience in the "concept note", or without asserting an aspiration to Sahelian resilience. This resilience has become a new conditionality, after many others in History of the aid sector in the Sahel (modernization, structural adjustment, governance, pro poor growth, etc.).

This paper explores the scope of this new requirement for the projects and policies implemented in the Sahelian sub-region. The first section focuses on the usefulness of this notion in analyzing Sahelian contexts. The

4 Building Resilience and Adaptation to Climate Extremes and Disasters.

second section looks at the challenges involved in measuring resilience. The third section establishes a link with the sustainability approaches. The fourth and final section outlines what could be a "pro-resilience" policy in the Sahel.

Resilience: A Useful Notion?

What is New?

The first question we should ask ourselves is: what is new about resilience? Not much, in actual fact. First, despite an old reputation for resignation and passivity, West African peasants and shepherds did not wait for the fashion of resilience to respond and adapt to risks. Michael Mortimore, writing in 1989, described the nature of Sahelian livelihoods as "uncertainty-as-norm" and therefore designed to adapt to uncertainty. The keywords found in the extensive literature on this subject, across various disciplines, are flexibility, diversification, complexity, mobility, and adaptation. This long tradition also explains why so many researchers are irritated by the emergence of a notion that is supposed to fill an analytical void, whereas a lot has already been written on the practices of Sahelians, of which practitioners and, particularly, funding bodies are too often unaware.

Secondly, the drive for integration is nothing new. Attempts have been made to go beyond the usual emergency/development divide since the 1990s with the LRRD (Linking Relief, Rehabilitation, and Development) approach, a favorite of the European Union. They also form part of the "early recovery" approach promoted by UNDP in the early 2000s, and conceived as a transitional stage between the abnormality of a crisis and the normality of development; or part of the FAO's twin track approach to improve the consistency between emergency food aid and structural reduction of food insecurity. We might also mention here the long-established integrated rural development approaches aimed at globally addressing the development of rural territories and more effectively coordinating various aid modalities.

A New Neoliberal Avatar?

The resilience approach therefore often tends to create something new out of something old. This is not problematic in itself, since it can provide an insight into Sahelian crises and allow aid to be precisely targeted. However, for some authors, resilience also poses a real threat. For a start, since it is conservative by nature, it could be dangerous. It is rooted in ecosystemic approaches, which focus on the maintenance of the system's essential functions and on an adaptive cycle, in order to ensure a return to equilibrium. As a result, there would be no crises, just necessary and spontaneous adjustments. The highly conservative potential of the duplication on social area is clear, as is the resulting risk of an inability to address development issues, which would be seen as a disruption. Analysts of socioecological systems have, nevertheless, attempted to avoid this stumbling block by broadening their thinking

on this notion, which started as a persistence-based approach, before being expanded to include adaptability, and then gradually integrating the ability to self-transform as a characteristic of a resilient system (Gallopin 2006).

Resilience could also be considered as dangerous since it is based on an individualist vision of the social sphere, in association with psychosocial approaches. This raises the risk that we consider a person to be always able of confronting adversity within a system that does not have to be changed. Hence the suspicion that this is nothing more than a new form of neoliberal thinking, applied to risk management in this case (Reghezza-Zitt et al. 2012). It would result from an analytical shift in three steps: first, vulnerability conceived as the product of economic and social structures in analyses of Sahelian famines in the 1970s (Watts and Bohle 1993); second, vulnerability conceived as a trap resulting from the behavior of individuals themselves (Dercon 2005); third, resilience, as the capacity of these individuals to release themselves from this confinement. Resilience would lead to the construction of the myth of the "resilient poor" and to the idea that the poor are always capable of coping if encouraged to use their own resources and without the need to reduce inequalities or dominations.

A New Injunction?

This gives rise to another risk associated with resilience: the injunction. This injunction places the onus of responsibility on local populations: they have an agency and they need to use this agency to address their problems. This poses two potential threats: an illusion, on the one hand, and an alibi on the other. The illusion consists in thinking that, in all situations, individuals or, better still, communities, will find the means necessary to overcome adversity, for which they simply need to be empowered. And this is where the alibi comes in: if poor populations have the capacity to overcome adversity, the local emergence of relevant groups has to be promoted, and resilience will grow by itself.

Local populations would therefore be considered as potentially capable of overcoming adversity, as long as aid workers support the development of this capacity. And this gives rise to another form of injunction that marks a shift from "manage on your own" to "we're going to tell you how to manage on your own". The problems facing the poor would no longer (only) derive from natural risks, or the economic and social structures that produce vulnerabilities, but rather from mentalities, inappropriate behavior on the part of populations, or poor governance by local authorities (World Bank 2013). This vision underpins the "toolbox" approach, common in the resilience field, which identifies "good practices" to implement in local systems or to disseminate to leaders and authorities. A case in point is the characterization of "resilient communities" as communities with good leaders, a high level of education and risk-awareness, closely knit, diversified, in which women play a major role, etc. This can make resilience uto-

pian and unattainable, since there are so many conditions to be met.

If the responsibility for resilience is not simply incumbent on local communities, where does the onus fall? This leads us to a vital debate, in both West Africa and elsewhere: the governance of pro-resilience actions. Yet, this governance is often highly paradoxical. The first paradox is that a large number of current initiatives are poorly coordinated, and primarily designed to meet the priorities imposed by each funding body, whereas the notion assumes, by definition, better integrated actions. The second paradox is that national public authorities (particularly local authorities) and civil society organizations often feel deprived of the ability to take decisions, or at least the ability to provide guidance on these issues, whereas resilience programs are supposed to be based on endogenous dynamics and local leadership. In this regard, there is obviously a lack of a clearly identified and legitimate leader for "resilience" programs in the sub-region.

Of course, the injunction of good practices, the tendency to circumvent local authorities and the segmentation of programs are constant features of aid sector history. But, since the resilience approach is supposed to be about tackling these errors, this leaves them all the more open to criticism.

Potentialities of Resilience

Despite the seriousness of these criticisms, resilience does offer advantages for the analysis of Sahelian contexts and programs. Since it naturally places an emphasis on local capacities, resilience provides an opportunity to take proper account of these capacities, in all their complexity and historical depth. In this way, it can be considered as an extension, in terms of risks, of the capabilities approach (Lallau 2008). As such, Gondard-Delcroix and Rousseau (2004) consider it to be a synthesis capability, to the extent that it is the consequence of people's overall capabilities. Based on the active and reactive behavior of people in relation to their environment, resilience is expressed through strategic choices. From a capability point of view, resilient persons are those who are not only aware of the risks they run and of their agency but also capable of concrete action in response to these risks.

In agriculture, resilience also allows for the extension of risk analysis beyond that usually practiced by economists, that is, beyond the technical and commercial risks. The scale at which the resilience analysis is applied is more that of the household than the holding, which would also include life risks. In addition, the resilience approach requires perceptions to be taken into account, since what matters is less the risk as probabilized by the economist than the risk as perceived by the farmer, and the way in which, as a result, it influences this farmer's practices. Rather than risks, what is at stake is adversity, a notion that refers to all events, more or less sudden, with the potential to significantly impact a person's livelihood and living conditions, even though they do not occur. These events could just

be major natural disasters as the "small shocks" that make up the daily lives of the Sahelian poor, they are both local events and global or distant trends.

Finally, resilience can be integrated fairly easily into standard humanitarian frameworks. Household Economy Analysis (HEA) tools and the sustainable livelihoods framework can easily integrate the notion into their toolboxes. Since resilience is a multiscale, systemic, and historical notion; however, it requires aid workers to develop an in-depth knowledge of the social environments in which they implement response, which could improve the effectiveness of this response.

How to Measure Resilience

Since resilience applies to everyone within the aid sector, the challenge is to identify the conditions in which the notion can be usefully implemented. The first such condition is the ability to measure it correctly.

Resilience of What?

First, we need to establish the indicators to measure resilience. A factor common to all resilience approaches is the focus on the ability to cope with risks and shocks. To measure resilience, therefore, we need to assess a capacity, which is not straightforward. Many authors distinguish between different types of capacities, which combine to produce resilience. Researchers at the IDS,[5] for example, associate absorptive capacity (when the shock is neutralized and the system persists), adaptive capacity (structural adaptation to shocks through incremental adjustment), and transformative capacity (shift to a fundamentally new system in response to shocks) (Béné et al. 2012). However, such distinctions, although they allow resilience to go beyond the metaphorical stage, do not make it easier to measure.

Previous attempts, particularly by the FAO (2016a), share two factors in common: they aim to develop synthetic indicators aggregating different kinds of variables (psychosocial, material, etc.); they are ad hoc attempts, since the variables selected are adapted to the local context, and are not presented as extendable without adaptation (Constas et al. 2016). All of these attempts have the potential for circularity due to the confusion and interdependence between causes and consequences, between determinants of resilience and resilience itself (Béné 2013). As such, they struggle to take into account the interactions between what are seen as the various components of resilience: institutions are necessary to make assets useful, the value of education depends on work opportunities, etc. Finally, asset indicators, such as the possession of productive capital, can be "positive" in certain situations and disadvantageous in others, particularly during protracted conflict (Jaspars and O'Callaghan 2010).

It is probably pointless to doggedly attempt to extract a single measure of Sahelian resilience from more

5 Institute for Development Studies.

or less sophisticated methodologies. The central problem lies elsewhere, in the form of variables, the evolution of which must be monitored in order to identify if there is a resilience trajectory or not. As such, it seems relevant to take a local stakes-based approach that takes into account the diversity of local situations and communities. It involves identifying and monitoring over time what, locally, is the main issue (or the small number of issues) to buffer from shocks and which should be recovered, as a priority, following a shock. These local stakes will, as a result, determine perceptions and guide practices in front of adversity (Lallau and Droy 2014).

Resilience Horizons

This raises another major issue: how do you define a resilient Sahelian household? This presents us with two problems. The first relates to the choice of a timeframe for observing "stake variables". The second relates to the fact that risks are renewed and combined, shocks of different kinds are successive and cumulative, and the threat continues and influences practices after the shock itself; this is precisely what characterizes poverty: the scale and persistence of adversity experienced. This often prevents the identification of straightforward "event/response" type mechanisms, except perhaps in cases of rare extreme events. This makes it essential to address resilience in terms of trajectories.

However, these trajectories must not be perceived as linear. On the contrary, this raises the question of discontinuities and the thresholds below or above which the nature of practices and processes would change. Once again, resilience adapts well to standard humanitarian frameworks, since two thresholds might make sense here: a destitution or survival threshold and a resilience threshold, close to the livelihood protection threshold used by HEA assessors. Below the first threshold, the household is trapped in a survival situation, and the stake variables are at crisis level. The second threshold corresponds to the situation on the basis of which the household can start building an autonomous momentum to improve its living conditions and its capabilities, and which is not compromised by the least uncertainty. It manifests itself through levels judged to be satisfactory considering what matters locally. Between these two thresholds, there is a prevailing form of resistance, dominated by levels judged dissatisfactory of stake variables, and by defensive livelihoods practices. Thinking in terms of thresholds allows aid to be directed, by highlighting the levers that enable households to cross them, by statistically revealing resilience factors and vulnerability factors. The threshold analysis therefore has two levels. The first is static and requires us to distinguish between two threshold values for each identified stake. The second is dynamic and involves studying how its values are combined and how they move, or do not move, from one state to another.

Resilience is not Survival

This approach has two main implications. First, survival and resilience should not be confused. It is therefore important not to see resilience everywhere; survival is not the same as resilience. From this point of view, the return, after a shock, to an initial disadvantageous situation is not resilience, but at most a form of resistance. The expression "resilient poor" is nothing more than a mediocre oxymoron. And in that sense, most of Sahelian peasants and breeders, living in difficult places, coping with protracted crisis, unable to invest for a better future, cannot be seen as resilient. Second, since it is necessary to study household trajectories, we need to use specific methodologies. Trajectories can be identified through qualitative studies, based on network analysis and life stories, and the reconstitution of individual and collective histories. However, past practices can be ineffective in the present context, hence the interest of not only reconstructing trajectories a posteriori but also following them in real time. This requires the use of observatory methodologies. An observatory often turns out to be difficult to maintain, on the one hand in regions experiencing prolonged crises, where there is a high level of insecurity and fairly unpredictable population displacement, and on the other hand when there is a lack of funding, since funding bodies are reluctant to pay for these types of methodologies.

Linking Resilience and Sustainability

This section explores another important and frequently ignored question: is resilience always a good thing? In order to answer this question, we need to look more closely at different scales of resilience, and at household practices and their sustainability.

Focus on Household Practices

Within international institutions, resilience is often considered at various stages, from the individual to the national. This desire to simultaneously address multiple scales and their interaction clearly increases the difficulty of operationalizing the notion; the resilience of a beaten child is not the same as the resilience of a village, and the links between them are difficult to establish. The household may provide a good entry point within a resilience approach. It structures the daily lives of its members, allows people to live together for at least part of the year, and covers a significant share of risk management practices. It is also the preferred scale of aid practitioners, as the most effective to assess the impact of the programs implemented. However, this scale is certainly insufficient and it is necessary to look below and above them, on the scale of a territory or community, and as a result link resilience and sustainability.

Within a household, this requires us to identify the winners and losers of practices and adaptations. Gender is

central to this research. Forcing your daughter into an early marriage in order to clear a debt might enable other members of the household to "bounce back", but at the price of limiting the young woman's agency. It raises the question of the social sustainability of such a practice. If we make a link between resilience and sustainability, we are required to address the risks posed by household practices. Humanitarian actors have certainly integrated it into their analyses, since they usually consider household practices in terms of three post-crisis impact levels: practices with low impacts (adaptive), which do not compromise the household's future; practices with a moderate impact (distress), which are not sustainable but which do not reach irreversible levels, and high-impact practices (survival), which may irreversibly damage a household's situation (ACF-International 2010).

It is important, however, to underline the ambiguity of some humanitarian practices when studied from a resilience perspective. These humanitarian actors have a tendency to focus, for ethical reasons, on saving lives, whereas households and communities generally have a longer term goal that of preserving the group's resources to ensure their livelihoods. This is a source of potential tension between two types of hardship, which are also two priorities: lives and livelihoods (Hampshire et al. 2009). What is a sustainable practice, from this point of view? Is it a practice that saves vulnerable lives, or which saves the family's livelihood? This is a question that a resilience analysis can help resolve, since emergency resilience-based responses are already supposed to take the long term into consideration. More generally, the resilience approach must, therefore, encourage to reduce dependence on assistance and systematic food aid, as quickly as possible, and go toward less visible aid practices aimed at promoting self-reliance. Once again, this is a long-established debate that resilience has simply revived.

The "Community": Another Relevant Scale

Linking resilience and sustainability also means going beyond the household and addressing the issues of social interaction and practices aggregation. First, rather than talking about "good" or "bad" household resilience, this approach involves establishing if the practices of some households directly or indirectly harm others. In this case, if there is resilience, it may not be socially sustainable. Predation practices such as looting, for example, may enable some people to embark on resilience trajectories, but at the expense of destroying livelihoods of many others. Less radically, the individualization of land property or grabbing practices with regard to a space previously shared by the community may strengthen its beneficiaries but weaken others.

Second, an approach applied at a household level may not be suitable for a local community, particularly due to the pressure on natural resources. The diversification of activities, usually presented as favorable to resilience, can have negative impacts on a territorial

scale. This includes market gardening, which can represent a significant drain on water resources, and charcoal production, which can lead to a major reduction in forest coverage. The same practice (market gardening, charcoal production, etc.) can embark on resilience trajectories if it is implemented by a small number of households in a given territory, and alternatively foster situations of resistance or even survival if it becomes widespread.

It is therefore important to link the household with the community to which it belongs, such as a village in a rural area. On this village scale, in line with the social–ecological systems framework (Walker et al. 2006), resilience can be considered as the continuity or restoration of "functions" essential to the "village system". This would be based on the following approach, in three steps: define and assess functions performed by the community (see inset); study the community's resources (capital and capacities), which enable it or not, through their interactions, to maintain and restore these functions; highlight the trajectories and possible threshold effects.

Inset: The "functions" of a village community

The definition and assessment of the village system's functions are based on the four standard dimensions of sustainability: ecosystemic, economic, social, and institutional.

Ecosystemic field, *productive function*: A village is ecosystemically resilient if the agroecosystems maintain their productive potentialities. Indicators: agricultural yield trend; hunting and gathering off-take trend; presence of weeds indicating loss of fertility, etc.

Economic field, *subsistence function*: A village is economically resilient if its inhabitants are able to satisfy their basic needs and to avoid adverse incorporation to global economy. Indicators: food diversity, accessibility of health and education services, village's terms of trade, etc.

Social field, *cohesion function*: A village is socially resilient if it is socially cohesive. Possible indicators: occurrence of discrimination against a person/group of people; conflicts within the village; collective action; sense of belonging, etc.

Institutional field, *regulation function*: A village is institutionally resilient if its community is "governed". Possible indicators: existence of a legitimate leader; number of incidents of rule breaking and the level of penalties applied; inequality in access to resources (land management in particular); degree to which villagers feel secure, etc.

Resilience: A New Assessment Framework for Public Policies in the Sahel?

A far cry from these methodological issues, resilience in the Sahel is currently a categorical imperative; it is not a matter for discussion; it must simply be researched and supported. This provides us with a real opportunity to turn this notion into something useful: it could become an essential criterion for assessing national, regional, and international policies. It could be used to remind these policymakers of their responsibilities: do you really make a contribution to the resilience to which you so earnestly aspire?

Implement Integration?

The aim of integration is inseparable from resilience. This aim is not without risks or problems, and is hard to operationalize (Grünewald 2014). Of course, major funding bodies attempt to implement it as part of their own procedures. USAID, for example, has developed an approach called the Joint Planning Cell (USAID 2013). This cell is composed of agricultural, climate change, food, health and food security experts, and its mission is to produce joint action plans to layer, sequence, and integrate humanitarian assistance. At a European level, ECHO and DEVCO increasingly conduct joint situation analyses, although each is keen to protect its prerogatives. In addition to this internal institutional dialog, longer horizons for funding bodies, and therefore for funding grants, which would appear to be decisive, are rarely achieved. This represents another paradox, even though resilience consists in encouraging target populations to implement longer horizons.

In the field, institutions are also attempting to modify their practices. This includes the FAO and its "caisses de resilience" approach, which has been tested in Mali and Burkina Faso (FAO 2016b, 2017). It combines a technical component, based on the promotion of good agricultural practices in "farmer field schools"; a financial component, aimed at developing microfinance (savings, micro-credit, micro-insurance), and a social component including social nets and social inclusion tools. By combining these components, the aim is to trigger a virtuous dynamic, based on diversified and resilient livelihoods, longer horizons and social cohesion. However, it is mostly NGOs, which are generally in the front line in West African field operations, on which the onus of implementing integrated approaches falls. They are often organized in a highly sectorial way, because funding bodies used to assert it as a condition of their effectiveness (cluster approaches), and they are now being asked, for the same reason, to do exactly the opposite. The same requirements for effectiveness have also too often led them to neglect national partners as not "professional" enough, and to limit in-depth assessments, as too costly; they are now being asked to better integrate local actors and to develop less basic assessment frameworks, based on the complexity of resilience. Another problem is the assumption that all goals could be achieved at

the same time, without resources being spread too thinly or goals coming into contradiction with each other. Finally, asking them to link emergency and development in their activities requires them to rethink their internal organization, while remaining subject to the vagaries of funding, obtained on a case-by-case basis, and without predictability. Many aid workers, within NGOs, already doubt the possibility of implementing an integrated approach in practice.

Agricultural Development for Resilience?

The resilience approach is not simply about responding to food crises but also about trying to prevent them, based on development policies. But, which agricultural policies can promote resilience? Part of the answer lies in the fact that not all technical approaches are equally effective in fostering the resilience of family farmers. It is increasingly agreed that the agroindustrial model disseminated during the "green revolutions", based on the artificialization of agroecosystems, systematic chemicalization and the simplification of cultural practices, is reaching its ecological, social, and even economic limits. The systemic approaches taken by agronomists reveal that resilience is, on the contrary, a result of complexity, diversity, flexibility, and autonomy (Cabell and Oelofse 2012). Agroecological practices, which are based on such complexity, local adaptation, and agroforestry, represent potential vectors for agricultural advances favorable to resilience. This is what a very large number of studies now show (Altieri and Nicholls 2012).

The idea of resilience based on agroecology is certainly making inroads at the FAO and, more generally, the United Nations, and in many NGOs. However, it does not play a dominant role in the funds mobilized. The approaches recommended by the "New Alliance for Food Security and Nutrition", which brings together a number of public and private funding bodies, particularly in West Africa, tend to perpetuate the dominant technical model, supported by the agricultural supply and genetic engineering industries. In Sub-Saharan Africa, AGRA[6] and even more AATF[7] relay this model, supported by private foundations (Oxfam 2013). Their aim is to show, on the one hand, that the increasing dependence of peasants on input suppliers does not pose a threat to these small-scale farmers and, on the other hand, that only "new modernisation", based on a technical pack including genetically modified seeds and widespread access to chemical inputs, will enable them to meet the demand for food in a climate change context. The climate-smart agriculture promoted by the FAO and the GACSA[8] points, more or less, in the same direction (FAO 2013).

6 Alliance for Green Revolution in Africa.

7 African Agricultural Technological Foundation.

8 GACSA: Global Alliance for Climate-Smart Agriculture.

Food Sovereignty for Resilience?

What we are dealing with here, beyond the specifically technical aspect, is the role given to family farmers in agricultural development and food security in the Sahel. This reveals the ambiguity of the programs implemented on behalf of food security and family farming. On the one hand, we say that we expect a lot from these peasants to feed their contemporaries and provide jobs, etc. On the other hand, we tend to support practices contrary to the development of these peasantries. The suspicion that family farmers use outdated practices, already central to modernization policies several decades ago, is never far away. In short, we support peasants, but only in the absence of a better alternative.

A case in point are the large-scale agricultural investments that the World Bank and, to a lesser extent, the FAO continue to support, driven by a vision of development based on free investment and free trade. They are content to remind investors of their "responsibility" to limit the social and environmental externalities, or to consider the modalities of the least unequal partnership possible between family famers and large estates, based on contract farming (Lallau 2012). In the same way, despite numerous studies on this issue (De Schutter 2014), the main funding bodies strongly reject the idea of re-establishing border protection (without which, however, local agroindustries and supply chains will be unable to thrive) and make the case, on the contrary, for greater liberalization. The EPA[9] between West Africa and the European Union is a good example of this: it places European producers and West African producers in competition within a single market, considering them as equals and equally capable of taking advantage of such a free trade agreement. European officials confirmed in 2015 that excess in milk powder production caused by the end of milk quotas in Europe could easily find outlets in emerging markets, including in Africa. The European Union could be accused of lacking consistency, given the extent to which the EPA and AGIR initiative appear to be in total contradiction. What about the resilience of Sahelian agro-pastoralists? What about the growth of West Africa's milk supply chain?

This also requires us to go beyond an often "nature-centred" conception of resilience. Examining the resilience of Sahelian farmers uniquely from the point of view of climate change is far too limited. Of course, the limitations imposed by the climate are very real, and they are likely to increase in the future. However, shocks and stresses caused by global markets and land grabbing are equally important factors, and indeed more meaningful than climatic variations for under-supported and under-equipped Sahelian farmers. Such resilience should also be considered in terms of a clash between a Green Revolution model and alternative conceptions, based on agroecology, food sovereignty, and peasant farming

9 Economic Partnership Agreement.

dynamics. The political dimension of Sahelian resilience really comes into its own here, and highlights the contradictions, and therefore the responsibilities, of the institutions that advocate it.

Social Protection for Resilience?

Social protection has made a strong comeback in recent years in aid discourses and practices. Once again, there is nothing new about this finding: it is pointless to expect highly vulnerable people, for whom the smallest hazard is potentially disastrous, to relay the "good practices" on which resilience is based. It is therefore necessary to protect the livelihoods of Sahelians from life's hazards, and not simply the hazards of the market or rainfall, and to implement a diverse range of social protection methods accessible to local populations.

This primarily involves improving access to basic services, the rehabilitation of which began in the early 2000s with social policies inspired by the MDG (Millennium Development Goals). More recently, in relation to the resilience approach, "preventive" or "productive" social net programs have grown in popularity in Sub-Saharan Africa, most often under the auspices of the World Bank (Leturque 2013). The stated goal is not only to save lives but also to sustainably transform the situation confronting people caught in the poverty trap, by maintaining safety nets outside of major crisis periods. This falls between conventional agricultural policies based on production support and the live-saving actions of emergency response actors. This brings into focus another dimension of food security, the accessibility of food and its means of production: cash for work, one-off food aid supplies, support to capitalize agricultural holdings, guaranteed purchase via local emergency aid supply systems (such as the P4P, Purchase For Progress, a program run by the WFP[10]), cash transfers to increase outlets for local producers, etc. To return to the terminology used above, the main targets of these initiatives are resistance households (between resilience and survival), with a view to enabling them, once again at least cost, to embark on resilience trajectories.

In West Africa, social approaches to food insecurity are mostly targeted at poor farmers and breeders, that is, those who do not produce and/or do not earn enough to meet their food needs throughout the year. They are based on the idea that a sum of money, even very small, to supplement a person's regular income (conditional or otherwise) can help households diversify their livelihoods, invest, and go beyond short-term resistance, and can also benefit the whole community through infrastructural developments and related spending. Ethiopia is often mentioned as the example to follow, with its Productive Safety Nets Programme, based on manpower-intensive public works programs. It provided a template for the CEDEAO, for example, whose "Zero Hunger" initiative, launched in 2012,

10 World Food Program.

also includes this social dimension in terms of preventive safety nets (ECOWAS Commission 2012).

These are called inclusive agricultural policies and they have both productive and social goals. They can give rise to potential discrepancy, notably between attractive prices for producers and acceptable prices for consumers. It also requires us to make a difficult choice between potential beneficiaries: should we help several older women or a young rural entrepreneur? Which will show the most resilience at a territorial level? It has also given rise to fears expressed by certain representatives of West African peasant organizations that the social dimension will take precedence over the agricultural dimension. In other words, we will limit ourselves to social redress or healing policies, without tackling, once again, the roots of food vulnerability.

Conclusion: Resilience Demands

It is now clear that, if we are to avoid empty words and emotional advocacy, we need to meet the many demands made by resilience. The first demand is conceptual and involves clearly defining resilience and associating it with other key notions in development debates, such as sustainability and capabilities; resilience, however necessary, is not sufficient in itself to explain the realities of poverty and food insecurity in the Sahel. And it is relevant in Sahelian contexts if and only if we do not see resilience everywhere, if it is not confused with survival and resistance. The second demand is methodological, since resilience requires us to follow up situations over time, implement impact assessments, and take qualitative approaches. It must be studied at several scales, and there is here a strong interest in linking capability approach and social–ecological systems approach, in any attempt of measurement. The third demand is more important still, since it is political and involves choosing a pro-resilience development model. In this way, resilience enables us to beneficially re-launch the debate on the political dimension of development aid, due to its prescriptive considerations, and the choice of models it inevitably requires us to make. It also puts into perspective the least-cost argument often used to justify its implementation in aid responses. As a guiding principle for agricultural and social policies aimed at tackling the structural causes of vulnerability, and as a framework including all types of risks and shocks (not only the "natural" ones) resilience is inevitably a costly and, in the end, bothersome notion for States and funding bodies, since it reveals their own inadequacies and inconsistencies.

Although it is too early to draw any conclusions about the use of resilience in the Sahel, two key assessment criteria could be addressed in the years to come: its capacity for integration, which is often highlighted; and its capacity to legitimize and promote truly effective public action in favor of Sahelian farmers and shepherds, local value chains, and urban consumers.

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