

**Towards sustainable agriculture in the developing world:
Theoretical perspectives and empirical insights**

by

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CHAPTER 1. OVERVIEW

1.1 Introduction

The concept of ‘sustainable agriculture’ has evolved since the early 1980s in response to an array of ecological and equity problems posed by the adoption of modern industrial agriculture. From the inception, the concept has been inseparably tied to the critique of conventional agricultural paradigm. Broadly, the critique focuses on equity and environmental dimensions.

The most commonly cited critique with regard to the equity dimension is the fact that the adopted technologies are not scale neutral but favors resource rich farmers at the expense of poor farmers who could be displaced without adequate safety nets (Altieri 2002; Ray et al. 2003). Another critique is related to the labor saving characteristics of Green Revolution innovations. An increased intensification of capital through the introduction of high-input agricultural technology (such as heavy machinery, irrigation, high-yielding varieties, and agrochemicals) liberates affluent farmers from a hired labor force while forcing the displaced landless cohorts into urban slums and shanty towns (Tadaro 1996). In addition, sustainable agriculture supporters are critical of the conventional agricultural extension strategies. The adopted ‘transfer-of-technology’ (TOT) model, which promotes a top-down transmission of agricultural knowledge from extension officers to farmers, bolsters conventional agriculture by converting component research into easily transmittable production recommendations (Chambers 1989), while bypassing small-scale farmers’ own needs and insights (Matteson 1996) and ignoring holistic ecological approaches. Further, sustainability proponents ‘cry out’

against indiscriminate use and ineffective regulation of pesticides, particularly in the developing countries where many pesticides banned in industrialized countries are still being used. Poor farmers and farm workers are the most affected victims of pesticide intoxication due to their low educational backgrounds and the lack of protection measures (Murray 1994; Wright 2005).

On the ecological dimension, the concept of sustainable agriculture reflects a critical view of monocultural production, because intensive monocropping in pursuit of economies of scale is prone to a significant biodiversity loss. Intensive monocropping is also susceptible to various unintended ecological outcomes such as pest outbreaks that arise from reduced environmental opportunities for natural enemies and transformation of pest genetics to resist frequently used pesticides. Crop failures due to such ecological chaos may lead to a severe economic loss and serious debt problems for less affluent farmers (Murray 1994; Wright 2005). Moreover, the concept highlights the ecological unsustainability that a heavy application of Green Revolution technologies may bring on. The use of synthetic pesticides and fertilizers, improved seeds generated through plant breeding and genetic engineering, and associated irrigation systems may result in high costs and environmental externalities, such as soil erosion, salinization, chemical pollution, and loss of native crop genetic diversity and reduction in overall biodiversity (Altieri and Nicholls 2005).

1.1.1 Sustainable Agriculture: Applying Agroecological Principles

The concept of sustainable agriculture aims to address these drawbacks of conventional agriculture by employing the systems approach (Ikerd 1992). While definitions of sustainability vary widely, agroecologists examine and assess sustainability primarily at the

farm and watershed levels. In principle, agricultural sustainability requires synergistic effects of agroecological practices to achieve the *compatibility* among the desired dimensions of the agricultural sustainability tripod: economic, social, and environmental (Herdt and Steriner 1995; vanLoon, Patil, and Hugar 2005).

The economic dimension of sustainability utilizes agroecosystem diversity to achieve minimum reliance on external inputs, and crop-livestock integration to offset the limits in economies of scale with economies of scope and yield stability, which result in increased productivity, food security, diet diversity, and income stability (Altieri 1999; Gliessman 1990), thereby serving livelihood and equity goals of resource-poor farmers.

These practices also enhance social sustainability. The consequent reduction in pesticide use is related to improved worker safety for producers and food safety for consumers (Bradley 1994). In addition, these cultural approaches are more knowledge and labor intensive, requiring understanding of ecological processes, problems, and methods within given location-specific contexts. In sustainable agriculture dissemination, therefore, in-situ conservation, farmer participation, and farmer-to-farmer extension are encouraged, thereby producing various synergistic effects of farmer empowerment (Matterson 1996).

With regard to environmental sustainability, problems of pest resistance and outbreaks resulting from large-scale monocultural production are reduced by smaller-scale multiple cropping, crop rotations (Magdoff 1989; Stinner and Blair 1990), use of cover crops (Liebman 1989), mulching (Vambe 1997), and so forth. Soil health is maintained through organic accumulation and nutrient recycling based on incorporation of manure and legumes. These cultural practices will lead to desirable environmental benefits, such as increased

agrobiodiversity, reduced leaching and run-off losses, and wider environmental protection (Magdoff 1989).

1.2 Sustainable Agriculture in Broader Contexts

Since its foundation, the interdisciplinary science of agroecology has made remarkable progress in defining the meaning of agricultural sustainability on the on-farm and watershed levels. Aside from these two dimensions, there are other, wider dimensions of agricultural sustainability that need to be explored from a combination of ecological and social science perspectives. The objective of this dissertation is to offer perspectives to contextualize sustainable agriculture in relation to two societal contexts beyond farm and watershed: (1) the developing country context, and (2) the fresh fruit and vegetables (FFV) sector (with special reference to the agri-food standard called ‘Good Agricultural Practices’ (GAP) and Thailand). Papers in this dissertation thus aim to identify the social and ecological factors that help to define sustainable agriculture along these broader contexts. Both contextual approaches to defining sustainable agriculture draw desirable agricultural development policy and practices that ultimately contribute to sustaining the livelihoods of small-scale farmers.

It is useful here to briefly review the two contexts where small-scale farmers in the developing world are situated.

1.2.1 The Developing Country Context

The developing country context can be best illuminated by comparing it to the context of developed countries regarding agricultural and rural development in which small-scale farmers are located. Here, agricultural development focuses on the actions and initiatives to

improve primary production of foodstuff and raw materials. Rural development denotes efforts to improve the standard of living of rural residents through means that are not limited to production of foodstuffs and raw materials.

In developed countries, firstly, primary food production is linked to the problem of overproduction, and primary food production is increasingly replaced by the emphasis on food and fuel manufacturing. Capital-intensive (technological) specialization has thus become the key factor for producers in the developed countries to maintain a competitive edge in agriculture. Small-scale farmers in developed countries have been in decline because of their inability to catch up with the trend (Fuller 1992). Secondly, rural development is being regarded by policy makers as administratively cheaper and more potent for contributing to the livelihood sustainability of small-scale farmer households than traditional agricultural approaches in developed countries. This official recognition seeks to address the rural problem as diminishing interdependence between small family farming and rural society. With the neoliberal background of increasing difficulty in subsidizing commodity production, policy makers, taxpayers, and consumers expect small family farms to procure new outputs from farmed rural space, i.e., those related to environmental services, leisure, and a growing variety of differentiated and quality foods. This policy focus on various entrepreneurial roles of agriculture for rural development has given rise to the concept of ‘multifunctional agriculture’ in Western Europe; it is seen as compatible with commercialization of agriculture and protection of direct payments for agricultural commodity producers (Banks and Marsden 2000; van Hylenbroeck and Durand 2003; MacCarthy, 2005). Moreover, increased policy emphasis on local economic development, rural employment, and diversification policies in

developed countries is reinforcing the safety nets for disadvantaged producers (Fuller and Bollman 1992).

Although small-scale farmers in developing countries are in decline due to the industrialization of agriculture, there are ways to subsidize small-scale farming and support the associated livelihoods. These precarious privileges of small-scale farmers are largely absent for their counterparts in developing countries. In developing countries, de-agriculturalization and de-peasantization has been occurring through the implementation of structural adjustment policies and economic liberalization, as well as through increasing urbanization; this process goes hand in hand with still haunting problems of underproduction, food insecurity, weak policy and infrastructural bases for rural development, little consumer involvement, and neglect of issues of agro-environment and rural landscape. It is in the context of de-agriculturalization and de-peasantization that a series of scholarly and professional institutions have shaped the concept of sustainable livelihoods (Bryceson 2003; 1999). The major thrust of the sustainable livelihoods perspective lies in investigating how powerful modernization forces under neoliberalism entrap resource-poor farmers in particular vulnerability contexts, and what strategies they adopt in order to sustain and improve their livelihoods. With the assumption that a sustainable livelihood rests on maintenance and enhancement of its capabilities and assets in the face of stresses and shocks (Carney 1998), the concept requires an understanding of agricultural sustainability that takes into consideration various livelihood strategies and tactics adopted by resource-poor farmers for improving their livelihood sustainability. With focus on the potential of agroecological practices to contribute to sustaining and improving livelihoods, rather than agricultural commercialization, this

dissertation will seek to establish the concept of ‘agricultural multifunctionality’ as the key notion of agricultural sustainability for small-scale farmers in developing countries.

1.2.2 The Fresh Fruit and Vegetables Export Sector Context

On the macro policy-level, transformation of the global polity towards neoliberalism has strengthened the role of the export FFV sector in the Global South. This neoliberal segment of the economy has distinctive contemporary implications for the sustainability of the small farm sector that are worth consideration.

Liberalization of trade and investment regimes that were facilitated in the early 1990s led some developing countries, such as Mexico, Kenya, and Uganda, to open their markets and seek to attract foreign direct investments (FDI) in many sectors including the FFV sector. Privatization of government enterprises, less restrictive business laws, and reformed taxation systems all combined to provide a supportive opportunity structure for the FFV export industry. In addition, trade agreements such as the Lomé Convention offered preferential treatment to African exports to the Northern market (Singh 2001; Temu and Marwa 2007).

At the same time, economic liberalization has spurred massive foreign direct investment of major Northern-based supermarket chains operating in the Global South, and accelerated the process of vertical integration in the global value chain (GVC). Supermarkets have emerged out of this trend as the dominant players in the GVC. The rising power and influence of supermarkets are attributed to the fact that as the representative agent of consumer needs and desires, they can push back value-adding functions along the chain to supply sources.

It is noteworthy that the rise of supermarkets in the GVC induced a series of more capital intensive changes in the GVC, including the enhancement of various value-adding activities, increasing demands for intercontinental airfreight delivery (Dolan and Humphrey 2000), more intensive adoption of information technologies (Calvalcanti 2004), and innovative transaction systems (Dolan and Humphrey 2000). In the global FFV supply chain, this translates into the asymmetrical positioning of financial burdens towards exporters and producers in the Global South. Efficiency concerns in the global supply chain drive supermarkets and importers to search for suppliers in the Global South that already have the capacity to meet the exacting requirements of the FFV chain (Dolan and Humphrey 2000).

On another scale, it is important to look at the impact of market liberalization on small-scale producers in the FFV sector. The enhanced process of corporate consolidation, vertical integration, as well as the pursuit of quality production in the FFV global value chain has led to the growth of capital-intensive investments and the propensity towards greater economies of scale through enforcement of agri-food standards in some Southern exporting countries by major Northern-based retailers (Dolan, Humphrey, and Harris-Pascal 1999). A salient instance to illustrate the process is the private agri-food standard called EurepGAP (GAP is the acronym for ‘good agricultural practices’).

In response to the rising consumer concerns about food safety that resulted from a series of scares and scandals in industrialized countries since the late 1980s, supermarkets have developed a plethora of agri-food safety certification standards. EurepGAP is one such standard established in the late 1990s by a consortium of leading European retailers called the Euro-Retailers Produce Working Group (EUREP). As the most prestigious food quality assurance system at the field level, EurepGAP deals not only with food safety and hygiene

considerations, but also issues of labor safety and environmental protection (Campbell 2005; Konefal, Mascarenhas, and Hatanaka 2004).

Due to the rigorous inspection and screening process, food produced through EurepGAP certification has a reputation for high quality food safety. However, poorer producers tend to be excluded from the GAP projects, because they lack the necessary capital for required initial investments and recurring costs for on-farm infrastructure arrangements, along with certification expenses. As will be seen, the observed trend has consequently been a reduction of the share of small-scale producers joining the FFV sector (Graffham et al. 2007).

Since the early 2000s, public GAP standards have emerged through promotion by some governments in the Global South, notably of the ASEAN countries (Asia Pacific Economic Cooperation 2006). These governments promote participation of a large number of small-scale producers in GAP certification by providing free public extension and inspection services for FFV production. Such public support aims to help these producers to achieve an array of improved sustainability conditions, including safer production practices, improved production efficiency and environmental protection, access to mainstream markets, poverty reduction, and empowerment of the local social capital base. Since these GAP schemes are applied to not only export markets but also domestic and local markets, they could contribute to food safety for domestic consumers as well. Thus, public GAP certification systems have the potential to realize sustainable agriculture in the FFV sector. However, this topic has not been explored in a scholarly way. The real scope for agricultural sustainability needs to be delineated from the standpoints of both production and marketing. In this dissertation, this goal will be fulfilled by comparatively examining two cases of local implementation of Thailand's public approach to GAP called 'Q-GAP' (Q is the acronym of 'quality') regarding what it

accomplishes in ensuring agricultural sustainability for small-scale farmers engaging in fresh fruit production. In addition, it will also be attained by envisaging how the system could be revised to improve it, with special attention to the potential of farmer field schools.

1.3 Organization of the Dissertation

This dissertation is based on the journal article format with a collection of four separate papers. It is organized in six chapters.

Chapter 2 reviews the literature on the social conditions of agroecology for sustainable agriculture in developing countries by way of contrasting it with that in developed countries. In light of the ‘sustainable livelihoods approach,’ it then proposes and discusses a theoretical perspective of ‘agroecological multifunctionality.’ This perspective highlights the critical significance of various functions of agroecology for contributing to sustaining small-scale farmer livelihoods in developing countries.

Chapter 3 first reviews the literature on the institutional basis and adverse impacts of the EurepGAP standard on the access of small-scale farmers to lucrative export markets in the FFV sector. It then discusses the potential of public GAP standards to improve small-scale growers’ accessibility to mainstream markets, thereby improving their livelihoods in the Global South.

Chapter 4 examines the formation and development of official institutional programs for sustainable agriculture in Thailand during the last decade. For this objective, government policy programs of three official institutions promoting sustainable agriculture in Thailand □ the Q-GAP scheme of the Ministry of Agriculture and Cooperatives (MAOC), the Career Rehabilitation Program of the Bank of Agriculture and Agricultural Cooperatives, and a local

initiative related to the One Tambon One Product program of the Subdistrict Administrative Organizations (SAO) □ are analyzed from a ‘sustainable governance’ perspective.

Chapter 5 is a comparative case study of small-scale pummelo growers in two districts within Chaiyaphum Province, Thailand. It examines their perceptions of the impact of Thailand’s public GAP program called ‘Q-GAP’ on their agricultural practices. The comparison is aimed at finding similarities and/or differences between two contrastive agroecological and marketing settings □ a highland-based, domestic market-oriented area in Kaset Sombun District, and the lowland-based, export-oriented area in Ban Thaen District.

Chapter 6 summarizes and synthesizes the results of the studies in a manner that the problems presented in the Introduction of the dissertation are addressed.

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**CHAPTER 2. DELINEATING THE MULTIFUNCTIONAL ROLE OF
AGROECOLOGICAL PRACTICES: TOWARD SUSTAINABLE
LIVELIHOODS FOR SMALLHOLDER FARMERS
IN DEVELOPING COUNTRIES**

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Abstract

Agroecological practices increasingly have been recognized as major development alternatives that could ensure rural people's basic needs while enhancing the ecological capacities grounding their livelihoods. This paper explores the multifaceted dimensions of agroecological practices that could potentially address the compelling livelihood necessities of less advantaged smallholder farmers in developing countries. It is argued that, despite its claim to uphold interdisciplinary approaches, agroecology as a scientific discipline has originally been led by ecologists and agronomists, with interdisciplinary collaboration largely limited to anthropologists. The concept of agricultural multifunctionality is proposed to help address the existing limitations in agroecology and thus overcome the conventional chasm between ecological research and social realities in agroecology-based development.

Keywords:

¹ Primary researcher and author.

Agroecology, agroecological practices, agricultural multifunctionality, sustainable agriculture, sustainable livelihoods, smallholder farmers, developing countries

2.1 Introduction

In many developing countries, agriculture is a main source of livelihoods for a majority of the population, but making it sustainable is still a challenge. Poverty, lack of access to adequate farm inputs, information, training and markets, as well as policy failures, infrastructural and institutional shortcomings are among the major items that threaten farming sustainably. While the worldwide adoption of Green Revolution technologies has led to remarkable improvements in agricultural productivity, these achievements have been offset by unintended side effects such as inequitable access to and control of resources between rich and poor, and damage to human health and the biophysical environment (Altieri 2002a).

‘Agroecology’ is an alternative scientific approach that provides the ecological and social basis for sustaining and empowering smallholder farmers. The scientific approach emphasizes use of input saving and cost reducing technologies to intensify production in marginal areas, achieve food security through diversified production systems, and restore degraded lands. Agroecological practices (which in this paper specifically denote the applied practices of agroecological principles in on-farm production) also exhibit an affinity to traditional cultural systems in developing countries (Altieri 1999; 2002a). Because of these features, agroecology and its field applied practices have the potential to contribute to sustainable agriculture and livelihoods of resource-poor farmers in developing countries.

Agroecology as an interdisciplinary scientific approach has traditionally been led by ecologists and agronomists, with some notable contributions by anthropologists. In the

developing world, critical sociological issues related to the livelihoods of small-scale farmers involved with agroecological practices have not yet been fully addressed in the scholarship of agroecology and other scientific disciplines.

The objective of this paper is to delineate an agroecological approach using the concept of ‘agricultural multifunctionality’ that could buttress the livelihoods of resource-poor farmers in developing countries. Agricultural multifunctionality had its birth in the recent West European context of rural development, where the intra-continental policy shift from emphasis on production of food and fiber to a comprehensive inclusion of multifunctional goals in agriculture entailed reconsideration of the role of small family farms for the rural society at large, especially with regard to improving food safety, amenities and landscapes, and protecting the environment (van Huylenbroeck and Durand 2003). In this paper, we contend that a heuristic unfolding of contextual differences in sustainability of agriculture between developed and developing nations could highlight the context of agricultural sustainability in developing countries: survival of smallholder farmers and improvements in multiples phases of their livelihoods. The concept of agricultural multifunctionality is thus adopted to refer to the multifunctional nexus of agroecological practices to serve the sustainable agriculture goals. In short, the modified conception of agricultural multifunctionality is expected to work in two ways: (1) it elucidates the multiple roles of agroecological practices that serve smallholder farmers in their day-to-day livelihood challenges and aid them in coping with vulnerability; (2) it serves as a conceptual medium to address the existing biases in agroecology towards ecological and agronomic approaches, thereby bridging the conventional chasm between ecological research and social realities in agroecology-based development.

This paper is organized as follows. The next section provides a theoretical framework in which, along with the contextual differences from developed countries, sustainability of agriculture in developing countries is made pertinent to the primacy of food security and sustainable livelihoods for smallholder farmers. The third section introduces a theoretical framework of agricultural multifunctionality using the ‘sustainable livelihoods (SL) approach.’ The fourth section explores various functional roles of agroecological practices for critical sociological issues and themes related to smallholder livelihoods. The fifth section discusses the implications of multifunctionality of agroecological practices for policy and practice.

2.2 Sustainable Agriculture in Different Contexts

Agroecology as a modern scientific discipline dates from the 1970s. It is based on a holistic standpoint with emphasis on local systems and knowledge, the interrelatedness of all agroecosystem components, and the complex dynamics of ecological processes (Vandermeer 1995). Agroecology is grounded in application of the following ecological principles: (1) enhancing the recycling of biomass while optimizing nutrient availability and balancing nutrient flow, (2) securing favorable soil conditions for plant growth, particularly by managing organic matter and enhancing soil biotic activity, (3) minimizing losses due to flows of solar radiation, air, and water by way of microclimate management, water harvesting and soil management through increased soil cover, (4) diversifying species and genetic variety of the agroecosystem in time and space, and (5) enhancing beneficial biological interactions and synergisms among agrobiodiversity components, thus resulting in the promotion of key ecological processes and services (Altieri 2002a; Reijntjes et al. 1992).

On the basis of these ecological principles of agroecology, the concept of sustainable agriculture has evolved since the early 1980s in response to a host of ecological and equity problems posed by the adoption of modern industrial agriculture. Sustainable agriculture is a normative concept, leading to different definitions by various disciplines and affiliations (Altieri 1998). The conventional perspective of sustainable agriculture, however, commonly focuses on on-farm- and watershed-level contexts of sustainability of agriculture with emphasis on ecological and agronomic dimensions (e.g., cropping systems, nutrient cycling, integrated crop and livestock production systems, ecologically based pest management strategies, etc.) (Altieri 2002b). While the conventional perspective has achieved significant advances, it is limited in its capacity to uncover some broad trends of sustainable agriculture, having neglected important contextual differences. As suggested in Table 1, a contextual distinction of sustainable agriculture in developed and developing countries is necessary to highlight the central issues of sustainability in agricultural development and rural livelihoods in developing countries.

Table 1. Foci of sustainable agriculture in different contexts

<i>Theme/issue</i>	<i>Developed Countries</i>	<i>Developing Countries</i>
(1) Main foci of sustainable agriculture systems	Food sale for local consumption based on direct marketing Provision of low-risk/quality food Consumer financial support for producers	Improvements in economic self-sufficiency Resilience in economic crises Low-input financial advantages for producers
(2) Agro-technological orientations	Use of modern and innovative inputs	Emphasis on cultural farming practices
(3) Major actors for dissemination	Individual consumers and producers	NGOs and producer organizations

Table 1. (continued)

(4) Economic motives for producers	Commercial business orientation	Orientation toward subsistence and survival
	Sustainable profit-making through small-scale farming	with sale of excess Reduction of inputs
(5) Goals or outcomes of movements	Health and aesthetics	Food security and financial sufficiency
	Environmental protection	

In developed countries, sustainable agriculture has arisen out of the following context. Since the 1950s, agriculture in these countries has been increasingly characterized by monocultural landscapes related to mechanization and standardization in production, transportation, and sale of food and fiber (Lyson 2004). Because these processes lean toward economies of scale, there has been an increasing consolidation of small farms. Improvements in transportation and refrigeration have transformed the food systems, with produce once confined within certain geographical spaces now transported over long distances (Hartinger 2000). It is estimated that, on average, a food item in the US is transported about 2,000 miles from the producer to the consumer (Pirog and Benjamin 2005). Within this framework of large, heavily capitalized and mechanized farms and sprawling food systems, conventional agriculture in developed countries has been implicated in excessive energy consumption and loss of small farms and local biodiversity (Halweil 2003). These negative outcomes have profoundly shaped the emergence of the notion of sustainable agriculture in developed countries.

Ideological conceptions of sustainable agriculture in these countries are rooted in efforts to reconfigure environmental, socio-cultural, spatial, and temporal aspects of the conventional food system (Goodman 2002). Within this trend, certain practices such as organic and biodynamic farming are employed to redefine the relationship between

agriculture and the environment (Kirschenmann 1997). In addition, alternative food outlets directly linking consumers to producers, such as farmers' markets and community-supported agriculture, have become instrumental in reconnecting food to its social and cultural contexts as well as shifting the nature of spatial and temporal exchanges present in conventional agriculture. In this regard, Lyson (2004) proposed the notion of 'civic agriculture' as the conceptual antithesis to the corporately controlled agriculture dominating the conventional paradigm of agri-food systems.

Beyond redefining commodity exchange relations, aesthetics and avoidance of risk among consumers play prominent sustainable agriculture roles in developed countries (Guthman 2004; Miele and Murdoch 2002). Having enjoyed a relatively high purchasing capacity and educational level, consumers in developed countries have more leverage over initiatives to revitalize and maintain alternative agricultural systems than those in developing countries. The increasing emphasis of individual consumers in minimizing health and food safety risks, particularly after the incidence of Bovine Spongiform Encephalopathy (BSE), or 'mad cow' disease, in England in 1986 and in the United States in 2003, has converged with the role of aesthetics played out in sustainable agriculture.

The Slow Food Movement, for instance, typifies features of aesthetics of entertainment in modern urban life in regard to landscape, nature, local community, and agroecological food production (Miele and Murdoch 2002). As will be shown, recent Western European trends in terms of a tighter incorporation of agricultural multifunctionality into public rural development schemes partly reflect changes in urban consumer tastes for agriculture (Banks and Marsden 2000). With the increase in levels of disposable income, food security, and increased entertaining using diverse food types, sustainable agriculture in

developed countries is inclined toward a high level of commodity consumption fetishism that is virtually absent in developing countries (Guthman 2004).

In developing countries, sustainable agriculture has taken shape within a different social context. The majority of the world's chronically poor and hungry live in these countries, with 70 percent in tropical ecosystems (Persley and Doyle 1999). Agriculture is still the main livelihood source for many rural dwellers who rely on poor and small pieces of land prone to natural disasters such as droughts, pests, and diseases. Agriculture as a source of livelihood is decreasing in importance, however, as household members increasingly seek off-farm employment in urban centers or rural towns. Opportunities in urban areas are not adequate, however, implying that more employment opportunities in rural areas are necessary. The challenge of achieving adequate livelihoods from agriculture and alternative sources is thus becoming more daunting.

Efforts to address these problems were made mainly through conventional research and activities in agricultural development, geared towards encouraging technology adoption, with minimal involvement of technology end-users (Ochieng 2002). However, the model of transfer of technologies (TOT) in developing countries has been proven to be inappropriate for the socio-cultural needs and resource base of many smallholder farmers. Green Revolution technologies that comprise the main content of the TOT approach evolved based on the view that problems of poverty and hunger are primarily related to agricultural production (Hecht 1995). Despite dramatic yield increases in some of the developing country regions, those achievements were offset by the replacement of basic food crops with commercial export crops and the lack of research and development support for the traditional

crops (Ochieng 2002).¹

Furthermore, prompted by the International Monetary Fund (IMF) and the World Bank, many developing countries introduced neoliberal policies and structural adjustment programs (SAPs) in the 1980s and the 1990s in order to reduce public debt and boost economic growth. The recommended set of prescriptions included fiscal authority measures, privatization, trade liberalization, currency devaluation, abolition of marketing boards, and deregulation and staff retrenchment (Rapley 2002). These policies led to complex and manifold society-wide effects. Overall, they adversely affected small-scale farmers' accessibility to services such as extension, credit, farm inputs, and produce markets (Kherallah et al. 2000), consequently compromising their ability to attain food and livelihood security. Within these contexts, demands for innovative sustainable agriculture interventions have increased in developing countries. It is noteworthy that the withdrawal of public agricultural programs¹ through implementation of SAPs led to the emergence of non-governmental organizations (NGOs) as major stakeholders in searching for new kinds of agricultural development and resource management strategies. These initiatives are often based on application of agroecological principles and on a more 'bottom-up,' participatory approach (Altieri 1999; 2002).

In contrast to developed countries, sustainable agriculture movements in developing countries emphasize producers' economic self-sufficiency, health, and cultural livelihoods instead of consumers' aesthetics or environmental benefits. Diversification of crops and livestock based on agroecological management potentially reduces the economic risk and

¹ The condition is even more validated by the estimate that about 1.9-2.2 billion people (29 to 34 percent of the world population) have no access to modern agricultural technology (Altieri 2002; Francis et al. 2003).

uncertainty from production surplus, falling produce prices, as well as outbreaks of pests and diseases. An integrated farming system based on multiple types of production also potentially leads to increased benefits from economies of scope such as increased varieties of available food, nutritional diversity, and self-sufficient resource use due to integration and recycling of diverse on-farm elements (Thanwa 2001). Minimizing agrochemical applications prevents related health risks arising from the use of synthetic pesticides. Further, the organization of production at local levels serves other cultural purposes related to in-situ conservation of landraces and preservation of traditional cultural heritage and ethno-science (Altieri 2002a).

Thus, sustainable agriculture movements in developing countries hold different nuances of resource utilization from those in developed countries. The latter is characterized by the tendency toward direct local exchange of agroecologically produced, less contaminated foods (Lyson, 2004; Murdoch, Marsden, and Banks 2000). Alternatively, the ‘self-sufficient economy’ rhetoric employed by sustainable agriculture movements in developing countries, most notably Cuba, Mexico and Thailand, has arisen as an urgent response to the national economic crises which occurred in the 1990s. Although the level of dissemination of sustainable agriculture and food security varies from country to country, agroecology and its field practices have generally proven themselves as approaches that could provide resilience for restructuring agricultural development under macro-factor induced vulnerability contexts (Holt-Giménez 2006).

2.3 Agricultural Multifunctionality: The Key Concept towards Sustainable Livelihoods

Sustainable agriculture in developing countries emphasizes food security and sustainability of smallholder farmer livelihoods, as opposed to food safety and convenience for consumer livelihoods and environmental protection in developed countries. Based on this broad delineation, this paper proposes a conceptual intersection of agroecology and development studies through incorporation of the ‘sustainable livelihoods (SL) approach’ into an extended domain of agroecology. This intersection is aimed at contributing to the view that sustainability of smallholder producers’ livelihoods is integral to advancing the agenda of agroecological research.

Figure 1 is an illustration of the SL framework. The SL approach is a product of rural development debate (Scoones 1998), with the household as a basic unit of analysis that takes into account resource management and the primary needs of its members (Niehof 2004).

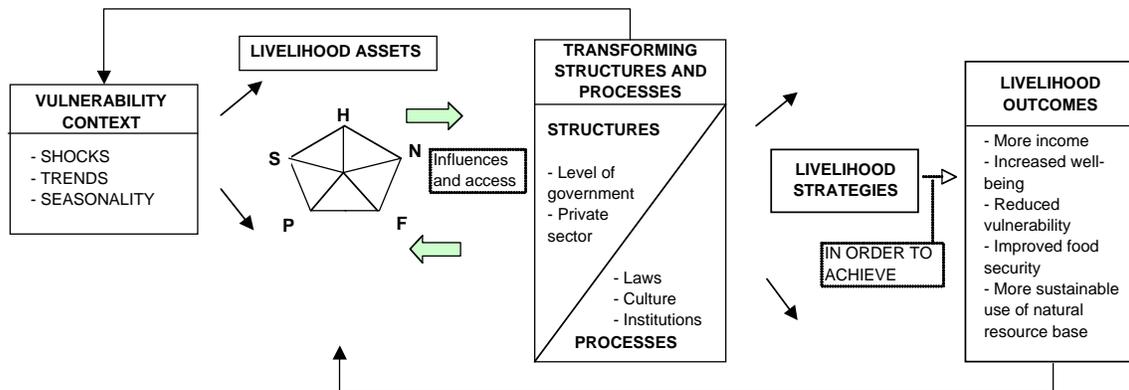


Figure 1. Sustainable livelihoods framework

Source: DFID (1999)

This approach also underscores the setting, whereby households harness the capitals at their disposal in pursuit of livelihood strategies and outcomes (Nicol 2000). It views rural people as operating in a context of vulnerability characterized by, among others, drought, diseases and civil war, moderated by physical, geographic, social, economic, and political conditions. Sustainability and vulnerability constitute the two extremes of a continuum representing the quality of the livelihood system with regard to the household's capabilities and assets. Assets are the basic building blocks upon which households undertake production, engage in labor markets, and participate in reciprocal exchanges with other households. These assets are composed of five types of capital, including natural (e.g., soil, water, biodiversity), human (e.g., skills, knowledge, health), social (e.g., kinship, friends, community, networks), financial (e.g., cash, savings, pensions) and physical (e.g., housing, transport, energy). Households with sustainable livelihood systems should be able to recover after a period of stress or shock. Livelihood strategies represent the survival portfolio of rural livelihoods, in which diversification is often recognized as the strategy of primary importance (Ellis 2000).

In view of the reality in the context of developing countries, agroecology should be concerned with the sustainability of livelihoods for smallholder and resource-poor farmers. Nonetheless, few attempts have been made to show systematically how farmers' on-farm agroecological practices and related livelihood processes and outcomes could be analyzed in relation to the surrounding geographic, socioeconomic, political, and cultural contexts. It is argued that this general lack of attention to livelihood concerns in agroecology, particularly those of resource-poor, smallholder farmers in developing countries, could be rectified primarily within the arena of theoretical efforts. For this purpose, the concept of agricultural multifunctionality could be deployed to serve as binding glue between production ecology

viewpoints and sociological perspectives of agroecology.

The concept of agricultural multifunctionality evolved in the Western European context, with a reflection of shifts in rural development trajectories, most notably those of the Common Agricultural Policy (CAP) from a monofunctional focus of agriculture, mainly characterized by production of food and fiber, to a comprehensive inclusion of multifunctional goals (Van Huylenbroeck and Durand 2003). The concept was developed to put forward the potential of agriculture to serve many more functions for the emerging needs of rural society and livelihoods in Europe. Two major concerns provided a background for this policy change: the ‘production problem,’ which in essence refers to the accelerating issue of overproduction relative to the slackening demand for food by consumers; and the ‘rural problem,’ which refers to the factors that threaten the interdependence between small family farming and rural society. This conception reflects the recognition that small family farms are an integral part of the rural economies and consequently of the national economy at large. This policy shift is also “a response to demands from taxpayers and consumers who want new outputs from farmed rural space, most notably environmental services, leisure space and a growing variety of differentiated and quality foods” (Banks and Marsden 2000: 468).

The intended goals of this policy shift embrace concepts of conservation, recreation and leisure, non-use values, and quality of life beyond the primary function of supplying food and fiber in agriculture. Thus, agricultural multifunctionality comprises a number of elements, embracing space functions (stewardship, landscape, and environment), production functions (food security and safety, diversity, regulation of resources, non-food production, and contribution to macro-micro-economic equilibrium), and service functions (maintenance of rural areas, natural diversity, rural development, and waste recycling). This focus differs

crucially from such sociological concepts as livelihood diversification or pluriactivity, which underscore aspects of diversified non-farm enterprises (Van Huylenbroeck and Durand 2003).²

In this paper, agricultural multifunctionality is redefined as ‘the incorporation of various commodities and non-commodities produced through farmers’ agroecological practices into particular concerns of their livelihoods and rural development.’ As highlighted in the previous section, agroecological practices have potential to exert agricultural multifunctionality in light of the specific livelihood needs of small-scale, resource-poor farmers in developing countries. It is argued that multifunctionality involves, among others, food security; financial stability and spread of marketing risks through diversified farming strategies; conservation of landraces; sustenance of women’s roles for agrobiodiversity preservation; peasant resistance against agricultural liberalization; coping with severe economic crises; preservation of local cultural heritage; and protection of human health and the environment through chemical free practices and recycling of on-farm resources. Such multifunctional roles of agroecological practices could ensure important synergies among multiple factors, thus highlighting a vital nexus between production ecology views and sociological perspectives. It is in this sense that the concept renders agroecological practices a prerequisite for sustainable rural livelihoods in developing countries.

This paper proposes five sets of modifications in the standard formulation of the SL

² Although the term multifunctionality is often used with terms such as diversification and pluriactivity interchangeably, there are degrees of distinctions among these terms. Pluriactivity refers to the combination of agricultural and non-agricultural activities performed by the farmer or members of the farm household, thus pointing to the significance of non-agricultural resources. Diversification refers to the workplace whereby the scope of products and services produced and sold is enlarged. When diversification refers to non-agricultural activities, the term is combined with pluriactivity. On the other hand, multifunctionality refers to the various functions of different activities performed in both agricultural and non-agricultural sectors for meeting multiple societal demands (Van Huylenbroeck and Durand 2003).

framework for purposes of incorporating it into the agenda of agroecology (Figure 2). First,

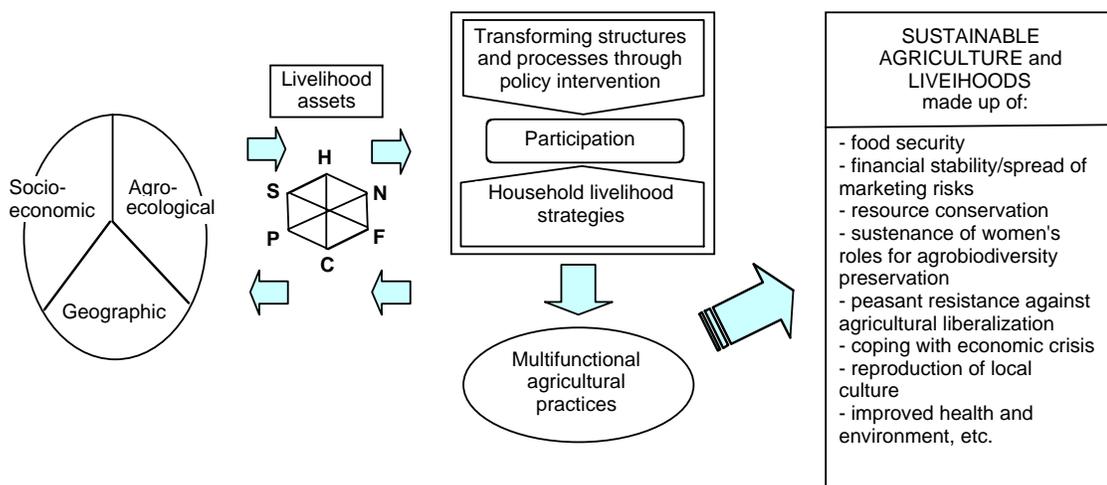


Figure 2. A Schematic of the modified sustainable livelihoods framework

with the focus on agroecology-based development, the overall contexts are divided into three categories: geographic, agroecological, and socioeconomic. Geographic contexts are important, because global, regional, or local geographic differences in regard to climate, geology, plant physiology, cultural ecology, political economy, etc., could lead to tremendous differences in existing biophysical and socioeconomic systems supporting and supported by agroecological practices. In other words, agroecological practices are geographically context-specific activities. Second, a participatory perspective, derived from the context specific nature of agroecology, suggests that the processes of structural change and development through organizational or policy interventions should go hand-in-hand with individual considerations of household livelihood strategies. This participatory viewpoint opposes the implicit assumption in the conventional SL framework that household livelihood strategies come only after structural interventions are made. Third, the modified framework incorporates ‘cultural capital’ (denoted as ‘C’ in the hexagon of capital assets) as a critical

livelihood asset for generating multifunctional agricultural practices. This concurs the emerging recognition in SL studies of the importance of the subjective meaning and place-based values in livelihood generation (e.g., Bebbington 1999; Niehof 2004).

Fourth, the modified model presumes that, when the synchronic processes of structural interventions and household livelihood strategies properly occur and adequately develop, an ecologically-based farming can truly become 'sustainable agriculture' from both ecological and sociological standpoints. By definition, this achievement of sustainable agriculture becomes part of the attainment of sustainable livelihoods of the concerned stakeholders, such as resource-poor farmers. Fifth, the concept of agricultural multifunctionality comes at the core of this theoretical approach, bridging the sphere of ecological processes in agroecological practices with diverse livelihood needs of resource-poor, small-scale farmers.

There are three main rationales for this modified SL approach. First and foremost, there is a potential synergy between agroecology and the SL approach in sharing goals to sustain and improve the status of the rural poor farmers in developing countries. Second, this integrative approach is aimed at complementing the traditional limitation of agroecology in its lack of in-depth sociological consideration of various household-level livelihood contexts and dynamics associated with agroecological practices. Third, taking agroecological practices as the main subject of livelihoods analysis would in turn broaden and enrich the scope of the SL approach, potentially in such a way that a complex analytical integration of on-farm multifunctionality and non-farm diversification phenomena is to be pursued.

2.4 Multifunctional Factors of Agroecological Practices

As indicated, multifunctionality of agriculture based on agroecological practices plays a number of key roles: to attain sustainable livelihoods of small-scale producers in developing countries. In this section, various factors that characterize this multifunctional nature will be discussed. These factors include: food security, financial stability and spread of marketing risks, conservation of plant genetic resources, sustenance of women's roles for agrobiodiversity preservation, peasant resistance against agricultural liberalization, coping with economic crisis, reproduction of local culture, and protection of human health and the environment. A discussion of this nature may not be exhaustive in all respects, but provides an outline to guide further action towards the sustainable agriculture goal.

2.4.1 Food Security

FAO (2000) defines food security as access by all people, at all times to sufficient, safe, and nutritious food to meet dietary needs and allow for an active and healthy life. In developing countries, physical, social, and economic access to food is constrained by low agricultural productivity and poverty. While other options for assuring food security such as food aid and participation in global food markets exist, they are not always suitable for people in developing countries. This is due to a high level of risks related to conflicts and wars, unstable world markets, breakdown of international transport systems (Smith et al. 2000), and the political problem of distribution between the rich and the poor. Moreover, problems of polluted and contaminated products, as well as ecological crises such as droughts and plant or animal diseases, compromise agricultural productivity and,

consequently, food security conditions in most developing countries (Shapouri and Rosen 1999).

Bohman et al. (1999) note that “domestic production to ensure food security has the function of a safety net against risk” (p. 8). In this regard, evidence confirms the potential of agroecological practices in ensuring food security and risk aversion for smallholder farmers. A salient example is a home gardening system in Indonesia which contains up to 250 species of useful plants. The productivity per unit area is typically much higher than field crops. The variety of enterprises in home gardens spreads risks of nutrition-related problems by providing smallholders with a diverse source of foods, as opposed to those who rely on a few sources of food in monoculture systems (Christanty et al. 1986).

Agroecological practices in rice production led to increased total system productivity. A range of such practices is credited with increases in rice yields in many countries in Asia and Africa, from average yields of 2 MT ha⁻¹ to yields of 11 MT ha⁻¹ (Pretty and Hine 2001). In practice, the concept of farmer field schools (FFS), which is a social learning technique in which farmers address their ecological and related problems through experimentation and action, led to the adoption of integrated pest management (IPM) techniques (Heong et al. 1999). These practices resulted in sharp reductions in pesticide use and an increase in rice productivity. Further, species of fish, crabs, and prawns were introduced into rice fields. They increased protein production, nutrient recycling, and disease control (Escalada et al. 1999).

In most African countries, declining soil fertility is a threat to food security. In Niger, over 5,800 hectares of abandoned and degraded lands on the farms of some 6,000 households in 77 villages were improved with the adoption of agroecological practices locally known as *tassas* (Reij 1996). *Tassas* are 20-30 cm holes dug in soils that have been sealed by a thin

surface layer hardened by wind and water action. Since this crust prevents infiltration by water, these areas are usually abandoned, devoid of vegetation, scattered with outcroppings of iron crust, and are prime sites for surface erosion (Hassan 1996). The holes are filled with manure which increases the organic matter content of the soils. This also promotes termite activity during the dry season, enhancing infiltration. When it rains, the holes fill with water and farmers then plant millet or sorghum. Families in Niger using *tassas* shifted from having cereal deficit at a rate of 644 kg (equivalent to 6.5 months of food shortage) to producing a surplus of 153 kg per year (Reij 1996). Because domestic production is the main means of ensuring food security in this region, the increase in yields has greatly boosted food security.

2.4.2 Financial Stability and Spread of Marketing Risks

Due to the lack of adequate resources, farmers in developing countries continue to practice low-input agriculture, although some have shifted to more capital-intensive agriculture (Tripp 2006). Many of the latter farmers borrow money to meet the cost of inputs that accompany Green Revolution technologies. Because of inefficient rural financial markets, these loans usually involve high interest rates, decreasing farmers' profit margins or even keeping them in debt. By encouraging farmers to use fewer external inputs, agroecological practices could reduce the need to borrow money, decreasing their financial risks, and increasing profit margins. For instance, when returns from conventional and organic coffee production in South America were compared, organic coffee had higher net revenues due to reduced external inputs (Perfecto et al. 1996).

In many developing countries, small-scale farmers are usually incorporated into

domestic markets under adverse terms, making it difficult to have good returns to their investments in terms of time, money, and labor (Hazell 2003). Further, they lack the power to negotiate better prices for their produce. By encouraging diversified farming through intercropping and integrated livestock production, agroecology could buffer small farmers against the two negative economic symptoms that characterize capital-intensive monoculture: severe crop failures and price fluctuations (Perfecto et al. 1996).

On the international market, changing trends have led to an increasing demand for natural, organic, and ‘ethical’ produce in developed countries. Growing environmental awareness and concerns about health and diet have spurred the demand (Latacz-Lohmann and Foster 1997). This demand is expected to outpace domestic production in developed countries, leaving a gap that could be addressed by developing countries (FAO 1999). In the UK, for example, the demand for organic produce increased by 40% in 1999, yet only 30% of this demand was met by British growers (Barrett et al. 2002). Because agroecological practices focus on use of minimal external inputs, smallholders who produce ecologically are well positioned to take advantage of these changing trends by acquiring stable international prices through fair trade initiatives. Fair trade ensures better prices for producers through guaranteed consumer prices, reduces intermediary transactions, and empowers producers through farmers associations, through which they can negotiate for better conditions (Low and Davenport 2005).

2.4.3 Conservation of Plant Genetic Resources (PGR)

Despite the lack of a comprehensive database, there is evidence that the rate of loss of native crop varieties has increased with the modernization and internationalization of

agriculture. The development of modern formal plant breeding after the 1920 resulted in high-input, high-yielding varieties that led to increased loss of folk varieties (Cleveland et al. 1997). Against this background, there are currently two broad-scale trends in conservation of PGR: ex-situ conservation and in-situ conservation. Ex-situ conservation of PGR refers to gene banks or botanical gardens, where crop genetic resources are stored in private, national, and international crop improvement programs to prevent genetic erosion. In-situ conservation of PGR refers to maintenance within the farming systems and natural contexts where the genetic resources occur (Brush 1995).

Although ex-situ maintenance is an important tool for conservation, it is decoupled from the evolutionary processes that created the crop germplasm, preventing continuous evolution and limiting access by the original owners (Gliessman 1998). In addition, a system breakdown in the gene bank storage systems could lead to an abrupt destruction of all the stored seeds. In-situ conservation of PGR could be instrumental in addressing these concerns. It requires that farms and farmers be the repositories of both genetic information and the cultural knowledge of how the crops are cared for and managed. At one extreme, therefore, the principle of in-situ conservation requires that each farm has its own breeding and preservation program (Gliessman 1998). While there is a notion that in-situ conservation for traditional germplasm could be compatible with the cultivation of modern hybrid varieties, this owes to a particular context of developing countries where agricultural modernization rarely occurs through the adoption of entire packages of improved technology (Brush 1995).

In-situ conservation of native varieties based on traditional agroecological practices provides advantages for local producers. These varieties tend to be more suited to subsistence purposes, in terms of taste, storage quality, and seed viability. Conservation of these varieties

is particularly important for sustaining the livelihoods of local farmers, because the seed viability enables farmers' free access to seeds every year (Brush et al. 1981). Native varieties also contribute to production stability in traditional agroecological practices, because through local, ongoing natural selection by the environment and selection by farmers they are adapted to stressful, low external input local growing conditions (Cleveland et al. 1997).

2.4.4 Sustenance of Women's Roles for Agrobiodiversity Preservation

Women play largely invisible, yet important roles in selection and breeding of native plant varieties in traditional agroecosystems. For instance, women in the indigenous community of San Pedro Arriba in Mexico play a dominant role in farm activities, because men usually engage in paid labor and trade activities through distant migration while women remain at home for most of the year. Thus, women are mostly involved with farm and home care activities. These women cultivate and utilize the vegetative diversity of their surroundings by making *milpa* (intercropping of native corn, beans, and squash) and gathering food and medicine. Laboratory-based analyses found that corn varieties selected by women are more resistant to local weather adversities, more nutritious, and produce higher tortilla yields than those selected by men. Therefore, marginalization of this knowledge by modern agronomic sciences has had negative implications for native farmers' livelihoods (Cabrera et al. 2001).

In Nepal, important differences between male and female farmers in their selection of crop varieties and agricultural technologies were found. Women farmers generally considered both the quantity (production) and quality aspects of diverse native crop varieties whereas men were mainly concerned with production for commercial sales. Gender

disparities in preference of wheat varieties were related to differences in responsibilities of male and female members in household and farming activities. Men have a predilection for increasing production and cash income, thus are concerned with such selection criteria as good tillering ability of plants and drooping spike for hail tolerance, while women tend to favor different uses of food grains for multiple household activities involving cooking, milling, and storage. Thus, female farmers utilize more qualitative selection criteria than do men (Shrestha and Shrestha 1997).

There is a geographic differentiation in the weight of importance of women's contribution to agroecological practices. For example, based on research in Jharkhand, India, Jewitt (2000) casts doubt on the notion of women's agroecological expertise by claiming that, given the sociocultural constraints women face, such as gender inequalities in land ownership, women tend to possess less agroecological expertise than men. It is suggested that there is a risk in overgeneralizing women as experts on agrobiodiversity. Nonetheless, it is important to emphasize that the contribution of women in terms of skills, labor, knowledge, and decision making to traditional agroecological practices to satisfy the multiple needs of the household is still largely overlooked. Thus, with modernization of agriculture and consequent loss of biodiversity, the relevance of women's knowledge and their status notably as keepers of the seed are being eroded (Zweifel 1997).

2.4.5 Peasant Resistance against Agricultural Liberalization

Agroecological practices potentially provide the material means with which resource-poor farmers could resist the tide of agricultural liberalization. Mexico, the birthplace of both the Green Revolution and the Latin American debt crisis, provides an example. In 1994, the

agroindustrial force of the neighboring US was institutionalized in the North American Free Trade Agreement (NAFTA). The potential losses for Mexico through NAFTA were largely concentrated in the agricultural sector (Henriques 2004). The Zapatista uprising in Chiapas that was timed to begin on the day NAFTA was effectuated exhibited the awareness of indigenous peasants about who would become the major losers. Nowhere is there greater hostility to the emergence of ecologically based agriculture than in contemporary Mexico (Carruthers 1996; 1997).

The most competitive corn producers in Mexico are located in the northern states such as Sonora and Sinaloa. These states are endowed with relatively fertile agricultural land, with substantial state support for irrigation, mechanization, fertilizer, and pesticide use. Farmers operating large commercial agriculture enterprises have benefited greatly from NAFTA due to their proximity to the export market in the US. On the other hand, states in the South such as Chiapas, Guerrero, Hidalgo, Oaxaca, and Veracruz have the greatest concentration of producers of corn for domestic subsistence. Corn producers in this area rely on steep and mountainous terrain that makes it difficult to introduce mechanized production. The majority of these subsistence farmers produce seasonally on small plots of land, usually less than 5 hectares, with no irrigation, limited access to credit, and low yields (Henriques 2004). Many of them are the *ejidos*, the land tenure form comprising plots distributed in the post-revolutionary agrarian reform in Mexico (Carruthers 1996). They consist of those hardest hit by corn imports from the US, not only by the fall of domestic price for subsistence corn but also the price increase in tortilla, the main Mexican staple, monopolized by the large companies such as GIMSA (Grupo Industrial Maseca, S.A. de C.V.) and MINSA (Grupo Minsa, S.A. de C.V.) (Henriques 2004).

In the face of dwindling domestic markets for their produce and quasi-forced migration into domestic and foreign cities, agroecological practices in rural Mexico, like the rest of the developing world, are not perceived as a luxury, but a necessity. For poor subsistence farmers, the option of low-input agriculture is not just cost effective but may be the last alternative to hunger and starvation. Further, indigenous peasants see agroecology-based development as part of a political armament and resistance against agricultural liberalization. Organic coffee production is a salient instance of significant social mobilization, particularly in indigenous areas, where regional umbrella groups such as CEPCO (State Coordinator of Coffee Producers of Oaxaca) or ISMAM (Indigenous People of the Sierra de Motozintla) have established a web of local, regional, and national associations and networks. All these organizations share the objectives of better negotiating the land, credit, and environmental policies that affect them (Carruthers 1997).

Some indigenous groups in Mexico have successfully established local markets specifically tailored to their organic horticultural produce. Leaders of these groups are actively involved in negotiation of deals related to free trade agreements for the benefit of their people. They are also linked to the internationally recognized peasant movement *Vía Campesina*. *Vía Campesina* emerged in opposition to neoliberal agricultural policies espoused in the General Agreement on Tariffs and Trade (GATT) negotiations on agriculture (Desmarias 2002). The movement supports agroecology as the critical basis for sustainable agriculture and food systems for small family farm households (*Vía Campesina* 2002).

2.4.6 Coping with Economic Crisis

Agroecological practices have proven to be instrumental in cushioning the severity of

economic crisis in the discretion of small-scale farmers and their supporters. Organic agriculture in Cuba, though its degree to which ecological principles are applied has yet been limited, provides a prominent illustration. Since the 1959 revolution, Cuba had become increasingly dependent on foreign sources to feed its population (Alvarez 2004). The US embargo of 1962 compelled Cuba to turn to the socialist bloc, which offered opportunities for more rapid development and capital accumulation. As a result, Cuba boasted a more modernized agricultural sector than any other Latin American country (Rosset 1997).

Cuba's agricultural sector was forced into a fundamental redirection when the Soviet bloc collapsed in 1989. Prior to the declared 'Special Period in Peacetime,' agriculture in Cuba was characterized by extensive monocrop production of agroexports and a heavy dependence on imported agrochemicals, hybrid seeds, machinery, and petroleum (Rosset 1997). With the demise of the Soviet bloc, Cubans' purchasing power was reduced to 40 percent, pesticide use to 40 percent, and consumption of animal feed concentrates to 30 percent of levels prior to it (Funes 2002). As a result, yields fell drastically throughout the country, and average daily caloric and protein intake by the Cuban population was estimated to have reduced by 30% from the 1980s levels (Rosset 1997). The Torricelli Bill, signed by the Bush administration in 1992 to tighten the United States' economic embargo on Cuba (Altieri 1999), followed by the Helms-Burton Act in 1996 which restricted foreign investment, made the conditions more difficult (Funes 2002).

Citizens and officials in Cuba responded to the crisis with an unprecedented massive conversion from conventional agriculture to organic agriculture. The first challenge was production without agrochemicals or tractors. Cubans built up the national ox herd gradually to provide animal traction as a substitute for tractors, while developing the production of

biopesticides and biofertilizers simultaneously (Rosset 1997). With 70% of the national population residing in urban areas, urban gardens began to spring up all over Cuba, especially in Havana, with thousands of urban dwellers participating in production themselves (Altieri 1999).

Prior to 1989, very few of Cuba's gardeners were familiar with the diverse, intensive smallholder techniques that are now widely used (Cohen 2004). New agricultural practices have been tried in Cuba's poor quality soils, particularly in urban areas, mostly containing less than 1% organic matter. Because of the poor quality of many urban soils, the *organopónico* method, where cultivation occurs in raised beds, was popularly adopted. Since the gardens utilize inputs that are produced locally and at a low cost, the gardeners enjoyed a greater degree of autonomy and flexibility, allowing the gardens to flourish even in adverse economic conditions (Altieri 1999). However, organopónicos in Cuba are based largely on 'input substitution' – a production approach which, according to Altieri (1997), "only emphasizes environmentally benign alternatives to agrochemical inputs, without challenging either the monoculture structure or the dependence on off-farm inputs that characterize agricultural systems" (p. 283). Thus, from an explicitly agroecological viewpoint, there still remain steps to be taken by Cuban scientists to enhance the sustainability of the production method toward more ecologically salient ones.

Further, Cuba restructured its social and economic systems from the ground up. Organic produce began to be sold in more of an open market system. This provided additional food at prices Cubans could afford. As a result, it became profitable for one to be a farmer in Cuba. In this sense, the agricultural sector provided better income earning opportunities (Cohen 2004).

2.4.7 Reproduction of Local Culture

In many developing countries, agroecological practices can go beyond food production and serve as a source of material utility for cultural consumption, consequently serving to reinforce and maintain distinct cultural meanings shared within local communities. An important way that agroecological practices provide cultural goods for local consumption is related to traditional health care. In many developing countries, modern healthcare remains inaccessible to both humans and animals (Munguti 1997). Within this context, traditional medicine constitutes a critical aspect of the survival of farmers and their animals. For instance, a study conducted in Sekenani valley, in Kenya, found that 25% of the local plant species were used for medicinal purposes. The most common use of the species included dental hygiene, malaria, general body strength, and wound care (Bussmann et al. 2006). There is a strong connection between ethnomedicinal practices and agroecological practices because these plants are usually grown on home gardens or managed by community commons based on knowledge of botanical properties passed between generations.

Furthermore, agroecological practices play a vital functional role in building and maintaining vibrant cultural spaces for rural communities. In Somalia, different foods, herbs, and trees grown in agroforestry systems have significance for births, marriages, and deaths. When a child is born, *malmal*, a type of herb, is applied to the umbilical cord for the first seven days. During this time called *afatanbah*, female relatives prepare special teas, porridges, and soups. The mother wears earrings made from a string passed through a clove of garlic (Hussein et al. 1996). Thus, a transformation of production systems from traditional agroecological practices to commercial monoculture may result in a permanent loss of

cultural instruments that have long worked to connect people in rural communities in developing countries.

2.4.8 Protection of Human Health and the Environment

Between modern industrial agriculture and agroecological practices, there are significant differences in terms of how technologies relate to these assets and eventually impact human health, the environment, as well as overall livelihood conditions of smallholders in developing countries. Green Revolution technologies relied heavily on improved seeds generated through plant breeding, high amounts of water, and large quantities of synthetic pesticides and fertilizers. These demands required extensive irrigation for the public as well as massive cash expenditures for agrochemicals on the side of farmers. The technological package entailed environmental deterioration of soils through salinization, compaction, erosion, and chemical pollution, caused by the use of fertilizers and pesticides, which further polluted streams, lakes, and groundwater (Altieri and Nicholls 2005).

Many pesticides banned in developed countries are still being used in developing countries, and their indiscriminate use and ineffective regulation of pesticides represent risks for the population, with poor farmers and farm workers being the most affected victims. The potential health risks arising from agrochemicals include cancer, reproductive problems such as sterilization and other long-latency diseases (Wright 2005). Pesticides also affect the human immune system in ways that suppress normal immune responses to viruses, bacteria, parasites, and tumors (Repetto and Baliga 1997). In this regard, children are extremely vulnerable – exposure to sub-acute levels of toxicity causes damage to their nervous systems, making them incapable of performing normal body movements for their age (Wright 2005).

On another scale, adoption of Green Revolution technologies deprived many impoverished countries of opportunities to develop traditional agriculture in compliance with modern scientific knowledge of agroecology. This is despite the fact that a large part of agroecological knowledge is rooted in traditional farming systems. In agroecological practices, multiple ecological practices such as cover crops, green manures, crop rotation, intercropping, and crop-livestock mixtures are employed to enhance the synergies in diversified farming systems aimed at maintaining soil fertility, crop protection, and productivity (Altieri and Nichols 2005). Utilization of these practices could significantly decrease the use of agrochemicals, leading to minimization of hazardous consequences for wildlife, human health, and the overall biophysical ecosystem.

2.5 Implications for Policy and Practice

As mentioned, in many developing countries, national programs that address agriculture and rural development are tailored by policymakers advised by foreign agencies or experts, such as those affiliated with the World Bank or IMF. To align with international pressure, the programs tend to exclusively focus on macro-economic policy interventions purported to generate maximum financial returns to governments and private-sector industries. This has usually been undertaken through employment of industrial agriculture and foreign exports of primary products based on centralized management and sacrifices of human and biophysical resources.

This paper has contended that this conventional public policy approach to agriculture and rural development is not necessarily suited to the livelihood reality of smallholder farmers in developing countries. In many cases, smallholder farmers that make up the bulk of

rural populations live in marginal ecological and socioeconomic circumstances. However, public policies in developing countries tend not to take account of them, while uncritically focusing on macroeconomic concerns instead. In the meantime, a heuristic analysis of the context of sustainable agriculture in developing countries suggests the prevailing importance of agroecological practices for the livelihoods security and stability of resource-poor farmers. This paper has thus highlighted the multi-faceted potential of agroecological practices for sustainable livelihoods of less privileged farmers in developing countries using the concept of agricultural multifunctionality. The concept is posited as the theoretical lynchpin for mediating the existing, yet rarely examined linkage in agroecology between ecological and social processes, particularly in regard to the multidimensional nexus of poor farmers' livelihoods.

The theoretical notion of agricultural multifunctionality can be translated into the policy context in at least the following three ways: first, it is vital for public policy makers to discern the potentialities credited to agroecological practices and practically incorporate them into policy formulation and implementation. As suggested, this livelihood implication could be much more multidimensional – involving political, economic, social, ecological, and cultural dimensions – than may generally be thought. This implies that a diversity of livelihood factors should be integrated with extension and education programs supporting agroecology and promoting its applied practices. For instance, agricultural education programs could combine knowledge transfer of ecologically-based farm management strategies with household food security, finance and marketing, agrobiodiversity conservation, gender roles, participation and organizational skills, and health and environmental protection – given that all these factors comprise a fundamentally interrelated microcosm in sustainable

agricultural household management.

Second, in support of agroecological practices for sustainable livelihoods of resource-poor farmers, public institutions charged with supporting the agricultural sector need to reorient their approaches to enable more inclusive personal and social learning. As noted earlier, agroecological practices are better qualified to address contextual ecological holism and social complexities than conventional agriculture. Accordingly, innovating agroecology-based interventions require nuanced involvement of many actors – farmers, researchers, extension workers, local leaders, agricultural colleges and universities, etc – as partners who draw their experiences, insights, and ingenuity together. Therefore, governments need to consider and prepare the different actor categories and organizations for this new role.

One example of such organizational aspects is the innovative inclusion of meso-level local institutions such as NGOs, farmers' organizations, and local agricultural extension agencies, in instituting farmer field schools (FFS). FFS is an alternative approach to agricultural extension that contrasts in many respects to the conventional approaches of public-sector agricultural extension. It has arisen out of the 'farmer first' paradigm, facilitating farmer participation, farmer-to-farmer extension, and in-situ innovations, with farmers' close partnership with external facilitators such as NGO workers and public agricultural extension officers who encourage farmers' 'discovery learning' processes. These external facilitators also provide farmers with opportunities of social learning using a number of exercises to establish group dynamics (Tripp et al. 2005). Originally developed in Indonesia in the late 1980s, FFS have been applied in 78 countries, producing 4 million graduates (Berg and Jiggins 2007).

Third, increasingly interdisciplinary collaboration between agroecologists and social

scientists is needed to further advance the research agenda linking agroecology to sustainable livelihoods. Since the early establishment of agroecology as a scientific discipline, it has been portrayed as a product of interdisciplinary scholarship. However, ecologists and agronomists, and perhaps to a limited degree ecological anthropologists, have dominated the scholarship to the extent that its pertinent social and livelihoods issues have been only fractionally addressed. This failure may not only be attributed to scientists in agricultural/ecological disciplines. Social scientists (e.g., rural sociologists, agricultural economists, economic anthropologists, and human geographers) also bear responsibility. Social scientists' relative lack of training in ecology may have blinded them from pursuing the agroecological line of research despite their social science expertise. As a result, documentation and analysis of sociological issues related to multifunctional roles of agriculture for farmers' livelihoods, household division of labor, livelihood strategies and finance, organizational dynamism, etc., has remained scanty in the scholarship of agroecology.

In fact, there are several notable accomplishments in agroecology that embrace individual pieces of work authored by scholars in different disciplines (e.g., Altieri and Hecht 1999; Snapp and Pound 2008; Uphoff 2002). In addition, there are some interdisciplinary-minded individual researchers, such as V. Ernesto Méndez and Eric Holt-Giménez, who were trained originally in ecological disciplines, yet are active in linking ecological analysis with social science perspectives (political ecology/economy, livelihoods) through participatory research (e.g., Méndez 2004; 2008; Holt-Giménez 2008). Nonetheless, there have been few collaborative efforts, with exceptions (e.g., Méndez, Lok, and Somarriba 2001), that embrace interdisciplinary syntheses in a single piece of work. In addition, sociological and

geographical efforts to theorize alternative agro-food systems/sustainable agriculture in the developing country context are lagging far behind those featured in such journals as *Sociologia Ruralis* and the *Journal of Rural Studies* that are focused mainly on the developed country context.

This situation needs to be addressed by inducing more interdisciplinary research opportunities for agroecologists and social scientists, accompanied by generalization of their individual scholarship. To make multidisciplinary collaboration successful, a prerequisite may be to establish an institutional mechanism to train and educate professionals who have a well-balanced understanding of agroecology and related livelihood issues from both natural and social scientific points of view. These interdisciplinary-trained professionals are expected to play key organizing roles in advancing multidisciplinary teamwork.

Currently, there are several graduate education programs in North America that cater to interdisciplinary education, research, and training in agroecology and sustainable agriculture (e.g., Environmental Studies Program (Ph.D.) at University of California, Santa Cruz, USA; Graduate Program in Sustainable Agriculture (M.S.; Ph.D.) at Iowa State University, USA; Agroecology Program (M.S.) at University of Wisconsin-Madison, USA; Agroforesteria para el Desarrollo Sostenible (Agroforestry for Sustainable Development) (M.S.) at Universidad Autonoma Chapingo, Texcoco, Mexico; Recursos naturales y desarrollo rural (Natural Resources and Rural Development) (M.S.) and Ecologia y Desarrollo Sostenible (Ph.D.) at Ecosur (El Colegio de la Frontera Sur), Chiapas, Mexico). These programs could strengthen international networks and help to build new, innovative programs, both graduate and undergraduate, in agroecology and relevant fields in the developing world.

All these interdisciplinary requirements for holistic management of sustainable

multifunctional agriculture in turn point to critical theoretical implications for highly specialized, linear, and compartmentalized organization of modern agronomy as a dominant scientific discipline in agriculture.

After all, a thorough reorganization of human and social factors, and how they interact with the biophysical domain, is a decisive factor for effective development of sustainable agriculture interventions in developing countries. Even the institutional reorientations suggested above, however, are not easy processes since they involve effecting changes in attitudes, values, and skills, including curriculum review in formal training institutions, in order to pay more attention to agroecological interactions with the rest of the agricultural field. Nonetheless, these reorientations have the potential to improve consciousness and actions in the dominant disciplines. The notion of agricultural multifunctionality is arguably a key conceptual tool for reorganizing our understanding of sustainable agriculture and livelihoods in the developing regions.

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CHAPTER 3. REFLECTIONS ON THE GROWING INFLUENCE OF GOOD AGRICULTURAL PRACTICES (GAP) IN THE GLOBAL SOUTH

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Abstract

EurepGAP is a pioneering field-level food safety protocol called ‘good agricultural practices’ (GAP) currently exercising influence over the global food quality assurance system. Developed by a consortium of major European retailers, this private standard enforces codes of conduct that address issues of health and safety for producers and consumers, as well as working conditions and environmental management on the farmland. Despite various merits and benefits that the standard is premised to offer, the institutional design gives a financial edge to large farms and exporters while diminishing opportunities for smaller growers and exporters to remain in the profitable agricultural export sector of the Global South. This paper explores the institutional origin and evolution of EurepGAP, discusses entry barriers and risks that EurepGAP imposes on the global value chain stakeholders, as well as the ethical implications from broader theoretical perspectives. Subsequently, it examines the evolving nature of a new trend in the fresh fruit and vegetable sector, i.e., the rise of public GAP standards. Promoted by some governments in the Global South, these GAP standards emphasize support for horizontal partnerships among value chain stakeholders, farmer participation, and less capital-intensive agricultural innovations. The paper argues that, within certain limitations these GAP standards have the potential to be the major alternative GAP

approach by encouraging a much broader inclusion of small-scale producers towards the attainment of various social, economic, and environmental benefits.

Keywords:

good agricultural practices (GAP), EurepGAP, public GAP standards, global value chain, fresh fruit and vegetables (FFV), small-scale producers

3.1 Introduction

Private standards have recently emerged as a dynamic force in global agri-food systems (e.g., Busch and Bain 2004; Denise et al. 2005; Fulponi 2007; Hatanaka, Bain and Busch 2005; Henson and Reardon 2005). On the supply side, this advance reflects the rapid growth of Northern retailers in the global value chain and their submergence in the food industry of the Global South. In the global value chain, the expansion of retail market power began in the early 1990s within the opportunity structure created through economic liberalization (Singh 2001; Temu and Marwa 2007). Through increasing concentration and quality-based oligopolistic competition, lead retailers surpassed the food processing giants such as Nestlé and Heinz that used to maintain marketing advantages over them (Busch and Bain 2004). These retailers use standards as “instruments of coordination of supply chains by standardizing product requirements over suppliers, who may cover many regions or countries” (Henson and Reardon 2005: 244).

On the demand side, the advent of private standards originates in growing consumer awareness about food safety in the Global North where a series of food related problems and debates (e.g., mad cow disease (Bovine Spongiform Encephalopathy), avian influenza, and

genetically modified (GM) food) have taken place since the late 1980s (van der Meer 2006). Northern consumers' greater health consciousness and income levels shifted their preferences from packaged goods to various fresh products (Busch and Bain 2004). These changes have intensified consumer concerns about pesticide residues and microbial contamination (Unnevehr 2000). With growing social pressure to ensure food safety, public authorities in the North were compelled to strengthen liability laws to make retailers more responsible for any harm or damage resulting from a food sold by them. Major retailers in the North have responded by developing voluntary food safety standards that are often superior to public standards (Fulponi 2007) as nation states find it difficult to regulate practices in globalizing agri-food systems (Hatanaka et al. 2005; Henson and Reardon 2005). As will be seen, the Sanitary and Phytosanitary (SPS) Agreement under the World Trade Organization (WTO) constitutes the supranational regulatory framework for the design and implementation of these standards.

Within this evolving context, a private voluntary standard called 'good agricultural practices' (GAP) has emerged in the global value chain as the most prestigious food quality assurance system at the field level.¹ Since the late 1990s, the Euro-Retailers Produce Working Group (EUREP), a consortium of major European retailers, has developed a pioneering attempt called 'EurepGAP' – pioneering food safety codes of conduct regarding consumer food safety, hygiene, labor conditions, animal welfare as well as environmental management on the farmland. The standard protocol initially focused on fresh fruit and vegetables (FFV), and later covered other crops, aquaculture, and livestock. In September, 2008, EurepGAP

¹ Joint efforts under the global food safety initiative (GFSI) have produced good agricultural practices (GAP), good management practices (GMP), and good distribution practices (GDP). These three basic standards represent a complete food safety assurance system from farm to table (Fulponi 2007).

embraced more than 80 countries, over 92,000 certified growers, and more than 100 independent accredited certification bodies worldwide (GlobalGAP 2008a). It has become the global model through which countries and industries are harmonizing existing standards. In September 2007, EurepGAP changed its title and logo to 'GlobalGAP' (GlobalGAP 2007a).

Despite the growing recognition and influence of EurepGAP, there is an emerging concern raised about its distributive effects on the global value chain: stringent compliance with EurepGAP (and other harmonized GAP programs such as ChileGAP and MexicoGAP) demands costly investments for upstream suppliers. These investments relate to technical training for innovative production and hygiene practices, variable inputs such as safer yet more costly pesticides, structures such as grading sheds, charcoal coolers, disposal pits, and pesticide storage units, as well as periodical certification and accreditation (Graffham et al. 2007; Okello and Swinton 2007). As a result, lead buyers in the North rely on economies of scale by sourcing products from larger and more resourceful exporters and growers. By forcing third party certification on upstream suppliers, they are able to minimize transaction costs and financial liability while enhancing credibility of their production practices (Hatanaka et al. 2005). The central ethical concern raised is that this process of consolidation and concentration of large enterprises in EurepGAP (and harmonized programs) entails the social cost of marginalizing, removing, or excluding smaller exporters and growers in the Global South, such as Kenya (Asfaw 2007; Graffham 2006; Graffham et al. 2007; Mungai 2004), Costa Rica (Kilian 2005), and Uganda (Kleih et al. 2007). Trends of smallholder exclusion because of other agri-food standards (including the case of public standards) have been documented in various subsectors and market contexts (Dirven 1999; Dolan and Humphrey 2000; Dolan, Humphrey, and Harris-Pascal 1999; Farina and Reardon 2001; Maertens et al. 2007; Martinez

and Poole 2004; Gutman 1999; Jank, Farina and Galan 1999).² There are also reported cases where many small-scale farmers engage in and successfully comply with stringent private SPS measures – i.e., a large exporter outgrower scheme in Zimbabwe (Henson, Masakure, and Boselie 2005) and in Madagascar (Minton, Randrianarison, and Swinnen 2007), as well as a number of EurepGAP projects in Zambia relying on massive donor support (Graffham and MacGregor 2007). The point then is whether a broad inclusion of smallholders is possible without extensive private assistance, given that such support is not normally available.

Drawing on the existing evidence regarding EurepGAP, this inquiry presents itself as a ‘position paper.’ It attempts a broad interpretation of the following concerns: (1) why EurepGAP was established and how it has been developed, (2) the potential effects of EurepGAP on small-scale farmers in the Global South, (3) ethical implications of the potential effects of private SPS measures on the Global South, and (4) the potential advantages and disadvantages of alternative GAP approaches. As a position paper, some perspectives presented may seem speculative and far-reaching to some readers. The paper is intended to facilitate further discussion and advanced research on related topics and problems.

The next section begins with an overview of the global institutional context for the rise of SPS measures, focusing on the SPS Agreement under the WTO, followed by discussion of the institutional origin and evolution of EurepGAP and its regulatory content. The third section identifies emerging barriers and risks that confront the upstream GVC stakeholders following the implementation of EurepGAP. The fourth section illuminates ethical implications of the potential effects of private SPS measures on the Global South. The fifth section examines the

² Production requirements are not necessarily the sole determinant of smallholder exclusion; a concomitant set of supply chain logistics requirements pertains to mainstream retailing, such as product quality, consistent volumes, transportation, processing, accounting, and invoicing (Glati et al. 2007; Reardon and Berdegue 2002).

potential advantages and limitations of emerging GAP approaches – public GAP programs. The final section concludes the paper.

3.2 The Rise of EUREPGAP

The SPS Agreement under the WTO offers an international legal framework for national and international food safety standards. In this section, an overview of the SPS Agreement is presented with emphasis on the opportunities and constraints it creates for WTO member nations in the Global South. The discussion will then turn to the institutional origin and evolution of EurepGAP, followed by the current protocol content.

3.2.1 The WTO-SPS Agreement

In the 1995 GATT Uruguay Round, the WTO came into being as the only international organization that sets and oversees international trade rules, with legal enforcement powers similar to the United Nations (UN). Comprised of member governments, the WTO enforces a set of multilateral agreements with member countries to foster freer trade among them (Bain, Deaton, and Busch 2005; Evans 2008). The SPS Agreement provides multilateral discipline in the transaction of food safety standards (SPS standards) in agricultural trade (Athukorala and Jayasuriya 2003). It was the result of efforts to negotiate a separate SPS Agreement during the 1986-1994 GATT Uruguay Round aimed at overcoming the inadequacies of SPS-related code written as part of other agreements in the 1979 Tokyo Round (Charnovitz 2000; Evans 2008).

The SPS Agreement aims to maintain members' sovereign right to pursue protection of human, animal, and plant life or health from pests, disease, and harmful food additives. In the

global context of diminishing tariffs and quantitative restrictions, coupled with growing visibility of non-tariff barriers, the primary goal of the Agreement has been to prevent health measures from being misused to protect the domestic producer community (Butterbaugh and Fulton 2008; Charnovitz 2000). SPS measures can be a pernicious protectionist device that is difficult to overcome due to their technical complexity (OECD 2003) and lack of transparency in their implementation (Schuh 2000).

Although there are numerous SPS rules in the Agreement, they can be abridged into seven disciplines by which all the WTO members are required to abide (Charnovitz 2000; Echols 2001).

- (1) The science requirement: SPS protections (for human, animal, and plant health and safety) must be based on scientific evidence and scientific principles.
- (2) The risk assessment requirement: members must ensure that their measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health.
- (3) The requirement for national regulatory consistency: members should avoid arbitrary or unjustifiable distinctions in the levels of sanitary protection deemed appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade (members are encouraged, however, to adapt their sanitary measures to the regional sanitary conditions of an exporter's area (e.g., disease- and pest-free) from which the product originated and to which it is destined).
- (4) The requirement of least trade restrictiveness: any measure used should be the least restrictive with regard to trade.

(5) The requirement to use international standards: members should attempt to harmonize their standards to international standards promulgated by relevant international bodies such as the Codex Alimentarius (for human health), the International Plant Protection Convention (IPPC) (for plant health), and the Office Internationale des Epizooties (for animal health).

(6) The recognition of equivalence: members should accept the SPS measures of other members as equivalent, even if these measures differ from their own or from those used by other members trading in the same product.

(7) The transparency requirement: members should provide notice regarding changes in their SPS measures and provide information on their SPS measures in accordance with the relevant provisions.

Some analysts are wary of the extent to which operationalization of this open trade approach may sidestep the needs of consumers and draw out international disputes. Silverglade argues, "... pressure for downward harmonization is built directly into the SPS Agreement because it is designed to facilitate trade, not to raise health and safety standards" (2000: 520). In this connection, Athukorala and Jayasuriya observes, "Many in developed countries see the much laxer SPS standards that often prevail in developing countries as a threat precipitating 'a race to the bottom'" (2003: 1396). Regarding the asymmetric power of the SPS Agreement over the cultural discretion of a government, Echols notes, "This attempt by traders, trade experts and scientists to view food in isolation from its history has proven especially difficult, because many segments of the public cling to cultural perceptions of food safety" (2001: 148-9).

On the other hand, most exporters are supportive of the Agreement, including many member countries in the Global South where market access and food security remain on-going

concerns (Echols 2001). Evidence suggests, however, that the impacts of standards on food security can be disproportionately higher than those on food safety. Otsuki, Sewadash and Wilson (2000) illustrate that a new harmonized aflatoxin standard set by the EU, which would decrease health risk by approximately 1.4 deaths per billion a year, would reduce exports of 9 African countries by 64 percent or US\$670 billion, in comparison with regulations set through the international (Codex) standard. In view of the fact that the current population in the EU is about a half billion, the potential social and economic losses in the exporting nations could be significantly higher than the estimated health risk in the importing nations.

Bain et al. (2005) identify three factors for which member nations in the Global South are likely to face difficulty in implementing the SPS Agreement: (1) a greater share of food and agricultural commodities in their exports, (2) a rapid growth in the delivery of fresh and minimally processed products (susceptible to greater biological risks) to the North over the past decade, and (3) limited technical and financial ability to effectively engage in the SPS standard-setting process as well as meet the requirements of the standards. The third factor, the most pertinent to the implementation process, is particularly noteworthy. A lack of representation in the SPS standard-setting process could lead to an unnecessary upward trend of international standards (FAO 2005). Henson and Loader (2001) and Henson et al. (2000) offer ample evidence about the problems experienced by members in the Global South to participate in the SPS Agreement and measures. Notably, the WTO missions of many low and middle-income countries are understaffed, typically with only one officer dealing with all WTO issues, of which the SPS Agreement is a minor part. Resource constraints prevent many of these countries from active participation in the meetings of the SPS Committee in Geneva. In the 10 (out of 12) meetings held November 1995 to September 1998, almost a half of them

attended no meetings while less than 20% attended five or more meetings. These clearly contrasted with the case of the members in the Global North that regularly sent a large team of experts. This asymmetry allows Northern countries to effectively set the international standard criteria. Minimum residue levels (MRLs), for instance, reflect the average consumption of these countries in terms of much higher quantities of meat and lower quantities of maize than poor countries in Africa (FAO 2005). Consequently, poorer countries tend to face more problems in the implementation of SPS measures, resulting in considerable socioeconomic losses for export (especially to the North). From May 2001 to April 2002, high-income countries had \$2.33 million of export value per detention (in terms of total value of food exports excluding meat and poultry products), whereas that of upper-middle-income countries was \$1.66 million, middle-income countries \$1.22 million, and low-income countries \$1.15 million (when including Honduras, \$1.54 million; Athukorala and Jayasuriya 2003). The SPS Agreement requires that all members take account of the special needs of the members in the Global South (Article 10) and provide them with technical assistance for complying with SPS measures (Article 9). Southern members generally felt, however, that Northern members had failed to live up to their expectations, to the extent that they had to argue at *Codex* for downward harmonization in order to meet the SPS measures in question (Silverglade 2000).

3.2.2 Institutional Origin and Evolution of EurepGAP

Along with the global regulatory framework of the WTO-SPS Agreement, EurepGAP came out of the West European social context during the 1990s. By the mid-1990s, major European retailers had begun to take account of rising consumer concerns about food safety by seeking to develop alternative production systems that could ensure the procurement of ‘safe’

food. Initially, organic agriculture emerged as a promising option due to its strong consumer appeal, in conjunction with the state support by many EU nations subsidizing conversion to organic production. Although supermarket chains and cooperatives made significant efforts to invest in this sector, the organic market remained small and economically minor. Subsequently, retailers turned to large scale corporate agriculture in order to set out and develop another approach called ‘integrated system(s).’ This approach incorporates integrated pest management (IPM) that consists of sets of ecologically-based pest management strategies (e.g., predator agents, bio-natural pesticides) aimed at the ‘residue-free’ produce. Unlike organic production, IPM permits minimum and pinpoint application of pesticides. Supermarkets and cooperatives, therefore, negotiated with suppliers to determine the exact level of chemical residues, allowable inputs, and tolerance levels. Individual retailer chains also developed audit systems and their own protocols from which ‘own brand’ labels and minimum requirement terms for independent wholesale brands flourished (Campbell 2005).

The integrated initiative proved successful in supplying much greater volume of safe, chemical-controlled foods than organics. By the mid-1990s, however, the proliferation of food standard labels and expressions in the market had become confusing to consumers. In order to make a collective resolution to this problem, in 1997 a group of thirteen European retailers launched the Euro-Retailers Produce Working Group (EUREP). This group set up the Technical Standards Committee and the Steering Committee as negotiation tables for key stakeholders to discuss harmonization between multiple integrated systems for supplying safe food. Subsequently, the EUREP mission adopted a more ambitious agenda to take on environmental considerations that had ever-stronger resonance with organic rather than integrated systems. This was realized by creating a ‘super audit’ system based on the synthesis

of broader audit systems such as Hazard Analysis and Critical Control Points (HACCP) and established criteria that would contribute to more sustainable agricultural production (Campbell 2005).

In 1999, the EUREP initiative culminated as the EUREP Good Agricultural Practice (EurepGAP) with a mission statement to “develop accepted standards and procedures for the global certification of Good Agricultural Practices (GAP)” (Campbell et al. 200: 159). Then, EurepGAP released the first fruit and vegetable protocol to provide a comprehensive standard for food safety, pesticide use, and traceability for fresh produce, in conjunction with on-farm environmental protection and worker safety as a secondary concern. The protocols originally limited the coverage of food item to vegetables and fruits, yet it was extended to include flower and ornamentals in 2003, oil palm, (green) coffee, and aquaculture in 2004, and livestock in 2005 (EurepGAP 2005).

EurepGAP focuses primarily on pre-farm gate practices pertaining to fresh produce, as opposed to other food standard types such as the German QS-System in the meat sector, which covers the entire value chain. This focused approach can minimize the costs and operational complexities that otherwise occur across different levels of the supply chain (Jahn, Schramm, and Spiller n.d.). EurepGAP mandated that suppliers who wish to receive the EurepGAP certification must be third-party certified. Given that third-party certification (TPC) is not always required for other types of private standards, this seems to reflect a strong desire of the EUREP group to raise the credibility of the standards, avert the need for direct monitoring, and reduce transaction costs. With the growing influence of EurepGAP, the use of TPC is becoming *de facto* mandatory, at least from the standpoint of suppliers in exporting countries (Bredahl et al. 2001). It is not unusual that suppliers are assigned particular third-party

certifiers by supermarkets who are concerned with maintaining their brand status via using recognized certifier agencies in the industry (Barrett et al. 2002).

The growing recognition of EurepGAP by foreign stakeholders has led to the establishment of benchmarking. Benchmarking refers to the harmonization of a country's applicant scheme that is proposed to be equivalent to EurepGAP protocols and associated General Regulations. This procedure is deemed necessary and important, because through equivalence it addresses specific local needs and cultural features that exist elsewhere, while securing the unity and integrity of the GAP initiative (EurepGAP 2004).³ In September 2008, there were fourteen countries whose GAP scheme had gained equivalence to EurepGAP,⁴ along with four countries applying for equivalency (GlobalG.A.P. 2008a).⁵ The international organization FAO (Food and Agricultural Organization) has also undertaken a major project to introduce a version of GAP in a number of countries with the aim of benchmarking the existing GAP programs in the world (APEC 2006).

3.2.3 Content of EurepGAP Protocol

Since the first introduction in 1999, EurepGAP protocol for fruit and vegetables has been reissued in 2001 and 2003. The early versions (1999 and 2001) mainly focused on control points and compliance criteria (CPCC), the standard with which farmers must comply. However, the version 2.1-Jan 04 issued in 2003 added the General Regulations, the rules related to standard administration, and the Checklist, used for farmer external audit. With the

³ A standard seeking benchmarked certification must comply with all Control Points and Compliance Criteria as set out in the relevant EUREPGAP standard (EurepGAP 2007).

⁴ These countries include are Austria, Chile, Colombia, Germany, Japan, Kenya, Mexico, New Zealand, Spain, Sweden, Switzerland, the Netherlands, Uruguay, and United Kingdom (GlobalGAP 2008a).

⁵ These countries are Brazil, China, Scotland, and Uruguay (GlobalGAP 2008a).

recognition of growing needs, the protocol recently implemented a major innovation. On March 2007, the version 3.0 was launched with the aim of creating a single standard for a broad range of food products (Figure 1).

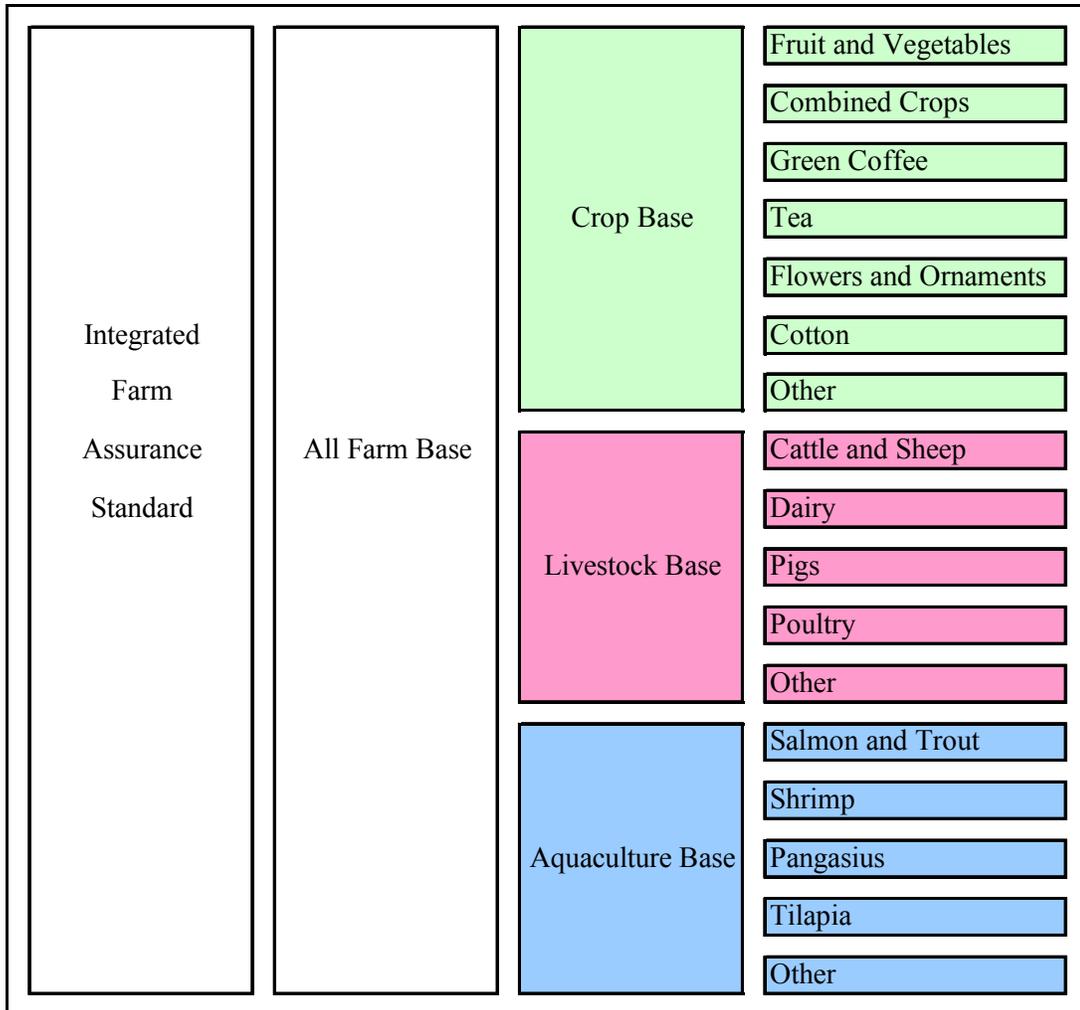


Figure 1. GlobalGAP integrated farm assurance standard v3.0-2 Sep07

Source: GlobalG.A.P. (2008b)

The new standard called the ‘integrated farm assurance’ (IFA) requires a producer to comply with each of the three modules related to a farming system: (1) ‘all the farm;’ (2) ‘relevant scopes’ (crop base, livestock base, and/or aquaculture base); and (3) ‘relevant subscopes’ (fruits and vegetables, combined crops, flower and ornamentals, green coffee, tea, cotton, cattle and sheep, dairy, pigs, poultry, salmon, shrimp, pangasius, tilapia) (GlobalGAP 2008b). The standard is designed to benefit the producers who are seeking to be certified with multiple food commodities produced in mixture. Meanwhile, it is unlikely to have any real impact on producers supplying a limited range of food commodities for commercial purposes (Graffham et al. 2007).

EurepGAP pursues four key themes that are purported to converge into the ideal of “the global partnership for safe and sustainable agriculture.” They are: food safety, environmental protection, worker health, safety and welfare, and animal welfare. In order to substantiate these themes, EurepGAP protocols have issued the CPCC document. Before the IFA standard came into force, the number of the CPCC documents to which a producer was liable for audit was contingent upon how many kinds of food commodities s/he requested for certification because each commodity was treated with distinct protocol items. The IFA standard instead requires that all producers fulfill a set of three documents that cover different modules, irrespective of the number of food commodities related to certification. Under the new system, a fruit or vegetable producer needs to comply with the ‘all farms base module,’ the ‘crops base module,’ and the ‘fruits and vegetables module.’ Control points specified in a set of modules involve all aspects of agricultural production on the farm gate. Each control point is premised on specific criteria for measuring compliance that are vital for the on-farm certification audit. For each module, control points are divided into three categories. The most important control points

called ‘major musts’ require 100% compliance for all scopes to pass the certification audit. The second category of control points called ‘minor musts’ demand demonstrated compliance with 95% of these control points for all scopes. The final category of control points called ‘recommended’ sets no minimum percentage of compliance, yet a few of them are linked to minor and major musts (EurepGAP 2007). As of March 2009, the most updated IFA version 3.0-2 for fruit and vegetables was released on September 30, 2007. It contains 74 major musts, 125 minor musts, and 37 recommended control points (total 236) (GlobalGAP 2007b) (Table 1).

Table 1. Distribution of control points for the IFA v.3.0-2 September 2007

	Major must	Minor must	Recom.	Total
All farm	12	22	11	45
Crop base	28	75	17	120
Fruit and vegetables	34	28	9	71
Total	74	125	37	236

Source: GlobalG.A.P. (2007b)

There are four optional channels through which growers pursuing the EurepGAP certification register: (1) individual certification, (2) group certification, (3) EUREPGAP benchmarked scheme certification for individual producer, and (4) EUREPGAP benchmarked scheme certification for producer group. In actuality, only the first two are relevant to many developing country producers. Most large commercial producers opt for individual certification but most smallholder producers are incapable of meeting the requirements due to inadequate technical and financial resources, resulting in failure to demonstrate compliance

with the specified control points. Group certification is instead applicable to them. In this option, the same set of control points as individual certification is covered but producers must be the members of a so-called ‘primary marketing organization’ (PMO) to obtain certification. A PMO is supposed to take legal responsibility for the whole operation of a GAP scheme, whereas each individual producer is subjected to signing a legally binding contract agreeing to meet all the required specifications of the EurepGAP protocol (Graffham, Karehu, and MacGregor 2007). Critically, detected non-compliance of one member in the group may result in de-certification of the entire group (EurepGAP 2004).

3.3 The Potential Effects of EUREPGAP Implementation in the GLOBAL SOUTH

Before examining the potential effects of the implementation of EurepGAP on the Global South, it is important to examine the state of the agri-food GVC system before the advent of EurepGAP. Throughout the 1990s, a series of epoch-making changes occurred in the GVC in efforts to respond to increasingly demanding consumer requests. First, the agri-food GVC began to enhance value-adding activities. Growing concerns with modernization of the procurement system in general, and improved sanitary and hygiene conditions in particular, necessitated the introduction of post-harvest storage, packing and barcoding of produce, which required additional investments in refrigerators, and an assortment of equipment and machineries (Dolan and Humphrey 2000). Second, intensifying needs for assuring due diligence to meet ever-changing market opportunities spurred increased investments in, and the use of, information technology. Suppliers are required to have computer skills and utilize

their own electronic addresses and web pages so that they can speed up their contact to prospective buyers, producers, and associations worldwide (Calvalcanti 2004). Large exporters adopt just-in-time (JIT) management systems to speed up the process between harvesting, packing, and delivery, thus achieving greater freshness for rapid turnover. Third, the rise of supermarkets in the global value chain has led to the mainstreaming of vertical coordination. Consequently, efficiency concerns in the highly competitive environment have driven supermarkets and importers in the Global North to search for suppliers in the Global South who already have the capacity to meet the exacting requirements of the FFV chain. In the FFV value chain, this translates into the asymmetrical positioning of financial burdens towards exporters and producers in the Global South. Fourth, rising demands for fresh nontraditional produce boosted the intercontinental airfreight delivery. This brought challenges particularly to small exporters who could not afford the scale of operations needed to gain air cargo space with commercial airlines and instead had to rely on passenger airlines that have limited pre-booked space (Dolan and Humphrey 2000).

3.3.1 Entry Barriers

These changes in the global value chain have required substantial investments in an array of new technologies and facilities. They have necessitated growing overhead costs for the upstream sector, particularly exporters. On top of these are additional costs for complying with SPS standards imposed by European retailers upon exporters and producers in the Global South. Particularly, the required costs for initial investment can be so high that even exporters with ample financial reserves may have to drastically reduce their involvement with the small farm sector.

Even before the advent of EurepGAP, exporters had a number of concerns about sourcing their output from small-scale producers. They include producers' loan defaults and side-selling to alternative markets, management complexities to train and manage a large number of producers, and poor roads and unreliable transport in rural areas. In addition, exporters retained various incentives to invest in controlling their own production. These incentives include a steady supply of output that is homogeneous in quality and sufficient in quantity, minimization of the risk of losing partner suppliers to competitors, accumulation of hands-on knowledge about production issues and innovations, and reduction in the transaction costs of working with too many dispersed suppliers. Further, some exporters might well assume that the prevalent use of illegal agrochemicals, a steep learning curve of adaptation and difficulties in record-keeping, as well as the need to provide costly extension services render small-scale producers a nuisance rather than the best partner (Dolan and Humphrey 2000).

Despite these disadvantages, exporters in the FFV sector did not have a compelling reason to cease engaging small-scale farmers. They continued to engage them from their business interests: FFV production provides small-scale producers with the comparative advantage vis-à-vis large-scale farmers due to the labor intensity of FFV crops (Brown and Sander 2007; Dolan and Humphrey 2000; Henson et al. 2005; Poulton, Dorward, and Kydd 1998). An underemployed family laborer has the incentive to provide an efficient and effective care of crops without the onus of supervision (Dolan and Humphrey 2000). Their production cost for labor intensive crops tends to be 20-40% lower than those of large-scale commercial farms (van der Meer 2006). Most importantly, hiring many small-scale farmers within wide areas, notwithstanding the cost of monitoring and supervision, bears the advantage of spreading risks and insuring produce against crop failures that arise from poor climatic

conditions. It is because of this advantage that some export companies continue to combine supply from producers of different sizes even after the introduction of EurepGAP (Mausch et al. 2006).

Information about the exact financial impact of EurepGAP for the entry of the upstream supply chain is available from sub-Saharan Africa. Graffham et al. (2007) examined the direct initial costs of implementing EurepGAP with 10 exporters who share over 50% of the export horticulture market in Kenya and 1,948 associated small-scale growers from whom they are sourcing some of their produce for EurepGAP compliance. It is estimated that over UK£2.2 million has been invested to meet initial costs for EurepGAP compliance. On average, therefore, a producer company is responsible for UK£220,000, which is significant particularly for small- and medium-sized companies. Of the UK£2.2 million, 36, 44, and 20% were paid by small-scale producers, exporters, and external donor agencies, respectively. According to these estimates, an initial investment cost amounts to over UK£400 per small-scale growers. There is considerable variation in actual costs per farm, with the costs of some farms completely covered by private agencies. Overall, the initial cost could be a high financial burden for many small-scale farmers by developing countries standards.

Graffham (2006) presents evidence from Zambia that the initial capital outlay for EurepGAP certification for a grower with 0.3-0.8 ha is between 58% and 160% of their annual profit with subsequent costs reducing to between 19% and 53% of annual profits. On the other hand, the initial capital outlay for a grower with the land area of between 2.0 and 6.0 ha is much lower, which is between 8% and 23% of annual profit with subsequent costs reducing to between only 3% and 8% of annual profits. The EurepGAP projects in Zambia have little

problems for growers' investment due to substantial financial and technical support from the donor community (Graffham and MacGregor 2007). Under the assumption of inadequate external assistance, however, these figures signal the possibility that poorer small-sized farmers are positioned to bear more financial burdens relative to their household economic standards, and are more likely to be expelled from the export market than more affluent small-sized farmers.

Many exporters, especially small scale ones who do not receive donor support, may wish to avoid contracting with small-scale producers, mainly because these growers cannot afford production facilities of their own that meet the criteria which overseas supermarkets demand (van der Meer 2006). Since many small-scale producers in the Global South have little or no access to credit, they cannot accommodate a range of production facilities such as modern toilet and washing facilities, a pesticide store, spraying equipment and waste pesticide disposal facilities, which EurepGAP and other SPS regulations require. Hence, exporters would seek to minimize their costs by self-procuring all the required production assets on their own land and employ workers, rather than by seeking out individual growers for contract (Dolan and Humphrey 2000).

Taken together, the resultant exclusion or removal of small-scale farmers in the export market could be significant. By way of illustration, the vegetable export sector in Kenya has been reported to show that from September 2003 (when the EurepGAP 2.1 was introduced in Kenya) to mid-2006, 60 percent of the surveyed 9,342 small-scale farmers who had been part of the EurepGAP operations were dropped by their export company or withdrawn from

compliance schemes (Graffham et al. 2007) (Table 2).⁶

Table 2. Summary data on small-scale growers (SSGs) impacted upon by the implementation of EurepGAP, Kenya

Exporter	SSGs prior to EurepGAP	SSGs in 2006	Certified SSGs in 2006	SSGs dropped
1	750	750	750	0
2	1,180	300	40	386
3	400	14	0	0
4	360	360	0	74
5	107	33	33	368
6	605	237	126	400
7	500	170	18	2,000
8	4,000	2,000	200	1,127
9	1,200	73	0	240
10	240	0	20	880
TOTAL	9,342	3,937	1,187	5,475

Source: Graffham et al. (2007)

In Uganda, the number of small-scale farmers exporting fruit and vegetables declined from about 2,150 in 2005 to 1,260 in 2006 due reportedly to increasing airfreight charges and stringent requirements of standards such as EurepGAP (Kleih 2007).

3.3.2 Economic and Ecological Risks

Some small-scale producers are capable of remaining in the FFV export sector for EurepGAP certification, but they are not free from various risks. The biggest economic risk

⁶ These farmers have about 45,000 dependents (family and wageworker) (Graffham et al. 2007).

for them pertains to the probability that they could be dropped out of the market at some point in the future. Importantly, EurepGAP compliance is not a one-time expense solely requiring an annual fee for applicant suppliers, but it entails substantial recurring costs for them to remain certified. The same study in Kenya, Graffham et al. (2007) found that for all the surveyed cases, donor support disappears after the establishment of local programs for EurepGAP. Exporters take over much of the financing, with 14% of the total recurring costs covered by farmers on average. Although the distribution of recurring costs appears more equitable than for initial costs, this 14% of total recurring costs were found to equate to 56% of average margin from small-scale producers. This casts doubt about the cost-effectiveness of the whole production scheme. If the costs rise above, or if the average farm is asked to contribute above the economic threshold, the margin could slip quickly to zero. This is how 15% of the surveyed 1,187 certified were dropped by the exporters within only three years from the inception of the EurepGAP scheme.

Evidence from Kenya and Zambia suggests that insufficiency of revenues due to the lack of price premium mechanisms poses another major economic risk for small-scale producers participating in EurepGAP (Graffham and MacGregor 2007; Graffham et al., 2007). This is perhaps due to the utterly binding nature of the buyer-driven prerequisite that regulates market entry instead of branding through differentiation. An exception is the Costa Rican melon sector, which applies premium systems for EurepGAP certified products. The sector consists exclusively of large-scale producers, however. The overall absence of a price premium to support small-scale growers raises questions about their incentives to partake in EurepGAP compliance, given that they tend to be disadvantaged in covering additional costs of facility accommodation, auditing, and certification.

Another risk arises from the ecological mismatch between the pest management measures that EurepGAP stipulate and those actually needed to deal with the pest problems of a particular crop demanded by suppliers for export sales. Graffham and MacGregor's study in Zambia (2007) notes that these exporters are willing to buy baby corn from small-scale growers as it is considered a low-risk crop with little need for pesticide application and low risk of microbial contamination. They would not buy peas from the small farm sector, however, because the management and controls offered by EurepGAP were inadequate to control the pest problems of the high-risk crop. It was therefore imperative for the exporter to introduce innovative company technologies in the EurepGAP scheme. Yet this was prohibited due to the existing level of financial costs that are already too high for such additional investments. Consequently, exporters did not choose to purchase a high-risk yet high-return crop from the small farm sector, which would be to the farmers' disadvantage.

3.4 Ethical Implications of Private SPS Measures

To gain an informed understanding of the potential effects of private SPS measures such as EurepGAP on the Global South, it may be illuminating to engage a broader ethical discussion that moves beyond the scope of policy analysis. This is done by situating the discussion within a theoretical purview of ecological analysis in social theory. Regarding the depth of ethical implications that private SPS measures retain for modernity, ecology, stratification, and social change, three perspectives from environmental sociology are employed: ecological modernization, risk society, and green socialism.

Originally devised by German sociologist Joseph Huber in the 1980s, ecological modernization theory has been gaining increasing prominence in northern Europe and

elsewhere in various fields of environmental policy and social science. Emanated from Huber's conviction that contemporary environmental problems should inescapably be resolved by 'super-industrialization,' this theory envisages an explicit vision of *hyper*-modernity: science, industry, and state institutions can promote emancipation of ecology by means of cleaner technology and improved eco-efficiencies generating competitive advantages and a sustained economic growth. Hence, seeing the ecological challenge "not as a crisis but as an opportunity" (Blowers 1997: 847), the theory presumes the following set of prescriptive trajectories: first, the industry should come ready to assure its ecological responsibility by investing in developing cleaner, more efficient, and less resource intensive technologies. Second, the state should adopt more decentralized, flexible, and consensual styles of governance to render the private sector more efficient and effective. Third, the state should adopt more innovative policy measures (e.g., environmental taxes, voluntary agreements). Fourth, preventive socio-technological approaches should replace traditional curative ones from the design stage of ecological innovation (Cohen 1997; Mol and Sonnenfeld 2000; Murphy 2000).

The underlying conception and governance of private SPS measures such as EurepGAP appears to be congruent with the notion of ecological modernization: more sophisticated ecological transactions towards improved food safety, quality management, and environmental protection would allow major retailers to capture more export markets and profits. To realize this objective, the retail industry seeks to incorporate into the standards environmentally less harmful agricultural practices such as IPM and ICM, in concert with management efficient and cost effective specifications for product and delivery attributes using HACCP. They can ascertain even more efficiency and quality assurance by rendering

certification and accreditation producers' liability. Regarding the state policy, Northern major retailers advancing in the Global South have benefited from the opportunity structure created in the neo-liberal milieu of economic liberalization beginning in the early 1990s. Some governments in the Global South opened their market along the GATT/WTO lines, attracted foreign direct investments, and implemented less interventionist measures. Further, private standards have come to serve as a competitive instrument for supermarket chains by virtue of regulation systems that are systematically based on precautionary principles, thereby ensuring advantages that consumers entertain over traditional suppliers. On grounds of these congenialities, an ecological modernizationist view might subscribe to a moral economy standpoint: private SPS measures are in fact acting as a sturdy shield that not only protects the health and safety of Northern consumers, but guards Northern retailers and exporting nations from the possibility of a health crisis that could threaten the global reputation and marketability of their export products (Henson and Reardon 2005).

Albeit with these strengths seen from the ecological modernizationist lens, the current forms of many private SPS measures are disposed to certain ethical contradictions that can be critiqued by another social theory – risk society theory. It is German sociologist Ulrich Beck who has developed risk society theory. Beck argues that the risk society arises as the second phase of modernity in which the aging of the industrial paradigm in the first modernity inevitably leads to catastrophic risks of global destruction overshadowed by ecological uncertainty (e.g., nuclear explosion, climate change). The new risks pertain to the unintended consequences of the very technoeconomic processes born out in the faith of 'progress' to conquer nature (e.g., hunger, natural disaster) – the paradox Beck has called 'boomerang.' The inherently uncertain nature of these new risks compels experts to disagree over the judgment of

what is 'safe.' Unlike ecological modernization theory, risk society theory downplays the role of modern industrial institutions for solving ecological problems. The theory instead emphasizes the role of 'sub-politics,' the core notion of Beck's evolutionary vision of 'reflexive modernization' toward a more sustainable and just society. Beck places significant emphasis on the role of the lay public (i.e., individual citizens, social movement organizations) in leading sub-politics through activities such as democratization of technical knowledge, boycotting campaigns, and so on. As an ecological issue is spatially boundless by nature, so develops sub-politics beyond geographic boundaries by voluntary initiatives of 'cosmopolitan' allies called 'globalization from below.' These global coalitions are in opposition to the so-called 'globalization from above,' the centralizing political economic forces under neo-liberalism (e.g., supranational institutions and agreements, multinational corporations) that primarily engage in bringing various resources and the environment under their control.

The political maneuver of risk society perspective highlights the barely direct, if not absent, mode of commitment by civic movement components to the design and enforcement of socio-ecological criteria in private SPS measures. These measures have been developed as preemptive corporate measures aimed to avert litigious disputes with the general public, with various preventive devices placed in concert with traceability methods applied *ex post facto*. Thus, EurepGAP is acting as a quasi-minimum quality standard (MQS) for GAPs that is primarily concerned with the condition of access to the market for suppliers (Codron, Giraud-Héraud, and Soler 2005). In this respect, these standards are clearly different from the case of alternative trading and certification initiatives (e.g., international organic and fair trade) that are driven more by civic sector involvement. Albeit with the potential risk for appropriation by multinational corporate interests (Murray and Reynolds 2000), the latter

initiatives place more weight on filtering socially construed values such as fairness and/or environmental conservation into product demand (Barham 2002). A reflexive modernization opinion may likewise buttress secondary measures in private SPS measures such as EurepGAP that could represent consumer support for egalitarian safe food production (e.g., price premiums, ‘special equity’ labeling). This is unlikely to actualize without any external stimulus, however, because these measures are driven primarily by corporate profit motives rationally tied to consumers’ self-interests in personal health that supersedes other altruistic concerns. In addition, the overall techno-administrative approach in private SPS measures, in particular the techno-scientific objectivism of third party certification (Hatanaka et al. 2005), further attests to the prevalence of less democratic risk management governance. Thereby, experts play a predominant role in determining problems and solutions in relative isolation from super-industrial interventions (Murphy 2000). Overall, the weak civic-sector leverage in the making of private SPS measures is paralleled by ecological modernization theory’s “relatively little emphasis on the role of radical environmental groups or new social movements (NSMs) in making possible ecological modernization processes” (Buttel 2000: 62).

Green socialism offers yet another critical perspective on the potential effects of private SPS measures on the Global South. With influence by Russian pioneers such as Serge Podolinsky and Vladimir Vernadsky, this stream of thought came into being in the 1970s in the works of Manuel Sacristan, Raymond Williams, Rudolf Bahro, and Andre Gorz, developed further by many recent contributors (Löwy 2002). Despite with its broad constituency, green socialist discourse focuses on a socio-ecological critique of capitalism, in many cases made from an explicit de-modernization perspective. It postulates that capital’s unlimited pursuit of wealth accumulation leads to an escalation of resource exploitation, wasteful material

consumption, and environmental destruction, possibly to such a catastrophic degree that the very survival of humankind is threatened. At the center of the environmental degradation and associated social injustices lie the relations of domination by the capitalist class over labor and nature (*not* the technological imperatives of industrialization as ecological modernization and risk society theories uphold). Green socialism thus seeks revolutionary struggles over the hegemony of capital by an alliance between the ‘reds’ (labor movements) and the ‘greens’ (environmental movements) toward a new civilization, a classless and ecologically defensible society. The painful lesson of the first epoch socialist model (e.g., the Soviet regime) enlightens us that democratic worker and community control over the production of use values (goods required for the satisfaction of human needs) and the use of ecologically sound production systems (e.g., solar energy) is key to actualize such a radical systemic change (Burkett 2002; Löwy 2002; Wallis 2001).

Green socialism claims incompatibility with the ecological modernizationist vision of “green (or sustainable) capitalism” (Burkett 2002; Fisher and Freudenburg 2001). The naturalistic, egalitarian, and utopian views of green socialism break with the ecological modernizationist emphasis on norms such as eco-efficiency, competition, growth, and profit. As such, an authentic green socialist view may hold the notion of green capitalism as just another productivism of a revisionist sort veiling some essentially capitalistic contradictions in the ecological guise. Such a green socialist line of critique can be captured to serve the ethical analysis of private SPS measures, possibly on three dimensions.

First, ecological systems deployed in private SPS measures such as EurepGAP may end up self-defeating for capital. James O’Connor (1998) formulated the thesis of the second contradiction of capitalism, which posits: in addition to the first contradiction (examined by

Marx) between productive forces (capital's accumulation imperatives) and production relations (capital and labor), capitalism gives rise to the second contradiction between forces of production and the conditions of production (nature, labor power, and socio-infrastructure organization). The second contradiction, O'Connor argues, points to capital's destruction and erosion of its productive base beginning with the natural environment. This green socialist critique of the self-destructive nature of capitalism may arrest an immanent feature of the corporate approach to sustainable agriculture called 'input substitution.' This refers to a production strategy that "only emphasizes environmentally benign alternatives to agrochemical inputs, without challenging either the monoculture structure or the dependence on off-farm inputs that characterize agricultural systems" (Rosset and Altieri 1997: 283).

The production structure anchored in large estate agriculture in EurepGAP schemes may be regarded as the variant of input substitution involving the use of environmentally benign inputs (e.g., bio-agents, compost). It typically maintains features such as use of extensive land, large machinery and agrochemicals, as well as dependence on fossil fuels, which all characterize modern industrial agriculture. Such structural biases run the risk of pest resistance and outbreak resulting from ecological simplification and genetic homogeneity that characterize it. These systemic traits are much less characteristic of subsistence-oriented systems prevalent over much of the Global South that involve small-scale, highly diversified, resource conserving, and ecologically sound enterprises (Altieri and Nicholls 2005). If such an ecological disaster takes place with certain severity and scale, it may mean a systemic maltreatment of and by capital itself.

Second, the notion of second contradiction of capitalism directs attention to the contradiction with labor. As exemplified by EurepGAP, introduction of many private SPS

measures has resulted in the rapid exclusion of small-scale producers. This condition rests on firm material bases, such as skyrocketing requirements for new investments and recurrent costs in support of consumer food safety assurance, as well as the absence of subsidies and price premium mechanisms to support small-scale producers. A green socialist standpoint may view these circumstances as being in a much deeper institutional flaw of contemporary capitalism rather than a mere amalgam of material shortcomings; as Blowers points out, the notion of ecological modernization “focuses on the economic and technological dimensions; it is largely innocent of the social context of change and the ethical issues that are raised” (1997: 854). From a societal viewpoint, such a socially adverse dimension of private SPS measures soon reveals capital’s failure to develop institutional systems that could take care of the social contradictions that it creates and to maintain social trust in its own enterprises.

Finally, the global agri-food standardization promoted by major capitalist interests and the consequent switchover of upstream production to larger farms highlights the monopolization of wealth and power by the Northern minority over the Global South. Since the early 1980s, Allan Schnaiberg has developed a neo-Marxist notion of “treadmill of production.” In the treadmill metaphor, capitalism is perceived as a gigantic production and accumulation machine that seeks global economic expansion for the profit of elites; along the way, this monstrous machine is steadily bringing the earth’s carrying capacity to its limits through exploitation of resources and labor as well as environmental destruction. This notion has provided green socialist thinkers with the most powerful critique of the ecological modernizationist assumption: greening of capitalism is not the predominant trend but applies primarily to the experiences of a limited number of advanced industrial economies (i.e., Germany, Japan, the Netherlands, and Nordic countries; Cohen 2006; Mol and Sonnenfeld

2000; Langhelle 2000), or even only some sectors or institutions of these economies through the effects of production diversification (York 2004). Hence Langhelle notes, "... ecological modernization has no established relationship either to the global environmental problems or to social justice. There are, in fact, no explicit references or connections at all to the global dimensions of developmental and distributional problems" (2000: 309). Wallis succinctly states this aspect of ecological modernization: "the soundness of the *part* is overridden by the unsoundness of the *whole*" (2001: 138 emphasis in original). These green socialist perspectives may be helpful to infer that the globalizing private agri-food standardization is being set primarily for a handful of affluent capitalist nations and business elites in the Global North to accumulate wealth by managing the very risks they have produced on the global scale (e.g., chemical pollution); this is done at the expense of reviving the classical problem of class, inequality, and North-South dependency in updated forms.

3.5 Exploring the Potential of Alternative GAP Approaches

The presented evidence related to the implementation of EurepGAP and the foregoing ethical diagnosis of globally acting private SPS measures sketched pessimistic agrarian pictures for the Global South. Meanwhile, more sanguine views may be captured from the on-going development of public GAP standards in the Global South. Most notably, the governments in ASEAN (the Association of South-East Asian Nations) countries have developed a host of public GAP approaches such as Indon-GAP (of Indonesia), Singapore GAP-VF, Malaysian SALM, Thai Q-GAP, and Philippine-GAP (APEC 2006). These public GAP standards should not be conflated by private-driven national standards that have benchmarked with EurepGAP, such as ChileGAP and MexicoGAP. Besides the goals of food

safety, quality assurance, and environmental protection, these public GAP programs aim to support small-scale farmer inclusion in mainstream markets, vis-à-vis the prevailing trend that private GAP programs such as EurepGAP have tightened integration with well resourced large farms in global value chains.

An illustrative case is Thailand: since 2003, Thailand has been developing the public GAP scheme called ‘Q-GAP’ (Q is the acronym for ‘quality’) with its own quality management system by modifying concepts of international standards such as HACCP (Hazardous Analysis and Critical Control Point) and the ISO (International Organization for Standardization) method (Surmsuk 2007). Primarily defined as a food safety program, the uniqueness of the Q-GAP scheme lies in the policy design that the government promotes creation and practices of the farmer field schools (FFS). Under the advisory extension system of the Department of Agriculture and Extension, participating FFS farmers, typically organized into groups of twenty members, regularly meet and undergo mutual learning processes to improve their understanding and on-farm application of GAP. The primary technical emphasis is given to reducing the use of agrochemicals using IPM, integrated crop management (ICM), and various types of organic compost. Twenty-nine crops are designated as specialty crops for exports and/or domestic consumption through Q-GAP.⁷ The Department of Agriculture acts as a certification body, and the National Bureau of Agricultural Commodity and Food Standards serves as an accreditation body providing the official certification called “Q” for GAP-certified food items (Surmsuk 2007). There is a guideline for the general

⁷ Out of the twenty-nine crops, the main export crops include longan, durian, mangosteen, mango, asparagus, okra, baby corn, pummelo, lychee, tamarind, ginger, and chili. The other targets are rice, pineapple, young coconut, longkong, rambutan, coffee, peanut, soybean, orange, cabbage groups, beans, chili groups, melon groups, herbs, sweet corn, onion and banana. Major importing destinations include EU, China, Hong Kong, Singapore, Japan, USA and Malaysia (Bureau of Agriculture and Fisheries Product Standards 2007).

regulation of Q certification. Based on it, specific regulation guidelines for each crop item have been developed (Charnnarongkul 2007). By the end of 2007, there were 224,334 households that had been Q certified for different crops (personal communication with DOA in August 2008).

As highlighted, public GAP schemes have the potential to include a much broader gamut of small-scale producer groups through participatory approaches to on-farm production management. Consequently, participating small-scale producers could attain an array of improved sustainability conditions, including safer production practices, improved production efficiency and environment protection, poverty reduction, and creation of the local social capital base. These would apply particularly to those countries in the Global South that engage in more protectionist agricultural policies. The setup of these standards within the protectionist context could facilitate marked progress in consolidating organizational infrastructure for upgraded quality and capacity of production systems.

Existing commercial linkages between producers and supermarkets operating in the domestic market context draw attention. The recent rise of supermarkets in the Global South has been conspicuous. To illustrate, supermarkets in Latin America achieved a rapid growth from a rough-estimated population-weighted average of 10-20% in 1990 to 50-60% of the retail sector in 2000 – the change which took fifty years in the US. Broadly, trade liberalization and multinationalization of the retail sector have led to the consolidation and concentration of large supermarkets in Latin America and elsewhere (Reardon and Berdegúe 2002). There is limited evidence of large supermarkets operating in the developing country market that have been using EurepGAP for the domestic market and/or for exports (with exceptions such as Pick'n Pay based in South Africa) (Weatherspoon and Reardon 2003). The required rigor of

EurepGAP for compliance is not likely to make it a dominant trend in the near future.

In contrast, alternative GAP schemes are established not only to promote agricultural export but also to facilitate increased access to and sales in domestic and local markets. They can thus contribute to ensuring food safety for domestic consumers while activating a mainstreaming of the small-scale farm sector in the domestic market context. The state could have explicit national interests in this regard. For instance, the public GAP program called ‘integrated fruit production’ (PFI) in Brazil focuses on targeting domestic markets with significant support of subsidies for small and medium-scale producers (Hoffman 2007). In addition, as illustrated in the case of TOPS, the supermarket chain in Thailand (Boselie, Henson, and Weatherspoon 2003), these standards could allow domestic supermarkets to find more amenable to their requirements those producers who practice traditional agroecological methods. Further, the improved environment could facilitate the entry of producers in those countries into the global market (although overall gains from non-traditional export may not be substantial, especially in comparison to the export of protected traditional commodities such as beef and sugar).

There are two cautionary points: first, there is uncertainty about the degree to which food commodities certified through an independent public GAP standard, with looser compliance criteria than EurepGAP and others, will be accepted in the overseas market. For example, the checklist of Q-GAP for any crop (as of April 2008) covers 84 total control points, with 51 percent of compliance required for certification, thus exhibiting quantitatively much lower required levels of compliance than private GAP standards such as EurepGAP. In view of the fact that there are certain limits in the space of more lucrative markets, consumers and supermarkets in search of food produced upon more elaborate criteria are likely to become

hesitant in accepting the products that have less prestigious GAP brands than EurepGAP. Similarly, introduction of the looser criteria may actually end up downgrading the overall quality of the production control system. This is likely to result in inferior achievements of the desired product attributes to EurepGAP.

Second, there is some differential among countries in the Global South regarding the capacity of the state to finance and provide technical support for the development of their own GAP programs. For instance, in Southeast Asia, where many countries have attained a relatively high economic growth since the late 1980s, a host of governments have been eager to develop public GAP schemes under the aegis of the ASEAN benchmarking program. In parts of the world, however, there are some countries such as Mexico and Chile, whose state policies are largely dominated by the neoliberal agenda and whose existing national GAP programs are represented by lead retailers and connected large-scale producers. Meanwhile, many other governments, even with a high potential of export in their agricultural sector, could be left incapacitated to build their own GAP programs. These governments' financial and technical dearth that might account for such inability pertains in part to the structural adjustment programs (SAPs) implemented since the 1980s. With the promotion by the International Monetary Fund (IMF) and the World Bank for public debt reduction and economic growth, implementation of the SAPs in poorer nations in the Global South has resulted in dismantling of elements of their public support systems including subsidies, input distribution, and official agricultural extension (Rapley 2002).

3.6 Conclusions

Private agri-food standards have emerged as a key factor influencing both technical

and social relations in global agri-food systems. Growing market power and concentration of the Northern retail sector, their rapid penetration in the global value chain and the food market in the Global South, and the enabling neo-liberal ambient under the global rule of the WTO comprise the major backdrops. On the technical side, these standards are employed by retailers as tools to coordinate the value chain by standardizing the production process, product and delivery attributes over the suppliers who may cover diffuse geographical areas. On the social dimension, these standards are influencing downstream relations by effecting preemptive SPS measures and coping mechanisms *ex post facto*, to protect the health and safety of consumers as well as the legal basis of the food commodity sellers who are enforcing them. The SPS Agreement under the WTO provides the supranational legal environment for regulating members' private and public SPS activities to foster a balance of security and fairness in international agricultural trade.

EurepGAP is a private food safety standard established by major European retailers. In the decade since its birth, it has evolved as the most prestigious GAP standard that has drawn a number of existing standards for benchmarking. By the global standard, it sets quite stringent criteria for compliance with a set of control points relating to food safety, hygiene, worker safety, animal welfare, and environmental considerations. It seeks to ensure transparency, accountability, and social trust by means of an elaborate traceability system and third party certification. Relatively unrecognized, however, is the process whereby EurepGAP is currently reconfiguring upstream social relations in the agricultural export sector by requiring massive financial and technical investments that set out the organizational conditions for the acclaimed quality. These investments could be high enough for smaller exporters to relinquish their business relations with major retail enterprises, and for retailers to reconsider the choice of

upstream suppliers in favor of larger and economically more affordable exporters and producers. Accordingly, many small-scale producers find themselves either excluded from the supply chain due to entry barriers or marginalized and/or removed by way of the systemic economic and ecological risks involved.

The existing literature on private SPS measures suggests that the social contradiction between food safety and social justice is not limited to EurepGAP, but relevant to other types of private (and to a lesser degree, public) SPS measures. Methodologically setting itself as a position paper, this study delved into the ethical implications of private SPS measures, assisted by the heuristic framework constructed from three perspectives from environmental sociology: ecological modernization, risk society, and green socialism. First, ecological modernization theory upholds a hyper-modernist perspective that poses no question of the ability of industrial development to achieve economic growth without seriously jeopardizing the environment. The underlying notion and governance of private SPS measures is arguably consistent with the ecological modernizationist paradigm with its emphasis on the utility of improved production ecology management for the economic expansion of major retailers. The ethical dimension of private SPS standards was highlighted from the ecological modernizationist standpoint that they function not only to protect the health and safety of consumers and producers; it also guards the retail sector and the exporting areas from the possibility of a health crisis that could threaten the global reputation and marketability of their export products. Second, risk society theory is critical of the role of industrialization for the risk and uncertainty of the global ecological crisis. It is thus skeptical of the ability of modern industrial institutions to solve environmental problems. It instead champions the view of reflexive modernization, the subpolitics led by individual citizens and social movements, to reconfigure global politics

towards the fundamental dissolution of environmental risks. This theoretical perspective highlights the ethical limitation of private SPS measures by critiquing the very strength of ecological modernization, i.e., the techno-administrative approach to environmental risk management. In doing so, it elucidates the lack of direct civil society involvements in realizing the democratic design and implementation of private SPS measures. Third, green socialism makes an even more severe critique of ecological modernization and private SPS standards by regarding the perpetual presence of capitalism as the source of social and environmental problems. With the ideal of classless and ecologically based society, this theoretical approach identifies three self-destructive moments of 'green capitalism' in private SPS measures. First, the structure of agricultural production leaves intact the structural fragility of industrial monoculture for potential ecological breakdown. Second, the lack of systematic attention in green capitalism to adverse social consequences of economic expansion manifests in the exclusion of less powerful stakeholders in the upstream global value chain. Third, the global dimension of developmental and distributive problems concerning the macro-structure of class, inequality, and dependency in North-South relations is ignored as the conditions of only a handful of advanced economies and interests of their elites are taken into account.

Unlike these adverse ethical implications of private SPS standards such as EurepGAP, the recent advent of an array of public GAP standards in the Global South sheds more positive, yet mixed lights for filling the lacuna of private SPS standards. Governments are the main supporters for the public GAP programs by providing financial and technical assistance for growers. Through technical training, free certification and accreditation, these public GAP approaches help reduce transaction costs on the part of growers, thus facilitating a much broader inclusion of small-scale producers in the mainstream market toward the attainment of

various economic, social, and environmental advantages. Public GAP-certified products are sold not just in export markets but also in local and domestic markets, thus serving the food safety interests of domestic consumers. Partly reflecting the restricted demand for new investments and transactions in production, however, these public GAP standards are equipped with noticeably lower criteria in compliance than private GAP approaches such as EurepGAP. The more relaxed compliance criteria are likely to lend themselves to certain limits in allowing certified products to be accepted by consumers and supermarkets embedded in the more privileged societal context of the Global North. Many poor countries, especially those whose state functions have been largely disorganized through the implementation of SAPs, are less likely to be able to establish public GAP standards and cultivate the benefits.

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CHAPTER 4. RETHINKING SUSTAINABLE AGRICULTURE IN THAILAND: A GOVERNANCE PERSPECTIVE

A manuscript published in the *Journal of Sustainable Agriculture*

Abstract

This paper examines the feasibility of official institutional programs for sustainable agriculture in Thailand during the last decade. In Thailand, both popular and official attention to sustainable agriculture was paid well before the economic crisis occurred in 1997. However, the policy implementation of sustainable agriculture programs began only after the turn of the millennium, and the processes and outcomes have not been adequately studied from a feasibility standpoint. This paper seeks to fill the gap by employing a ‘sustainable governance’ perspective for examining the programs of three main official institutions promoting sustainable agriculture in Thailand. It is concluded that the social impacts of public sustainable agricultural interventions in the past decade remain limited for the estimated five million small-scale farmer households in Thailand.

Keywords:

Sustainable agriculture, sustainable governance, small-scale farmers, good agricultural practices, debt suspension, democratic decentralization

4.1 Introduction

Since the 1990s, Thailand has undergone dramatic transformations of the national constitution and polity. Starting with the civil riot and the subsequent oppression by the military in May 1992, the unwitting synchronicity of the Asian economic crisis and the effectuation of the new constitution in 1997 became a landmark in Thai history for reshaping the path of the nation's social and economic development. The Eighth National Social and Economic Development Plan (1997-2001), the following Ninth Plan (2002-2006) and the Tenth Plan (2007-2011), were thus set to encapsulate a people-centric vision of development for Thailand, with emphasis on increased people's participation, self-sufficiency, poverty alleviation, and protection of the environment for reversing the previous elite-led, growth-centered development approach.

Sustainable agriculture is among the major reform policy portfolios that have been transforming the rural landscape since around the turn of the millennium. Although conceptually rather ambiguous, the planning document of the Eight National Social and Economic Development Plan identified sustainable agriculture as "natural farming, organic farming, integrated farming and agro-forestry" (National Economic and Social Development Board 1997: 65). While the Seventh Plan (1992-1996) already expressed an official interest in sustainable agriculture, the Eighth Plan was groundbreaking in setting up concrete targets in converting 20 percent of the national arable land (approximately 4 million ha) to sustainable agriculture (Vitoon 2002). This inclusion of sustainable agriculture in the official reform agenda indicated a milestone in efforts to reverse the country's consistent pursuit of modern agricultural development planning since the 1960s. It was in large part the crystallization of policy advocacy efforts by NGOs and farmer movements that had resisted the adverse tide of

mainstream agricultural industry and associated technocratic groups. In addition, the highly respected Thai King's declamation of the "New Theory Farming," the compounded notion of integrated farming systems and the Buddhist self-restraint, provided further impetus to the widespread recognition of sustainable agriculture in Thai society.

There is a growing body of literature on the role of sustainable (or alternative) agriculture for rural development and livelihoods in Thailand (Apichai 1996, 1997; Aphipan 1995; Buch-Hansen 2001; Delcore 2004; Sathorn 2000; Sununtar and Gilman 1999; Thanwa 2001, 1995; Trebuil 1993; Vitoon 2001, 2002). Many of the discussions in the literature begin with highlighting the historical process of Thailand's national agricultural development up to the present. They then attempt to conceptually demonstrate the socio-economic and environmental potential of sustainable agriculture for overcoming the negative impacts of conventional agriculture in Thai countryside (i.e., resource poor farmers' economic insecurity, chemical pollution, environmental degradation, and loss of biodiversity).

Aside from these 'normative' approaches, Mogens Buch-Hansen (2001), published in a past edition of this Journal, represents an exception in the sense that it has to date been the only work that comprehensively examined the potential feasibility of sustainable agriculture in Thailand. In the face of the poor official specification of the concept of sustainable agriculture, coupled with its yet unrealized policy implementation at the time of his research, Buch-Hansen analyzed the theme by calling into question the political feasibility of the concept. Such an inquiry should come first and foremost for discussing sustainable agriculture in Thailand and elsewhere, because "unless a framework of enabling policies (and their operational mechanisms) is brought in place, there is no way in which agriculture will be sustainable from an economic, socio-cultural, ecological, nor institutional perspective" (Buch-Hansen 2001:

156). The timing of his study did not yet allow his feasibility analysis to be based on empirical scrutiny of ongoing institutional programs of sustainable agriculture in Thailand. Nonetheless, he presented a number of critical insights and useful clues worth exploration for undertaking such an examination.

4.1.1 Buch-Hansen's Perspectives

In operationalizing the concept of sustainable development, Buch-Hansen took on the task to analyze the feasibility of sustainable agriculture in Thailand in light of four aspects of agricultural sustainability in Thai contexts: (1) economic, (2) socio-cultural, (3) ecological, and (4) institutional. From the economic viewpoint of sustainability, he first paid attention to Thailand's remarkable records of economic success of export-oriented agriculture, asking whether export-oriented farmers, being closely tied to various agribusiness interests with marginal profits and cumulating debts, would be able to convert to sustainable agriculture. Second, he raised doubt about the Thai government's capacity to convert conventional agriculture to sustainable agriculture because external debt doubled from 1992 to 1997, the year of the Asian financial crisis. Third, his questions about the viability of sustainable agriculture were related to the draft Agreement on Agriculture that was supposed to be discussed at the WTO negotiations in Seattle in 1999, which eventually collapsed. His questions regarding the draft content related to minimum access quotas, trade related intellectual property rights, sanitary and phytosanitary standards, and the role of consumers were linked to a further commercialization of agricultural practices, decline of the small-farm sector, and loss of agriculture as a traditional way of life.

Buch-Hansen went further to consider the economic alternative for a viable sustainable

agriculture in Thailand along the two options Thailand appeared to be pursuing: “(1) Let farmers, who are capable of commercial farming, shift into commodities which can compete at the world market (this *could be* ecologically produced), (2) Find ways and means of supporting the non-competitive part of the farmers through non-trade related measures” (p. 152, original emphasis). Taking the first option as not operative at the time of his research, he focused on the possibilities of the second option. Regarding Thailand’s incapacity to provide public financial support for farmers through non-trade related measures (as opposed to those available in the EU and US through the Blue Box and the Green Box in the WTO Agreement), he expressed skepticism on the chance of donor support. He reasoned that if sustainable agriculture is feasible as a donor supported program, the money should come from the productive agricultural countries that subsidize their own farmers in the first place, who are in competition with the Thai farmers in the global market. Thus, he implied that none of the economic options is available for sustainable agriculture in Thailand.

Second, his socio-cultural viewpoint addressed broad long-term changes in the constituents of Thai society. On one hand, there was an increasing outflow of workforce from the rural and agricultural to the urban industrial sector in the decades the government pursued import-substitution and export-oriented policies, leading to a rapid westernization of social values and behavior among the youth. On the other hand, a series of negative repercussions of urban-based, extremely liberal economic development strategies led the critics to pay more positive attention to Thai rural life and underscore the significance of traditional, community-based cultural livelihoods. With such broad trends in mind, Buch-Hansen asked whether sustainable agriculture in Thailand would be able to reverse the urban bias, revitalize rural livelihoods via consumer demand for sustainable agriculture produces, care for over one

million land insecure, resource-poor smallholders, and go beyond the cheapest way to stock a potential labor force for the manufacturing industries.

Third, Buch-Hansen discussed the ecological sustainability of production methods with regard to a specific production method called ‘natural farming.’ As a type of agriculture requiring the complete absence of agrochemical use, together with elimination of human manipulation of nature, this farming practice was, he argued, favored by green movements in Thailand primarily from a bio-centered ideological perspective. Since the urban middle class (or white-collar salariat) might not view it from the standpoint of local empowerment by the rural population but from a bio-centric viewpoint of intrinsic values of nature, he thought of the possibility of their role in green movements primarily as consumers. Meanwhile, he pointed to the underdeveloped state of consumer movements in Thailand with regard to the lack of public regulations over the content and production methods of food commodities, coupled with the general opposition of agribusiness interests to incorporate consumer influence in the campaign on safe foods and labeling (albeit noting the exception of some supermarkets).

Fourth, his institutional viewpoint highlighted Thailand’s weak institutional base for economic incentives to be created to encourage conversions of conventional agriculture to sustainable agriculture. With regard to the deeply ingrained mechanisms of official cooperative credit and extension systems to serve the interests of conventional agriculture, he questioned sustainable agriculture and its alternative methodology to economically induce changes towards more dissemination of ecological farming practices. The stagnating conditions of land ownership in many rural areas, along with the lack of certification services for ecological produce, compelled him further to wonder about the ability of sustainable agriculture to solve the problem of land insecurity for many resource-poor farmer households, as well as to come

up with a sustainable marketing structure that attracts a fair number of consumers.

Much of Buch-Hansen's discussion summarized above emanated from the socio-political contexts of an early period of official introduction of sustainable agriculture in Thailand. He posed a series of questions about the future feasibility of sustainable agriculture in Thailand from an *ex ante* perspective. With nearly a decade of policy planning and implementation of sustainable agriculture since the time of his research, it is argued that the situation has noticeably changed. Despite the still developing nature of the policy programs, the time span may be sufficient for retrospection.

Given the far-reaching inventory of questions Buch-Hansen posed in his analysis, it is beyond the ability of this paper to address all of them. This paper will instead focus on institutional aspects of sustainable agriculture in Thailand by setting out the following frames of analysis. First, concurring Buch-Hansen's notion that the presence of an appropriate framework of enabling policies is essential for the feasibility of sustainable agriculture in Thailand, this paper aims to continue and develop a dialogue by examining the institutional development of official policies promoting sustainable agriculture observed in the past decade. This interest is usefully linked to the analytical concept of 'sustainable governance,' as detailed below. Second, for the governance analysis, three government institutions, namely the Ministry of Agriculture and Cooperative (MOAC), the Bank of Agriculture and Agricultural Cooperative (BAAC), and the Subdistrict Administrative Organizations (SAOs), are selected to analyze the structure of incentive systems and institutional processes of change. Although these are not the only institutions promoting official policies of sustainable agriculture in Thailand, they are without doubt among the most important. Third, with the aim to qualitatively enrich the analysis, this study utilizes on-site information obtained from field

research conducted in particular localities of a province. This approach is in contrast to the more theoretical orientation of Buch-Hansen's analysis administered from an *ex ante* perspective to good effect.

The remainder of the paper is organized in four sections. The next section introduces conceptual underpinnings for this study. The third section provides research contexts and methods. The fourth section presents the findings. The final section is devoted to discussion and conclusions.

4.2 Conceptual Underpinnings: Sustainable Governance

Governance is a concept that highlights the critical role of politics in development, having arisen from the recognition of failures of past development efforts that focused on macro-economy management and of people constituting the principal force of development (Ellis 2000). It addresses a long-term transformation of a polity and associated changes in its development path by transcending the institutional boundaries of government, legal institutions, and formal leadership. It also perceives the public realm as an integral arena of the state, private, and civic sector engagement in development activities (Amalric 1998; Hyden 1992), thus taking into account the resources or services that the state bureaucracy alone cannot provide for people.

The concept of sustainable governance has appeared in the field of natural resource and environmental management, most notably in literature on common pool resources and common property (Agrawal 2001, 2003; Constanza et al. 1998; Pomeroy 1996). No explicit definition has so far been conferred to the concept, yet it implicates the framework of institutions, both formal and informal, involving the body of rules and enforcement

mechanisms through which natural resources are managed in a sustainable manner. The governance literature that emphasizes the role of formal institutions such as a large bureaucracy underscore the importance of policy integration, shared objectives, and trade-offs across multiple institutions for sustainable resource management (Kemp and Gibson 2005). Meanwhile, the bodies of literature which are more attentive to the role of informal institutions, such as the commons, has expressed skepticism about the role of the central authority and privatization of property, stressing the effectiveness of the self-governing communal institutions instead (Dietz, Ostrom, and Stern 2003). This stream of thought has paid closer attention to resource system characteristics, group characteristics, local institutional arrangements, and their relationships (Baland and Platteau 1996; Ostrom 1990; Wade 1988).

The notion of sustainable governance is not only relevant to the sustainability of particular natural resources, but it is premised on the long-term durability of institutions responsible for managing them. Agrawal (2003) cautions that institutional sustainability could be attained through an unequal allocation of benefits among local stakeholders managing the resources (a similar argument might hold with distribution of costs). Such a management is ultimately unsustainable in terms of stakeholder engagement. Thus, certain mechanisms of democratic local governance that ensure the development of credible rules for fair allocation of costs and benefits among local stakeholders are the critical prerequisite for sustainable governance.

Out of the numerous ways to examine the governance of natural resources and associated challenges (e.g., Campbell and Sayer 2003; De Groot et al. 2002; Hagedorn 2002; Oakerson 1992; Ostrom 1990), the conceptual framework of sustainable governance by Fischer *et al.* (2007) is opted for the analytical purpose of this study (Figure 1). Drawing on

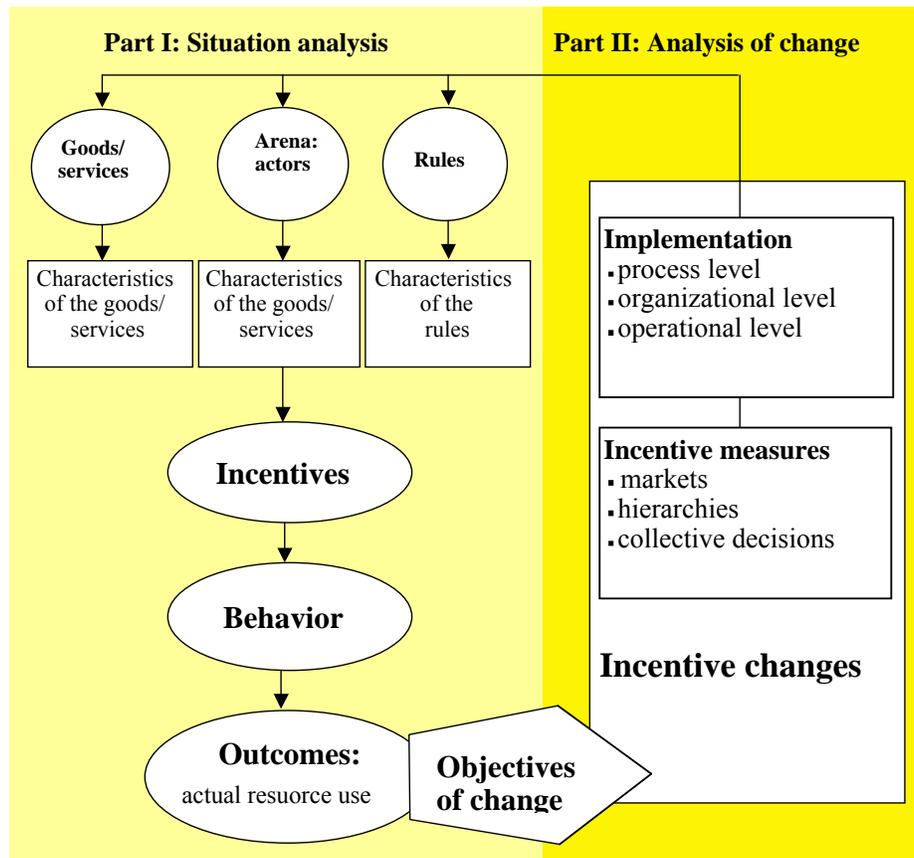


Figure 1. Conceptual framework of sustainable governance (Fischer *et al.* 2007).

Source: Fisher *et al.* (2007)

elements of multiple social science disciplines including institutional analysis, policy sciences, and resource economics, the conceptual framework represents a revised and extended form of the Institutional Analysis and Development (IAD) framework presented by Thomson and Freudenberger (1997). There are three shortcomings of the conventional IAD framework that the modified version addresses: (1) its institutional analysis of incentives deals only with the current situation or *status quo*, which falls short of adequately assessing impacts in development co-operation, (2) its overemphasis on the role of resource user communities cannot address many recent cases where multiple actors, such as governments, NGOs, or

private agencies, are stakeholders (3), few existing comparisons between applied case studies go beyond a single sectoral focus and specific types of resources in question (Fischer et al. 2007).

Fisher *et al.*'s version of framework consists of two parts. First, the modified form of 'situation analysis' begins with examining an inventory of incentives that stimulate or lead to problematic behaviors of specific actors in resource use with regard to "(i) the characteristics of the goods and services involved; (ii) the characteristics of the actors and the arena; (iii) the characteristics of the rules with regard to resource management in the respective community" (2007: 127). The major modifications lie in (ii). The original IDA framework places emphasis on the attributes of the community of resource users involved in either one sector of forestry, watershed management, or inshore fisheries. The modified version allows for an inventory of actors in the arena interacting in less conventional sector(s) of natural resource management including agriculture.

Second, the extended framework proposes a critical addition of 'analysis of change' where a dynamic perspective of institutional change is proposed. The analysis involves three steps. The first step relates to a normative dimension. It is to identify the overarching guiding principles or implicit ideals, such as the Millennium Development Goals (MDGs) or the general concept of sustainable development, laid down at a strategic level of development cooperation. Such norms are then to be compared to more specific project goals or consequences at an operational level, where the implicit agendas of actors had been identified in the analysis of incentives in the situation analysis. Such a reality check provides a critical basis for enhancing feasibility and appropriateness in development interventions (Fischer et al. 2007).

The second step is to examine changes in incentives that result from a development intervention. Based on the distinction between two dimensions of interventions, namely the character and type of incentive measures and their actual implementation mechanisms, this analytical step utilizes a classification of incentive measures. A cluster of incentives is constituted by particular coordination mechanisms such as prices, regulations or norm-building, whilst they are categorized within particular governance structures involving markets, hierarchies, and collective decision-making (Fischer et al. 2007) (Table 1).

Table 1. Examples for incentive measures and their links to governance structure

Governance mode	Markets	Hierarchy	Collective decision making
Governance mechanisms	Framing	Framing	Framing
<ul style="list-style-type: none"> Incentives 	<ul style="list-style-type: none"> Assignment of property rights Creation of markets Individual tradable quotas (ITQs) Tradable permits Payment for environmental services Minimum and maximum prices 	<ul style="list-style-type: none"> Empowerment and development of organizations to enforce rules 	<ul style="list-style-type: none"> Capacity building Cooperation management Round tables etc. Conflict management Stakeholder alliances Introducing community-based management
	Prices	Regulation	Norm-building
	<ul style="list-style-type: none"> Fees Charges User taxes Tax exemptions Refund systems Market protection: tariffs Facilitate market access Subsidies to inputs Market support Reform/removal of adverse subsidies 	<ul style="list-style-type: none"> Taxes (unspecific) Fines Liability for damages Standards Best practices Access restrictions Moratoria Tariff design Exclusion of particular groups of users Non-tariff market protection 	<ul style="list-style-type: none"> Establishing operational rules Establishing rules on decision-making Establishing enforcement mechanisms
	Contracts	Public funding	Information
	<ul style="list-style-type: none"> Performance bonds Revenue sharing Audits 	<ul style="list-style-type: none"> Public financed maintenance measures e.g. maintenance contracts for conservation Common property management by publicly funded agents 	<ul style="list-style-type: none"> Information on externalities, property rights, legal aspects etc. Accounting for non-monetary values Economic valuation Cost-benefit-analysis Technology transfer Establishing information and measurement systems
	Information	Information	
	<ul style="list-style-type: none"> Information on externalities, efficient practices, property rights, legal aspects etc. Labelling Signalling Certification Establishing information and measurement systems Technology transfer 	<ul style="list-style-type: none"> Audits Eliciting public preferences Accounting for non-monetary values Economic valuation, cost-benefit analysis Establishing information and measurement systems 	

Source: Fischer *et al.* (2007)

It is important to note that the classification of governance is an ideal type. A program might

involve mixtures of different governance modes (Dietz, Ostrom, and Stern 2003). In an actual intervention, therefore, several measures categorized across different structural modes of governance might be combined with varying emphases to produce changes in incentives.

The third analytical step focuses on the level and approach used to execute incentive measures. Three different levels mentioned, that is operational, organizational, and process levels, represent the conceptual division of policy, polity, and politics established in political science, with each level consisting of different approaches to implement incentive measures. The operational level involves traditional technical and financial assistance for infrastructure in addition to direct technical advice to local resource users or organizations. The organizational level comprises of less direct approaches such as advisory services on regulatory policy or on management and organizational issues to organizations, coupled with organizing practices such as public relations, mainstreaming, or networking. The process level is linked to an even more indirect approach, such as advisory services on general and/or long-term policy processes (Fischer et al. 2007).

According to Fischer et al.'s exemplification, a subsidy policy under the market-oriented mode of governance is operated through provision of information on efficient practices to inputs at the operational level, establishment of payment schemes and introduction of performance bonds at the organizational level, and development of payment schemes for environmental services at the process level. Hence, the same incentive measure could be implemented in a multiplicity of ways across different levels of activities.

4.3 Contexts and Methods

This study is the product of multiple field research conducted in several district sites in

Chaiyaphum Province between 1998 and 2008. Chaiyaphum is located in the western part of the northeastern region (Figure 2).



Figure 2. Map of the research area

This region, domestically called Isan, has been referred to as the least developed out of four regions in Thailand, with land salinization and drought-stricken environment making it the region with the lowest agricultural productivity and income level. The major ethnic composition of this region is Lao, whose major spoken language is Isan, a sister language to Lao. Historically, this region consisted of kingdoms extending to the contemporary national territory of Laos.

Chaiyaphum Province geographically confronts the commercial pressures from Central Thailand but is culturally akin to the agrarian tradition of Northeast Thailand. Unlike most other northeastern provinces, however, which are covered by the plains of the Korat

Plateau and are characterized by rain-fed rice farming, this province contains hilly areas suitable for producing a variety of vegetables and fruits aside from main crops such as rice, cassava, sugarcane, corn, and taro root. Such diversity makes the province an excellent space for studying changing rural governance in the field of sustainable agricultural development in Thailand.

As mentioned above, this study examines the cases of three institutions. Each case reflects broader societal changes, national or global, that have occurred over several decades. The first case is the national food safety program called 'Q-GAP' (Q is the acronym for 'quality,' and GAP is for 'good agricultural practices'). In response to the growing global demand to ensure reliable systems for food safety, MOAC was assigned the task to develop this public food safety program for field-level quality assurance. This quality assurance system is linked to issues of agricultural sustainability as it relates to grower safety and environmental protection mainly through the improved control over the use of agrochemicals and alternative production inputs.

To examine this institutional program, the author visited the district offices of the Department of Agricultural Extension (DOAE) in six districts, namely Chaiyaphum City, Phakdi Chumpon, Nongbua Daen, Nongbua Rawae, Kaset Sombun, and Bang Taen, in July 2007 and throughout the period between February and April 2008. In addition, the provincial office of the Department of Agriculture (DOA) was visited in February 2008 for interviewing a professional Q-GAP inspector. Further, one day in early March 2008 was spent with a team of Q-GAP inspectors from the provincial office for participant observation of their field inspection on pummelo orchards in a community of Kaset Sombun District. In interviewing government officers, the author employed semi-structured interview lists on organization of

the program. After one week preliminary research, he also conducted structured interviews with twenty-nine Q-GAP certified pummelo farmers in highland areas of Kaset Sombun District and an equivalent thirty-six farmers in lowland areas of Ban Thaen District, coupled with participant observations of their work in half of their pummelo orchards.¹ The interviews were conducted in Thai for a comparative study on the impact of Q-GAP implementation on farmer perceptions, production practices, and their livelihoods.

The second case is related to the national-level debt suspension program under the Bank of Agriculture and Agricultural Cooperatives (BAAC), the major public credit institution in Thailand. Since 2001 technical assistance for organic food production and marketing has been promoted by BAAC for dealing with client farmers' loan default problems, career rehabilitation, and debt-related poverty. Data collection was administered in January 2004 and July 2007 through secondary documents collection and semi-structured interviews in Thai with BAAC officials in four BAAC offices of Chaiyaphum Province, namely municipal and provincial offices in Chaiyaphum City, district offices in Phakdi Chumpon and Nongbua Rawae, plus the central office in Bangkok.

The third case involves looking at the transitioning of organic agriculture enterprises administered by former officials of Wangthong Subdistrict Administrative Organization (SAO), a decentralized subdistrict administrative unit in Phakdi Chumpon District.² This

¹ Pummelo (*citrus maxima*) is a citrus fruit, colored pale green to yellow when ripe and native to Southeast Asia.

² In modern-day Thailand, five administrative levels have been in place, ranging from the Ministry of Interior in Bangkok down to province (*changwat*) to district (*amphoe*) to subdistrict (*tambon*) and to village (*muu*). By tradition, the Ministry of Interior exercised centralization by taking provincial and district offices as the field agency to oversee the entire national territory. Meanwhile, of the five administrative units, subdistrict alone did not retain substantial administrative functions despite the existence of such nominal apparatuses as 'Subdistrict Councils' (Akagi 1999). Since early 1996 when legislation laid down that each of the nation's 7,000 Subdistrict Councils be replaced by 'Subdistrict Administrative Organizations' (SAOs, *ongkan borihan suan tambon* or OBT), administrative and fiscal power has been devolved from the Ministry of Interior to the locally elected representatives at the subdistrict level. This democratic decentralization has allowed SAOs legal status to execute

transition represented a development from a foreign NGO-supported small organic vegetable operation to a major subdistrict industrial enterprise of organic fruit production and processing under the SAO, and the eventual collapse of the programs. The industrial enterprise was partly a product of the rural industrialization campaign called the “One Tambon One Product” (OTOP) that has been promoted nationwide in Thailand since the former Prime Minister Thaksin Shinawatra took office in 2001.³

The case of the NGO-led organic vegetable project was researched in October-November 1998, when the author was not fluent in Thai. In interviewing local farmers, translators from Khon Kaen University in Khon Kaen Province, Northeast Thailand, assisted with preliminary research and structured interviews. The development of the organic fruit-processing program under Wangthong SAO was observed in periodic one-week visits in 2003, when the author gained the command of Thai. During a visit in June 2007, the implementation of the program from 2004 and its eventual cancellation in 2005 was scrutinized by interviewing key informants who had previously been involved in the planning and enforcement of the program.

4.4 Findings

4.4.1 The Case of MOAC: Sustainable Agriculture under Good

Agricultural Practices

development projects at their disposal without lobbying to the district office for either grants or approval (Arghiros 2002).

³ Thaksin designed this rural industrialization scheme during 2001-2006 by drawing inspirations from the successful *One Village One Product* program in Oita prefecture, Japan. This program aimed to foster local entrepreneurship within village communities so as to come up with the best quality local product in the subdistrict to be branded for marketing promotion at the local, national, and international levels. After the military junta overthrew Thaksin’s Thai Rak Thai administration in September 2005, OTOP was once revoked but then revived with minor changes in the name of *Local and Community Products*.

In Thai history, the Ministry of Agriculture was established in 1910 during the reign of King Rama V. It was renamed as the Ministry of Agriculture and Cooperative (MAOC) in 1962 by absorbing four departments following the dissolution of the Ministry of National Development (MOAC 2008).⁴¹ Since that time, MOAC has led agricultural modernization in Thailand in conjunction with other relevant ministries, with many of its governance efforts directed to promotion of the Green Revolution. DOAE, created under MOAC with assistance by the World Bank, played a direct role for disseminating green revolution innovations, including new high-yielding varieties, pesticides, chemical fertilizers, and associated labor-saving machineries, in every subdistrict through the staff stationed in the district center.

As elsewhere, these goods and extension services have provided economic incentives for farmers to increase crop yields and incomes. Indeed, by drawing rural surplus labor and resources, they contributed significantly to Thailand's initial capital accumulation for rapid national industrialization. Yet, except for Central Thailand, where rice yields have risen considerably with developed irrigation systems, the widespread adoption of Green Revolution technologies has resulted in stagnating market prices and yields throughout most areas of the country (Pasuk and Baker 1995), persisting poverty of small-scale farmers in many rain-fed areas (Apichai 1997), recurrent pest resistance and resurgence to pests (Sathorn 2000), health hazards related to farmers' inefficient use of pesticides (Nipon, Ruhs, and Sumana 1998), among others. Furthermore, a rapid expansion of export cash crop cultivation in the uplands of the North and Northeast, promoted by MOAC during the 1970, with crops such as maize, cassava, kenaf, and cotton, resulted in rapid deforestation and massive displacement of the

⁴ These four departments include the Department of Cooperatives Promotion, the Department of Cooperative Auditing, the Department of Irrigation, and the Land Development Department (MOAC 2008).

poor from the paddy tracts as dependent labor on agribusinesses with no secure titles to land (Pasuk and Baker 1995).

Aware of the problems that have accrued in rural Thailand from agricultural modernization, the government assigned MOAC to implement a new, epoch-making agricultural development program related to sustainable agriculture. The national GAP program established in 2003 has its own quality management system developed by modifying the concepts of international standards such as Hazardous Analysis and Critical Control Point (HACCP) and the International Organization for Standardization (ISO) method (Surmsuk 2007). The guiding objectives of this food safety program are to maintain consumer confidence, ensure safety for growers, and minimize adverse impact on the environment through public support of good agricultural practices. Among these objectives, the primary goal as stated by the government has been to ensure consumer confidence in food safety in the increasingly interdependent global agro-food context. Like other emerging GAP standards in ASEAN (the Association of South-East Asian Nations) countries, however, it places significant weight on assisting the access of small-scale farmers to mainstream markets, whether domestic or foreign, through good agricultural practices. This is clearly different from the case of private GAP standards that give a financial edge to resourceful large-scale producers over the entry of resource-poor smallholders to those markets (Graffham and KacGregor 2007; Graffham, Karehu, and MacGregor 2007).

The structure of governance this ongoing program is based on is thus 'markets,' for which technology transfer, audit, and certification for food safety and sustainable agricultural production comprise the key incentive measures. Under this program, DOA acts as a certification body, and the National Bureau of Agricultural Commodity and Food Standards

serves as an accreditation body for providing Q certification (Q is the acronym for ‘quality’) (Surmsuk 2007) for 29 crops.⁵

At the operational level of policy implementation, the Q-system is administered through providing the following assistance by the government. Officers from a district DOAE office provide technical assistance for farmers to optimize the use of agrochemicals. Such assistance involves technology transfer of integrated pest management (IPM), integrated crop management (ICM), various types of organic compost, among others, along with offering training seminars about the concept of GAP. Such assistance provides technical basis for interested farmers to apply for certifying their farm in terms of a selected crop in question.

As for certification, official GAP inspectors from the provincial office of DOA administer recertification every two years. At times of inspection, professional DOA inspectors visit the fields with a number of trained volunteers, observe the farm conditions, and interview farmers. They use a prescribed checklist on eight production aspects: water systems, farm conditions, agrochemical use, product storage and shipping, record keeping, product safety, farm management, and harvest and post-harvest practices. In the version used at the time of the research, the checklist covered, regardless of crop types, 84 total control points, with 51 percent of compliance required for certification. The inspectors also take samples of the live growing crops and the soils from visited farms, and ship them to the regional DOA office for laboratory inquiries into pesticide residue conditions. In addition, farms are scrutinized regarding whether only legally licensed pesticides have been used. To obtain

⁵ Out of the 29 crops, the main export crops include longan, durian, mangosteen, mango, asparagus, okra, baby corn, pummelo, lychee, tamarind, ginger, and chili. The other targets are rice, pineapple, young coconut, longkong, rambutan, coffee, peanut, soybean, orange, cabbage groups, beans, chili groups, melon groups, herbs, sweet corn, onion and banana. Major importing destinations include EU, China, Hong Kong, Singapore, Japan, USA, and Malaysia (Bureau of Agriculture and Fisheries Product Standards 2007).

certification (or to be recertified), applicant farmers are required to undergo this inspection process at least three times throughout a year, without advance notification of the inspection date and time. All audit and certification services are provided for farmers for free, a departure from the case of private GAP programs in which the required audit and certification fees can often exceed farmers' solvency (Graffham and KacGregor 2007; Graffham, Karehu, and MacGregor 2007).

At the organizational level, extension officers from DOAE are responsible for issues such as grouping farmers for certification and related advisory services. To be Q-GAP certified, farmers who are considered smallholders (those with a target crop's land scale not exceeding about twelve acres) are obliged to be a member of some type of a farmer group related to the promotion of the crop. Such a rule obviously makes technical assistance more effective and efficient from the administrative point of view. There are cases of communities, nonetheless, where the number of existing groups is inadequate or where no group exists for a certain crop variety that people wish to certify. For these cases, extension officers open up public seminars through which they promote the creation of 'farmer field schools' (FFS) under a target crop. Such a grouping typically consists of twenty members, and a FFS becomes a legally valid organizational basis for interested farmers to receive assistance for required GAP practices and certification. In addition to collectively receiving training services from officers, FFS members are expected to undergo mutual learning in a field school setting in order to improve their on-farm application of GAP principles. Furthermore, DOAE and DOA cooperatively hold training seminars for farmer group (or FFS group) leaders in a provincial capital before they train group members in communities about the concepts and practices of good agricultural practices.

At the process level, officers from a regional DOA office play important roles for monitoring the changing situation regarding Q-GAP policy implementation. In the case of Chaiyaphum Province, officials from the regional DOA office in Khon Kaen Province periodically visit several selected sites of every province in the northeastern region through the guidance of local DOAE officers. Based on the information gained through these visits, they are able to advise the central DOA office in Bangkok on national-level policy processes. Through these multi-layered efforts, between 2003 and 2007, a total of 224,334 farmer households have been Q-GAP certified for crop nationwide (Personal communication with DOA in August 2008).

4.4.2 The Case of BAAC: Promotion of Organic Agricultural Practices under Farmers' Debt Repayment Suspension Program

Since November 1966 when the Bank of Agriculture and Agricultural Cooperative (BAAC) was established under the Ministry of Finance, it has become the major formal credit institution for agriculturalists in Thailand. In 1987, small-scale farmers became the first target clients for BAAC loans (Akagi 1996). This expansion absorbed more than 5.1 million households or 91 percent of the small-scale farmer population in Thailand by 2003 (BAAC 2004). The opened access of small-scale farmers to BAAC credits have provided them with the improved working capital for agricultural inputs and machinery, with the interest rates attached to the loans much lower than private creditors and commercial banks.⁶ Nor did they have to

⁶ Usually in Thailand, rural farmers are allowed to borrow agricultural credits in the amount of 10,000-50,000 baht (approximately US \$300-1,500) from BAAC a year, depending on their investment capacity and needs. At present, there are five stages of annual interest rates: 7.5%, 8.25%, 9.0%, 9.75%, and 10.5%, each given a rated credit status of AAA+, AAA, AA, A, and B. Beginning farmers will start with the B status for the annual interest

mortgage their property to secure their loans, as other villagers could support them or by members of a farmers group they were encouraged to create (Seri and Hewison 1990).

Despite these publicly financed incentives, the BAAC credits became a new source of rural problems. The following features of goods (credits), services (loaning), associated rules, and actors involved drove the problems. First, the received credits were often tied to the purchase of expensive modern agricultural technologies, such as hybrid seeds, synthetic pesticides, chemical fertilizers, irrigation systems, and tractors, thereby leading to various social, economic, and environmental costs described in the previous section. Second, the loaning rules concerning the due repayment at harvest forced all indebted farmers to sell their crops in chorus, thereby resulting in a sharp fall in the market price. Third, small-scale farmers, the vast majority of poor population in Thailand, often found themselves unable to repay BAAC in due time, as rising living costs for modern consumption goods and children's education eroded the financial basis of household. In extreme cases, defaulters were advised by BAAC officers to borrow money from private creditors with the monthly interest rates of as high as 10%, thus forcing them into a total bankruptcy.

As debt problems became noticeably serious, the government decided to assign BAAC to operate the 'Farmer Debt Suspension and Debt Burden Reduction Program' for the three year period between April 2001 and March 2004. This program was part of the broader government agenda of alleviating poverty by enabling small-scale farmers to recover from debt and rehabilitating their occupations in order to improve their income and quality of life.

rate of 10.5%, and as they repay the loans without default, their status will rise one by one every year up to the status of AAA+ in four years. If client farmers cannot repay them for a year in case of any unavoidable conditionality such as natural disaster, they will start with the B status again. On the other hand, unless such conditionality accredited, farmers are imposed the interest rate of 13.5% in the following year. If they continue not to repay, 3% interest rate is to be added to the cumulated rate. Under such circumstances, they will not be allowed to borrow any further credits, and will eventually be deprived of the BAAC credit membership.

The Thai King's 'Philosophy of Sufficiency Economy' has also been upheld as the most general principle in every realm of BAAC policy implementation, with self-reliance in production and self-restraint in consumption regarded as steering virtues for farmer clients.⁷

Along with these guiding principles, BAAC had a more implicit operational goal of generating a full payback of defaulted loans from their clients through debt moratorium. To be eligible to join the program, applicant farmers were required to be the clients of BAAC or the members of the Agricultural Cooperative who have borrowed directly from the Bank or the credit guarantors or heirs of the client prior to April 1, 2001. Moreover, they must be the defaulters who owed to BAAC no more than 100,000 Baht before April 1, 2001 due to an inescapable cause and in good faith, except where they had been sued as debtors by BAAC (BAAC 2004).

The overall governance structure of this policy was based on 'command-and-control' approaches where the government exercised authority and direction over the financial decisions and arrangements of farmer defaulters by taking such incentive measures as moratoria and interests reduction under the following conditions: suspension of debt repayment and waiver of payment for interest that had accrued between April 1, 2001 and March 31, 2004 were authorized for those who swore to repay loan principal and interest after that period in line with the original conditions specified prior to joining the program (BAAC 2004).⁸

⁷ This Philosophy was bestowed by the King Bhumibol Adulyadej after the economic crisis hit Thailand in 1997. It was then used as an overarching guideline in formulating the 9th and 10th Development Plans. The Philosophy stresses discursively the importance to take a 'middle path' for all the societal levels of the nation in pursuing a balanced economic development by modernizing the nation in line with the forces of globalization while safeguarding it from the shocks and excesses that arise. To achieve this goal, a balanced application of Buddhist spiritual virtues such as honesty, forbearance, diligence, self-awareness, intelligence, attentiveness, among others, is necessitated.

⁸ During the debt suspension period, they were prohibited from borrowing further credits but were guaranteed 1 percent increase in annual interests for their deposits not exceeding 50,000 Baht for the three year period. Those farmers who could clear their defaults in full prior to the end of the program were promoted to a higher client class

In addition, the Debt Suspension Program involved organizational incentives of information provision and price control through advisory and marketing incentives for eligible farmers. The advisory services were related to the career development support administered through the career rehabilitation program of MOAC. Activities under the program included technical training for career development and technology transfer through seminars and advisory support by technicians. Defaulter farmers joining the Debt Suspension Program were not obliged to participate in these seminars, though strongly recommended by BAAC for meeting both sides' ends.

It was the seminar series called the 'True Life Curriculum' (*laksu sattchatham chiwit*) that suggested BAAC's institutional relevance to sustainable agriculture. In cooperation with the National Network for Elimination of Agrochemicals, a voluntary civil society association in Thailand, BAAC incorporated into this curriculum three working concepts: First, 'mentality' (*jittphap*) referred to the goal of spiritual and livelihood empowerment by following key norms of self-reliant livelihoods, such as abstaining from smoking, alcoholism, buying lottery, or gambling, while keeping regular habits of household accounting.⁹ Second, 'physicality' (*kaiphap*) referred to the technical adoption and mastery of various organic production methods such as organic compost, IPM, and integrated production. When the seminars were held, participant farmers were provided free pamphlets about the details of these organic production methods. Whenever seminar participants have queries or concerns about the production methods after each seminar, they were encouraged to contact BAAC or MOAC

(BAAC 2004).

⁹ Such a combination of controlling 'bad habits' and building self-awareness about household finance was relevant to not only improving their work ethics but changing their whole attitudes of life, thus making BAAC officials' persuasion of cost-benefit valuation relatively meaningless. Therefore, on occasions Buddhist monks were invited at the seminars to preach the Buddhist virtues of 'true life.'

for further technical advices for free. Third, ‘potentiality’ (*sakkayaphap*) referred to the formation and development of producers’ groups of organic farming. BAAC officials believed that organic production methods are available for solving rural indebtedness in three terms: First, they reduce production expenses through reduction or elimination of agrochemicals. Second, they improve production levels through improving the degraded soils. Finally, reduced production expenses and increased incomes from improved production result in increased savings. They considered creation and development of organic producer groups as a critical channel for indebted farmers to empower their production and marketing initiatives and minimize indebtedness.

In addition to seminar dissemination of organic production methods, BAAC also undertook several marketing initiatives for defaulter farmers. In a joint venture with local agricultural cooperatives, BAAC established daily markets for organic and pesticide-free produce in all provincial capitals in Thailand. Farmers who continued to utilize the credit services without defaults with BAAC were allowed access to such marketing opportunities, whereas those without a credit membership were not. In addition to direct sales, the market accepted orders from distant locations where customers have difficulty in accessing certain kinds of crops, such as rice in upland areas. On the other hand, BAAC helped to establish and coordinate community markets for organic and pesticide-free produce. In Chaiyaphum City, this type of community market was held once in every month.¹⁰ Any producers, including those without a BAAC membership and those from nearby school gardens, are allowed to sell their produce at that market through the market prices coordinated by the BAAC. At the

¹⁰ When the author visited the city in 2004, the market was held in the BAAC office site on the tenth of every month, while at the time of his visit in 2007, it was held in the local market sites on the first Wednesday of every month.

process level, provincial BAAC branches regularly reported the outcomes from the implementation of these policies to the BAAC headquarter in Bangkok with advisory notions on the policy process. In the three years between April 2001 and March 2004, a total of more than 2.3 million small-scale farmer households, with a combined debt of 94 billion Baht, joined the Debt Suspension Program. This meant that 89% of participant defaulters became capable of repaying debts. Among the total of more than 1.9 million farm families who received some form of assistance in career rehabilitation, 271,207 people joined the True Life Curriculum that BAAC was operating (The BAAC, 2004). Consequently, policy makers of the central government, including the then Prime Minister Thaksin Sinawatra, recognized that the Debt Suspension Program ended as a definitive success, and determined that sustainable agricultural education and training for small-scale farmers, such as those offered in the True Life Curriculum, along with related marketing initiatives, should continue as part of the ongoing career rehabilitation program even after the completion of the Debt Suspension Program.

4.4.3 The Case of SAO: Industrial Organic Agriculture as Part of Democratic Local Governance

Social movement components of sustainable agriculture in Thailand have been increasingly subsumed within the realm of technocratic officialdom through decentralization of local development agencies. Wangthong SAO in Phakdi Chumpon District offers a salient case study of such a transformation. The early situation went as follows. In 1992, leading local villagers in Wangthong subdistrict (in which there are thirteen villages) initiated a small

organic vegetable operation through collaborative efforts by a Japanese NGO. The organic vegetables produced included 23 varieties, such as green cabbage, kidney bean, rape blossoms, radish, in addition to a number of native crops in Thailand plus organically produced eggs. They were grown on local farmers' small gardens (which typically do not exceed two acres) using the techniques of crop rotation, animal manure, and botanical pest management practices using local herbs. The rules of the operation were related to the business model of community-supported agriculture (CSA) imported from Japan, whereby producers grew and directly marketed the produce to consumers. The products were given year-round fixed prices with premiums to minimize growers' financial burdens for reduced production, with the average prices of the vegetables found about 2.5 times those sold in the local district market of Phak Di Chumpon District. Unlike the common practices of CSA in the West and Japan, however, most customers under subscription contract were not local residents but a group of Japanese housewives living in Bangkok with a road distance of approximately 300 kilometers from Wangthong Subdistrict.

This operation paved a steady growth until early 1996, when there were around 50 producer households under direct sale contract for more than a hundred Japanese customer households. At this peak period, the project went into a sudden collapse. Without established regulative mechanisms to control the supply and demand, the oversupply due to the ever increasingly opportunistic entry of producers eventually resulted in a marginalization of sales and income for participant producers, leading to a provisional business breakdown followed by a revocation of on-site assistance by the Japanese NGO. Then, the local farmers and their representatives turned to rely on the Thai government to provide financial support for renewing the project. In April 1996, the producer organization was reestablished as an official

agricultural cooperative with regulatory mechanisms to control membership and production.¹¹

With cumulative experiences from managing the small organic vegetable CSA operation, the former chairman of the CSA project was elected as the head of Wangthong SAO in 1999. Originally a small-scale organic farmer, the SAO head designed and implemented a new project of industrial processing of organically produced fruits into sweet chips under the OTOP program. A guiding principle of this project, which was in line with the national-level agenda of rural industrialization, was to spur local economic growth through industrialization of organic agriculture to establish a more self-sufficient local revenue and tax base. In addition, the project had the more specific operational goal of promoting organic agriculture in the subdistrict to maintain resource and environmental-conserving production systems while overcoming the persisting scale constraints inherent in the CSA operation.

Reflecting the democratic decentralization of local governance in Thailand, the general governance mode in which SAO operates is ‘collective decision-making.’ Two representatives from each village within a subdistrict, elected by villagers every four years, make up the SAO council. They are supposed to engage in cooperative incentives of norm-building, i.e., establishing operational rules, rules on decision-making, and enforcement mechanisms over the allocation of limited local resources. As it relates to the industrial agriculture project of Wangthong SAO, information on cost-benefit analysis of inter-village allocation of resources, externalities related to the prior use of agrochemicals, and types and processes of technology

¹¹ This organic vegetable farming project ended in 2004, and the cooperative business shifted to organic banana production and marketing at the farmers’ market in Chaiyaphum City. The reasons for the Cooperative’s retreat from the vegetable CSA operation included: (1) consumers in Bangkok became unsatisfied with the amount of vegetables supplied, especially in the driest season (March-April) when the productivity is low, (2) they found it difficult to seek new customers due to the increased substitutability of organic products sold in large supermarkets in Bangkok, (3) organic bananas were considered much easier to produce and gain profits through selling to nearer markets than were the case of organic vegetables.

transfer were key substantive incentives for their collective decision-making.

The operational progression of the industrial organic agriculture program went as follows. In response to the SAO head's proposal, in 2001 the government subsidies of one million Baht (approximately US\$30,000) were granted for building factories for organic fertilizer production and food processing, coupled with supplying various production and processing technologies. Construction of factories was completed by 2003, and the project implementation began in early 2004. Two important technological equipments employed for organic production were botanical insecticide sprinklers filled with herbal liquid and special organic compost called 'Bokashi,' originating from Japan and made up of various types of animal manure, rice, wheat husks, EM (Effective Microorganisms), liquidized sugarcane, and water.¹² With these technologies, eight fruit crop varieties were grown by sixty-nine farmers participating as employed labor, including longan, pummelo, sweet tamarind and two other native Thai fruits, on a total public land of about 160 hectares scattered over the subdistrict.

To enforce these operational assets at the organizational level, multi-tiered divisions of labor and decision-making were employed. Each village in the subdistrict specialized in specific crop varieties for production and processing, while selling the chip products at local retail stores within the subdistrict, as well as other markets within the province through middlemen brokerage. The SAO council formally discussed emerging issues and problems about the project management regularly twice a month.¹³ As the board of the project, this council determined the basic guidelines and rules for production, processing, and marketing of organic fruit products. They were also responsible for inspecting whether participating

¹² EM is made up of fruit, vegetables and/or food residues fermented with water, alcohol, sugar, and possibly something else, to produce enzymes by the working of microorganisms.

¹³ There was a significant gender bias in the council membership, with all the twenty-six village representatives comprised of men.

producers deliberately avoided the use of synthetic pesticides, chemical fertilizers, or other kinds of prohibited substance onto the fields in accordance with the official criteria.¹⁴ In addition, each village had a committee of five to seven participant grower members involved in the project, including a leader and two growers responsible for marketing. While they were supposed to strictly follow the decisions made and rules set by the SAO council on fruit production, they were given self-discretion over the marketing management in their village.

Despite all the dedicated efforts to operate the entrepreneurial project, it did not last even until the head of the SAO was compelled to retire in July 2005 due to a defeat in the SAO head election.¹⁵ The project came to a halt for a critical management problem: the machines the SAO had purchased for fruit processing turned out not to have sufficient efficiency to turn the project's balance from deficit to surplus. Worse, before the funds to replace them with new machinery would be budgeted from the central government to improve processing efficiency, the SAO head and most of his staff who were leading the program were all removed from the SAO office after the election. Instead, the new SAO head, winning in the SAO election in mid-2005, was an affluent oil business trader whose main policy interests lay in promoting construction projects within the subdistrict rather than agricultural development. Consequently, the industrial organic agriculture project was terminated as a failure.

4.5 Discussion and Conclusions

The concept of sustainable agriculture has evolved since the early 1980s in response to a host of ecological and equity problems posed by the adoption of modern industrial agriculture.

¹⁴ In case a grower was found to use agrochemicals twice albeit the warning of the first time, the council could deprive his/her rights to join the program.

¹⁵ He lost the election with the vote count of 1,874 against 2,002.

By employing the systems approach, it aims to minimize an array of drawbacks and externalities associated with the practices of conventional agriculture (Ikerd 1992). In the developing world since the introduction of Structural Adjustment Programs (SAPs), sustainable agricultural practices have been increasingly adopted and disseminated by local NGOs to empower small-scale farmers based on application of agroecological principles and on bottom-up, participatory approaches (Altieri 2002). In Thailand, sustainable agriculture has drawn both popular and official attention well before the economic crisis occurred in 1997. However, the full-brown official implementation of sustainable agriculture in Thailand began only after Buch-Hansen undertook the first comprehensive feasibility analysis nearly a decade ago. No serious feasibility study has been produced since then that examines the political and institutional development up to the present.

This study has attempted to examine the development of the past decade by looking at the cases of three institutions, namely MOAC, BAAC, and SAO, from sustainable governance perspectives. In the following, analytical discussion of the research findings and conclusions are presented.

First, the incentive structure of sustainable agriculture in Thailand is summed up from a broad governance perspective. As shown, Thailand's 8th Development Plan defined sustainable agriculture as encompassing four alternative production methods: natural farming, organic farming, integrated farming, and agroforestry. From the 9th Plan, the official technical emphasis on sustainable agriculture appears to have changed to one that makes the dichotomy between conventional and alternative agriculture ever more blurred. The official adoption of Q-GAP at the national level is consistent with this interpretation; reduction and control rather than elimination of the use of agrochemicals, and combination or complementation of rather

than replacement by alternative production methods, are underscored therein.

A backdrop for this shift may be the official realization that enforcing farmers' conversion to the above four production methods is a very difficult and costly process. Perhaps more important is the recognized ease and returns in connecting the official aspirations for making Thai agriculture more globally competitive with the persisting sustainability concerns in the small farm sector. The broader technical conception of sustainable agriculture does not contradict the promotion of Thai agriculture through mainstream markets nor exclude the more distinctly alternative forms of agriculture that could better respond to resource-poor farmers' needs.

It is also important to look at the incentive structure that has been driving Thai farmers to adopt sustainable agriculture. It is true that the majority of small-scale farmers in Thailand have been increasingly conscious of the potential benefits from sustainable agricultural practices through both government campaigns and their own problematic experiences in conventional farming. Currently, however, the main incentive for them is related not so much to environmental or social as to economic criteria with regard to minimizing the production costs that have skyrocketed in recent years via the influence of rising world oil prices. Ten years ago, for instance, prices of chemical fertilizers used to be about 200-300 Baht (about US\$6-9) per sack (50 kg). The rapid price increase in the past three years has reached the current prices in the range of 700-1,000 Baht (US\$21-30). A similar trend, though less dramatic, applies to pesticides and gasoline. Such price increases have become significant financial burdens for many farmers, let alone resource-poor farmers. Hence, the official appeal to reduce farmers' own financial burdens through sustainable agricultural practices is no longer vacuous rhetoric appropriated by BAAC but has become serious persuasion by all the relevant

official institutions, including MOAC and SAO. In this sense, the overriding incentive structure of sustainable agriculture has become ingrained in global forces on both the government and farmers' sides.

Second, operational feasibility of sustainable agriculture is assessed as follows. The major operational strength of the official programs discussed above is related to the publicity in the sense that goods and services related to extension, audit, certification, and career rehabilitation are provided by the government for free. Farmers in Thailand have not received agricultural subsidies such as those in the industrialized nations have. However, they are still situated in a more privileged position than are the mass of those living in other parts of the developing world where government extension has been completely dismantled through the introduction of SAPs, as well as where access to GAP certification or other similar opportunities is confined to resourceful farmers. Meanwhile, the operational limitation mirrors the very strength in that the accessibility which resource-poor farmers have to those public goods and services is compromised by their lower quality. By way of illustration, the level of required compliance in Q-GAP is much lower than that in GLOBALGAP – the most prestigious GAP standard established by a consortium of major retailers in Europe in the late 1990s. For farmers to get certified, whilst Q-GAP requires 51 percent of compliance for 84 total control points, GLOBALGAP requires 100 percent of compliance for 74 points and 90 percent for 125 points, with the total required control points of 236 (GLOBALGAP 2009). Such a conspicuous divergence between Q-GAP and GLOBALGAP necessarily leads to unequal credibility and treatment of certified products in import markets and by sensitive consumers.

Third, the organizational dimension is illuminated as follows. Unlike the agrarian

orthodoxy to claim sustainable agriculture as grounded in participatory approaches (Bruges and Smith 2008; Matterson 1996), extension and organizing approaches of these institutions basically remain within the conventional confines of the transfer of technology (TOT) paradigm. Official promotion of GAP through DOAE's organizing of FFS groups may sound appealing from the standpoint of civic sector engagement in sustainable agriculture in the guise of farmer-to-farmer extension. Whatever official rhetoric of farmer participation exists, however, a massive creation of FFS groups on the national scale is literally a top-down process. Field observations suggest that even an existing farmer group might be encouraged to form FFS groups in itself, in spite of the reality that such internal capsulation accrues only administrative significance. It is uncertain to what degree members of an officially established FFS group could set out their own agenda and advance it on the self-reliant and self-referential basis – the true sense of participation. The similar cautions may hold with organizing approaches by SAO because the leadership, whatever their rhetoric of local participation and empowerment, is taken by the officially elected figures rather than farmers themselves.

Finally, process-level and society-wide dimensions of governance draw the following conclusions. Sustainable agriculture in Thailand, such as that currently conceptualized in the Thai version of good agricultural practices, is indeed a critical way to assist small-scale farmers to approach privileged markets through official certification and extended channels in marketing. This suggests a significant departure from the case of private GAP standards that cater to the economic capacity and scope of larger, more resourceful farmers. Yet, where there are winners, there are often losers. For many crops in Thailand, especially fresh fruits and vegetables, the overall pie is limited with saturated domestic markets, coupled with competitive situations of oversea markets. A public GAP standard such as Q-GAP can serve

the needs of small-scale farmers, but this may be more in the sense of bolstering the *status qua* of a more competitive cohort of small-scale farmers to remain in the mainstream markets rather than empowering the non-competitive groups to newly enter them.

The society-wide policy impact also needs to be assessed from the perspective of scale. In MOAC's Q-GAP program, during the five years since the Q-GAP program was initiated in 2003, only around 4 percent of the estimated 5.6 million small-scale farmer households in Thailand have been certified. A similar percentage of the estimated population has joined the BAAC's career rehabilitation program related to dissemination of organic farming practices. Given that not all participants' agricultural practices were affected by joining these programs, the society-wide impact of these dissemination efforts still remains modest at best. In addition, there is no internal process-level follow-up mechanism in BAAC to evaluate the real impact of sustainable agriculture extension through career rehabilitation program on farmers' adoption. The scale impact of SAOs may be even more limited, concerning the lack of centralization effects to diffuse sustainable agriculture and of the process-level impact on the higher administrative levels. Further, as illustrated by the case study, institutional sustainability of SAOs remains fragile due to the very process of democratic decentralization that has given local people devolved power and capability. Periodical elections could result in a rapid abandonment of a development approach that has been adhered by a former SAO council team.

These conclusions, which are seemingly supportive of Buch-Hansen's wary view of the feasibility of sustainable agriculture in Thailand, remain yet tentative, since they are derived from the outcomes of the last decade or even shorter, whilst the process is still ongoing.

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**CHAPTER 5. Q-GAP: EXPLORING THE SOCIOLOGICAL
IMPLICATIONS OF THE PUBLIC APPROACH TO GOOD
AGRICULTURAL
PRACTICES IN THAILAND**

A manuscript to be submitted to the *Journal of Peasant Studies*

Abstract

Since the early 2000s, the governments in ASEAN (the Association of South-East Asian Nations) countries have developed ‘good agricultural practices’ (GAP) as public approaches to field-level quality assurance. Besides the primary goals of consumer food safety and quality assurance, these public GAP programs aim to support small-scale farmer inclusion in mainstream markets. This goal represents the antithesis of the prevailed trend that private GAP approaches have tightened integration with resourceful, large-scale producers in global value chains. Using Michael Brawoy’s extended case method, this paper examines the basic characteristics of a public GAP approach from a sociological perspective. This is accomplished through comparative policy analysis of Thailand’s Q-system in two local contexts of fruit production and marketing. Field research was conducted in two pummelo production areas of Chaiyaphum province – the highland-based, domestic sale-focused area in Kaset Sombun District, and the lowland-based, export-oriented area in Ban Thaen District. The research findings suggested that while the

public GAP scheme could draw the participation of a broad cohort of local small-scale producers and serve to certify their production, its impact on catalyzing their access to the global market is limited. The binding factors are the lack of internal mechanisms to do so and the influence of extra-local market forces that stress economies of size and food quality rather than food safety.

Key Words:

Food safety and quality assurance, public GAP, global value chains, Q-system, small-scale producers, sustainable agriculture, extended case method, Thailand

5.1 Introduction

In the last decade, private agri-food standards have emerged as a major driving force in the global value chain (GVC). Private retailers have developed a plethora of food safety and quality standards in response to regulatory developments, consumer concerns about food safety, and increasingly competitive business environment for high-value agricultural and food products (Farina and Reardon 2000; Henson, Masakure, and Boselie 2005; Henson and Reardon 2005). ‘Good agricultural practices’ (GAP) is one such food safety and quality standard growing in influence across the globe. It has evolved as the most popular international food quality assurance system at the field level. With emphasis on critical control points developed via Hazardous Analysis and Critical Control Points (HACCP) systems to ensure food safety for consumers, most existing GAP standards cover codes of conduct that address issues of traceability, producers’ working conditions, and environmental management at the farm level (OECD 2006).

GAP principles in food production incorporate sustainability criteria that encourage proper and reduced use of pesticides and overall environmental protection. Application of alternative agricultural methods such as integrated pest management (IPM), integrated nutrient management, and conservation agriculture is encouraged to meet these goals (FAO 2003).

The body of literature on GAP has focused attention on GLOBALGAP (formerly called “EurepGAP”). This is a private GAP standard developed from the late 1990s by a consortium of leading European retailers called the Euro-Retailers Produce Working Group (Eurep) (Campbell 2005; Konefal, Mascarenhas, and Hatanaka 2005). GLOBALGAP encourages participant producers to apply alternative production practices. The technical emphasis is placed on integrated crop management (ICM) methods aimed at controlling pest problems using resistant varieties and various integrated pest management (IPM) practices (Levidow and Bijman 2002). The pioneering nature and the proven level of stringency in compliance have made the agri-food standard evolve as the most prestigious GAP standard with which others aspire to become harmonized (EurepGAP 2007).¹

GLOBALGAP has drawn a growing array of studies about the impact on supply chain stakeholders, most notably on-field producers (Graffham, Harehu, and MacGregor 2007; Graffham and MacGregor 2007; Kleih et al. 2007; Mausch et al. 2006; O’Brien and Rodríguez 2004; Nadvi 2004). The adopted analytic approach is typically that of the global value chain (GVC), elucidating negative

¹ The standard’s minimal acceptable requirements are relatively stringent, requiring 100 percent of compliance for 74 control points and 95 percent of compliance for 125 control points, out of the total of 236 points in the integrated farm assurance (IFA) version. The coverage is relatively comprehensive, including issues of traceability, record keeping, soil and water management, pesticide storage and application, hygiene practices, and post-harvest treatments (EurepGAP 2007).

connotations of the GAP schemes for issues related to sustainability and equity for small-scale producers. While the GLOBALGAP standard contributes to improving worker safety, pesticide use, and environmental protection, it tends to cater to the interests of well resourced large-scale producers without addressing the incumbent needs of small- and medium-scale producers. The highly capital intensive institutional arrangements of GLOBALGAP programs result in problems of inequality and social exclusion in the production process by compelling the financially deficient latter groups of producers to be removed or excluded from the export sector. By way of illustration, in a study conducted in Kenya, Graffham et al. (2007) found that from September 2003 (when the EurepGAP 2.1 was introduced in Kenya) to mid-2006, 60 percent of the surveyed 9,342 small-scale producers who had participated in the EurepGAP operations were removed by their export company or had withdrawn from compliance schemes.

The rise of public GAP standards since the early 2000s comprises the counterforce. These standards have been established and promoted by some governments in the Global South, notably in some ASEAN countries endorsing a host of GAP standards including Indon-GAP, Singapore GAP-VF, Malaysian SALM, Thai Q-GAP, and Philippine-GAP (Asia Pacific Economic Cooperation 2006). These governments provide small-scale producers with free public extension and inspection services for GAP certification through collaboration with private and civic institutions, thereby promoting participation of a large number of smallholders in mainstream markets. Such public support aims to help these producers to achieve an array of improved sustainability conditions, including safer production practices, improved

production efficiency and environmental protection, poverty reduction, and empowerment of the local social capital base. Since these GAP schemes are applied to not only export markets but also domestic and local markets, they could contribute to food safety for domestic consumers.²

Despite the potential of public GAP standards for improved sustainability and welfare conditions for small-scale producers, studies on this theme are scanty. With this backdrop, this sociological study engages in a comparative analysis of local implementation of Thailand's Q-GAP, with the following three objectives. The first objective is to examine the local processes of agricultural innovations and certifications under a public GAP scheme regarding production, sales, and producers' perceptions of the policy. The second objective is to locate the processes in a relation with external forces, with special reference to the market mechanisms affecting producers' export feasibility. The third objective is to identify the basic characteristics of a public GAP standard through reconstructing some of the existing theoretical perspectives of agri-food standards. Fulfillment of these objectives converges into the goal of identifying the basic characteristics of a public GAP approach in the developing economy context.

This paper proceeds as follows. The next section provides theoretical perspectives relevant to agri-food certification standards. The third section highlights the research contexts. The fourth section discusses the research methods. The fifth section presents research findings and reflections on them. The final section is devoted to conclusions.

² There is also a public GAP scheme called 'integrated fruit production' (PFI) program in Brazil, which exclusively targets domestic markets through significant public subsidies support for small- and medium-scale producers (Hoffman 2007).

5.2 Theoretical Perspectives of Agri-food Standards

In the agri-food literature, political economy and moral economy perspectives may be identified as the two major approaches to agri-food standards. Political economy perspectives focus on the central trend of the enforcement of standards by major global forces to discipline the actors involved in the global supply chain. Moral economy viewpoints highlight the dynamic constellations of quality and ethical values embedded in the alternative commodity circuits around production, certification, and trading.

5.2.1 Political Economy Perspectives

Since the late 1980s, contemporary transformations of agriculture and food systems towards globalization and commoditization have been amply documented in agri-food studies (e.g., Bonnano et al. 1994; Busch and Bain 2004; Cavalcanti 2004; Friedland et al. 1991; Friedland 2004; Friedmann and McMichael 1989; Goodman and Watts 1994; 1997; McMichael 1994; Raynolds et al. 1993). Buttel (2001) identified four major trends of theory and research in agrarian political economy including: (1) world-historical and world-systemic analyses of agri-food regimes, (2) global agri-food commodity chains/systems analysis, (3) agri-food political-sociological regulationist studies, and (4) neo-Latourian actor-network analyses of agri-food systems. Political economy perspectives of agri-food standards are in one way or another related to all these streams; they are especially relevant to the global agri-food

commodity chains/systems analysis and global agri-food regulationism. In many cases, the analyses incorporate a combination of these two perspectives into the single framework of ‘global value chain’ (GVC) analysis.

GVC analysis is a prominent variant of global agri-food commodity chains/systems analysis that is critically relevant to the political economy perspectives of agri-food standards. The basic notion of a value-added chain, as originally defined in the field of international business, is “the process by which technology is combined with material and labor inputs, and then processed inputs are assembled, marketed, and distributed” (Kogut 1985: 15). As the ‘integration of trade’ is promoting ‘disintegration of production’ in the global economy, firms fragmented across boundaries are faced with the need to form some kind of coordination in arm’s length relationships.

GVC theory informs that broadly, there are three ideal types of explicit coordination in value chain governance: market-based relationship among firms and vertically integrated firms (hierarchies) constituting the opposite poles of a spectrum, with network relationships comprising an intermediate mode. In general, standard products such as staples in agri-food sector are congenial for arm’s-length market relationships because of the ease of description and evaluation for contracts, management, and asset specificity (Gereffi, Humphrey, and Sturgeon 2005). Nonetheless, vertically integrated firms have proven capable of handling non-standard, perishable products through a tightened integration of ‘coordinated supply chains’ (van der Meer 2006). Coordinated supply chains are “durable arrangements between producers, traders, processors, and buyers about what and how much to produce, time of

delivery, quality and safety conditions, and price” (*ibid.*: 211). Over recent decades, neoliberal policies and globalization fueled the growth of transnational supermarket chains (TSCs) as dominant players in the global agri-food sector (Dolan and Humphrey 2001; Gibbon 2003; Konefal, Mascarenhas, and Hatanaka 2005; Traill 2006). They are equipped with a highly competent supply base to out-source perishable, high-risk commodities such as fresh fruit and vegetables (FFVs) produced in developing countries for export through vertical integration of coordinated supply chains (Dolan and Humphrey 2001; van der Meer 2006). Such a rise of new global buyers signifies a shifting importance from the vertically integrated coordination by the traditionally ‘producer-driven’ firms to that by the ‘buyer-driven’ corporations in the GVC (Gereffi 1994).

In the agri-food GVC analysis, standards are portrayed as TSCs’ critical tool to regulate and control product attributes, production practices, handling requirements, and distribution in the coordinated supply chains (Henson and Reardon 2005; Konefal et al. 2005). Political economy perspectives of agri-food standards are thus primarily concerned with formal standards and conventional agri-food regulationism.³ Beyond the price concern for competition, TSCs are responding everywhere to increasingly diversified consumer concerns by addressing all of the following attributes: “(1) quality (e.g., appearance, cleanliness, taste); (2) safety (e.g., pesticide or artificial hormone residue, microbial presence); (3) ‘authenticity’ (guarantee of geographical origin or use of a traditional process); and (4) the ‘goodness of the production process’ (e.g., with respect to worker health and safety, or to environmental

³ As Konefal et al. (2005) point out, however, TSCs use standards to penetrate into the niche market sector as well.

contamination)” (Reardon and Farina 2002: 414). By standardizing product requirements over suppliers who may cover diffuse geographical areas, they benefit from lowering transaction costs and enhancing efficiency (Henson and Reardon 2005) while engaging in oligopolistic competition over the diversified market demand (Busch and Bain 2004).

A political economy perspective may attend to the distributive effects of agri-food standards on the GVC. Here is the example of GLOBALGAP. Stringent compliance with GLOBALGAP (and other harmonized GAP programs such as ChileGAP and MexicoGAP) demands costly investments for upstream suppliers. These investments relate to technical training for innovative production and hygiene practices, variable inputs such as safer yet more costly pesticides, structures such as grading sheds, charcoal coolers, disposal pits, and pesticide storage units, as well as periodical certification and accreditation (Graffham et al. 2007; Okello and Swinton 2007). As a result, lead buyers in the North rely on economies of scale by sourcing products from larger and more resourceful exporters and producers. By forcing third party certification on upstream suppliers, they are able to minimize transaction costs and financial liability while enhancing credibility of their production practices (Hatanaka et al. 2005). The central ethical concern raised is that this process of consolidation and concentration of large enterprises in GLOBALGAP (and harmonized programs) entails the social cost of marginalizing, removing, or excluding smaller exporters and producers in the Global South, such as Kenya (Asfaw 2007; Graffham 2006; Graffham et al. 2007; Mungai 2004), Costa Rica (Kilian 2005), and Uganda (Kleih et al. 2007). Trends of smallholder exclusion because of other agri-food standards (including the case of public

standards) have been documented in various subsectors and market contexts (Dirven 1999; Dolan and Humphray 2000; Dolan, Humphrey, and Harris-Pascal 1999; Farina and Reardon 2001; Maertens et al. 2007; Martinez and Poole 2004; Gutman 1999; Jank et al. 1999).⁴ There are also reported cases in which many small-scale producers engage in and successfully comply with stringent private SPS measures – i.e., a large exporter outproducer scheme in Zimbabwe (Henson et al. 2005) and in Madagascar (Minton et al. 2007), as well as a number of EurepGAP projects in Zambia relying on massive donor support (Graffham and MacGregor 2007). The point then is whether a broad inclusion of smallholders is possible without extensive private assistance, given that such support is not normally available (Amekawa 2009).

Regime Theory as proposed by van der Ploeng et al. (2004) is valuable to gauge more generic implications of the adverse effects of formal agri-food standards. This theory problematizes the system of disciplining in agriculture whereby, regardless of specific circumstances, regulations are applied for the benefit of a ‘socio-technical regime.’ A socio-technical regime is a collection of institutions and infrastructures interlinked on various levels from the local to the supranational, embracing a coherent complex of rules, practices, and devices related to science, technologies, and human and resource management. Socio-technical regimes in agriculture seek to address the environmental problems they have created through introducing regulations. Implementation of the regulations results in a downgrading of specific growth factors followed by the cost increase and yield reduction, thus requiring financial

⁴ Production requirements are not necessarily the sole determinant of smallholder exclusion; a concomitant set of supply chain logistics requirements pertains to mainstream retailing, such as product quality, consistent volumes, transportation, processing, accounting, and invoicing (Glati et al. 2007; Reardon and Berdegue 2002).

compensation by the socio-technical regimes. In this light, the smallholder exclusion phenomena described above point to the self-serving pattern of disciplining by the hegemonic regimes; many of the externalities created upon the existing regime structure are passed on to more marginal segments of the configuration.

5.2.2 Moral Economy Perspectives

Moral economy perspectives contend that agri-food standards constitute an essential part of agricultural moral economy in the contemporary capitalist societies. Drawing on the covert, regulative, and reciprocal notions of moral economy described by E. P. Thompson (1991) and James Scott (1976), Busch (2000) argues that “grades and standards are ways of defining a moral economy, of defining what (who) is good and what is bad, of disciplining those people and things that do not conform to the accepted definitions of good and bad” (p. 274). By standardizing a cohort of things involved, agri-food standards, he argues, generate conditions that are essential for regulating social and ethical behavior in capitalist markets (*ibid.*: 277-282). Agri-food literature on alternative agricultural trading and labeling movements offers tangible insights into his assertions. These scholarly strands are explicit in addressing the adverse implications of economies based on contemporary neoliberal capitalism for social justice and environmental sustainability. A theoretical backbone in this camp is ‘embeddedness’ theories of economy originating with Karl Polanyi (1957), who argued that the *human* economy and the market have been historically ‘embedded’ in various social relations (rules, norms, and institutions). As

Raynolds (2000) argues, this theoretical position is in stark contrast with the emphasis of neoclassical economics on “impersonal market relations” by abiding the conviction that “. . . while economic products and transactions are socially derived, conventional market rules dis-embed commodities and trade from their true origins” (Raynolds 2000: 299).

Moral economy perspectives take serious account of the problems of sustainability and equity for agri-food standards by rendering the inclusion of noneconomic factors essential for re-embedding global agriculture. Drawing extensively on Polanyi’s concepts of the market as embedding such ethical values as social justice, equality, reciprocity, and ecology, Barham (2002) proposes a moral economy theory of “values-based labeling.” This theory sees labeling groups as “part of a larger effort to create ethically and spatially situated alternative economies” (p. 350) representing counter-movements to the economization of values in global markets. What makes the labels of these groups distinctive from more conventional labels, Braham argues, are ‘process’ and ‘quality.’ In the agri-food context, *process* refers to the practices of production, processing, or transport of specific agricultural products (e.g., conventional or organic methods) or their societal effects (e.g., chemical pollution). Meanwhile, *quality* does not remain in the conventional confine of product quality (taste, nutrition, appearance, safety etc.). In value-based labeling, it extends to the aesthetically reflexive emphasis on “*place* embeddedness” (e.g., “local food”) and on various values that are non-market in nature, such as ecological lifestyle (Murdoch, Marsden, and Banks 2000).

Although the information of process and quality is available on labels of the product, construction of these threads is virtually a social practice that can be actualized only by consumers' meaningful involvements. There is a body of agri-food literature that engages in theorizing the constitutive roles of consumption in alternative agri-food linkages between production and consumption (Bryant and Goodman 2004; Fine 2004; Goodman 2002; Lockie 2002; Lockie and Kitto 2000; Lockie et al. 2002; Marsden 1999; Miele and Pinducciu 2001; Raynolds 2002; Guthman 2002). Guthman (2002) theorizes consumers' role of noneconomic value construction in terms of 'taste' – food eaters' broad representations, cultural, social, ecological, and political. In this semantics of consumption, taste is conceived to have three facets shaping various ramifications with production and exchange – reflexivity that calls for informational choice (e.g., consumer's reading of the label), discernment that highlights class differentiation (e.g., aesthetic choice of eating style by a class), and mediation that resolves antimonies/paradoxes in food consumption (e.g., vegetarianism that dissolve conflicts between vigor and illness). The translation of these tastes in systems of provision entails transmission and exchange of key social values, i.e., knowledge/trust for reflexivity, distinction for discernment, and simplicity for mediation – the process in which economic rents may be generated in the form of a premium as the “gap between use value and symbolic value” (p. 305).

As such, rules and standards in value-based labeling are the product of the entirety of what Barham (2002) calls the “process of normative judgment itself” (p. 356) involving labeling organizations, producers, and consumers. This whole process of collective choices and judgments are

carried out mainly around three types of embeddedness for production of quality and process – fairness, naturalness, and place. As analysts concerned with the ‘quality turn’ in agri-food studies (Murdoch et al., 2000) and in particular standards and labeling suggest (Busch, 2000; Barham, 2002; Raynolds; 2002), conventions theory best informs the differences in these social norms and compares them against dominant modes of justification.

Originally developed by heterodox French institutional economists and later adopted by sociologists and other social scientists concerned with ‘quality turn,’ conventions theory assumes ‘uncertainty’ as a central problem in which actors cannot assign a probability to the consequences of action. This is contrastive with neoclassical economics that assumes rational action as based on calculable decisions over ‘risk;’ these decisions take the form of preference ranking by individuals under the assumption of perfect information. In conventions theory, rational actors are assumed to address uncertainty through collectively defensible courses of action. Therefore, the process of justification or legitimation and consequently the taken-for-granted rules, norms, and conventions are critical (Biggart and Beamish 2003). Thévenot (1998) and Boltanski and Thévenot (1991) outline the following five conventions: 1) *commercial* conventions, based on price, performance outputs, and profitability; 2) *domestic* conventions, based on face-to-face interaction, reciprocity, trust, and attachments to place and tradition; 3) *industrial* conventions, based on efficiency, reliability, organizational capacity, and standardization; 4) *public* conventions, based on opinions, recognition, and reputations pertaining to trademarks, brands, and packaging; 5) *civic* conventions, based on collective principles and common

good. In reference to Latour's (1998) commentary on conventions theory, Murdoch et al. (2000) add *ecological* conventions, based on natural entities and ecological concerns enacted against existing forces of globalization. Commercial and industrial conventions are clearly the modes of coordination that characterize the mainstream economic transactions over quality such as food safety standards enforced by major global retailers. In alternative certification and labeling schemes, these two conventions still more or less permeate, yet the significance of other conventions is more pronounced. This is shown below regarding the three kinds of embeddedness introduced above: fairness, naturalness, and place.

First, fairness-based embeddedness is prominent in Fair Trade certification. Fair Trade builds on the vision of global citizenship that emphasizes the voluntary support of Northern consumers for conditions of Southern producers via purchase of commodities such as coffee and bananas. By thus subsuming civic and market conventions in the extended form of domestic conventions between socially and spatially distant people, this global relationship proposes a socially just alternative to the existing trade inequalities between North and South. Unlike other labeling schemes which focus only on production conditions, therefore, Fair Trade takes account of both production and trade conditions. Fair Trade certification requires that labor conditions meet basic ILO (International Labor Organizations) conventions, that workers be organized democratically by small-scale producer associations or plantations, and that production meets basic agroecological criteria (Bacon 2005; Lyon 2007; Raynolds 2000; Renard 2003; Tover, Martin, Cruz, and Mutersbaugh 2005). Fair Trade certified producers receive a set premium price above the world market price and the relatively high fixed minimum price (Giovannucci and Ponte

2005), with certification costs covered by importers (Raynolds 2000). Roughly half of Fair Trade coffee is double certified with organic standards (Raynolds, Murray, and Heller 2007) which provides producers with a specified bonus (Raynolds 2000). The increased income from sales to premium markets contribute to enhancing and sustaining various facets of producer livelihoods such as food security, education, health, paying debt, and staying on the land. Many local producer cooperatives engaging in the alternative trading allocate a portion of their funds to invest in community development and conservation efforts as well as various financial and technical assistances to empower producer livelihoods (Bacon 2010a, 2010b; Bacon Méndez, Gómez, Stuart, and Flores 2008; Jaffee 2007; Lyon 2007).

Second, naturalness-based embeddedness is essential for agri-environmental certification related to organic production and biodiversity conservation. With differing emphasis on the kind of environmental considerations, these certification schemes claim a return to nature in qualification of products, thus taking their action framework on ecological conventions. Using ‘eco-labeling,’ they influence the way food is produced, designed, and consumed to avoid environmental damage (Gallastegui 2002). Organic certification underscores the restrictive use of agro-chemicals and pharmaceuticals, meeting the rising consumer concern over the healthiness and safety of food. It also encourages the adoption of various agroecological methods that help control soil fertility and disease, as well as protect wildlife and the environment (Raynolds et al. 2007). Certification initiatives related to biodiversity conservation combine procurement of a food commodity with preservation of wildlife and their habitat from agricultural activities. Shade-grown coffee certification is a prominent approach in

which protection of migratory bird habitat and re-forestation are ensured through rules related to conservation of shade cover in traditional coffee farming in Latin America (Giovannucci and Ponte 2005). Conscious of the limitation that shade tree farming alone could protect only one aspect of the agroecosystem as opposed to the more holistic effects of organic production (Bray, Sanchez and Murphy 2002), Bird Friendly certification, a shade-grown labeling initiative, has made organic certification mandatory (Raynolds et al. 2007).

Third, place-based embeddedness centers on ‘geographical indications’ (GIs). GIs refer to a type of standards that relate food production systems to specific place or territory. By emphasizing the cultural, social, and environmental embeddedness of traditional, ‘typical products’ in historical contexts of a locality or region, GIs convey specific messages to the consumer about the product qualities and production process. GI certified food could be consumed as specialty products under a brand in wider regional, national, and international networks, contributing to wider interests of rural development (Barham 2003; Cañada and Vázquez 2005). GIs are therefore distinctive from the spatial and social restriction of local (direct) marketing (e.g., producers’ market, community-supported agriculture) that is grounded in face-to-face interactions and personal trust (Hinricks 2000) or relations of ‘regard’ (Sage 2001). It also differs significantly from “defensive localism” that clearly demarcates spatial and social barricades with regard to homogeneity and difference (DePuis and Goodman 2005; Hinricks 2003) but without due regard to quality and process (Winter 2003). In GIs, domestic conventions center on the historical embeddedness of food production in a particular place while industrial conventions of

standards govern the marketability of the product by ensuring presumed quality and process for the consumer. As such, GIs is rather congenial with what Hinrichs (2003) calls “more diversity-receptive localization” which permits more diverse and relational attributes of what constitute ‘local.’

These three kinds of embeddedness, fairness, naturalness, and place, may be considered to underpin various economic, ecological, and social sides of sustainability. A development study of agri-food standards is thus concerned with the degree to which and the ways how a standard in question is grounded in them.

5.3 Research Contexts

5.3.1 National Contexts

Since 2003, the Thai government has developed a national GAP program with its own quality management system by modifying concepts of international standards such as Hazardous Analysis and Critical Control Point (HACCP) and the International Organization for Standardization (ISO) method (Surmsak 2007). Primarily defined as a food safety program, the uniqueness of Q-GAP lies in the policy design that the government promotes the creation and practices of farmer field schools (FFS). Under the advisory extension system of the Department of Agricultural Extension, participant FFS producers, typically organized into a group of twenty members, undergo mutual learning processes to improve their understanding and on-farm GAP application. The primary technical emphasis is given to reduction and proper usage of agrochemicals using IPM, integrated crop management (ICM), and various types of

organic compost. 29 crops are designated as specialty crops for both exports and domestic consumption in the program.⁵ There is a guideline for the general regulation of Q certification. Based on it, specific regulation guidelines for each crop item have been developed (Charnnarongkul 2007). By the end of 2007, there were 224,334 Q-GAP certified producer households for crop nationwide (personal communication with DOA in August 2008).

In the Q-system, recertification is administered every two years by official GAP inspectors who visit from a provincial center. At times of inspection, professional inspectors visit the fields with a number of trained volunteers, observe the farm conditions, and interview producers using a prescribed checklist on eight production aspects: water systems, farm conditions, agrochemical use, product storage and shipping, record keeping, product safety, farm management, and harvest and post-harvest practices. In the version used at the time of the research, the checklist covered, regardless of crop types, 84 total control points, with 51 percent of compliance required for certification. The inspectors also take samples of growing crops and soils from visited farms, subsequently shipping them to a regional center for laboratory tests on pesticide residue conditions. To obtain certification or recertification, applicant producers are required to undergo this inspection process at least three times throughout a year, without being notified of the inspection dates and time in advance.

⁵ Out of the 29 crops, the main export crops include longan, durian, mangosteen, mango, asparagus, okra, baby corn, pummelo, lychee, tamarind, ginger, and chili. The other targets are rice, pineapple, young coconut, longkong, rambutan, coffee, peanut, soybean, orange, cabbage groups, beans, chili groups, melon groups, herbs, sweet corn, onion and banana. Major importing destinations include EU, China, Hong Kong, Singapore, Japan, USA, and Malaysia (Bureau of Agriculture and Fisheries Product Standards 2007).

5.3.2 Local Contexts

This study involves a comparative examination of Q-GAP certified producers between an area where market sales are confined to domestic areas and another area where sales cover exports to a sizeable degree. Study sites were therefore identified from among areas where there were a fair number of GAP certified producers with such differential access to the market. Geographic proximity between areas compared was also preferred to avoid disproportionate regional socioeconomic conditions. Throughout late February to mid-April 2008, the author visited two pummelo production areas for the comparative study of Q-GAP implementation. Pummelo (*citrus maxima*) is a citrus fruit, colored pale green to yellow when ripe, native to Southeast Asia. Both production areas are located in the northeastern part of Chaiyaphum province, Northeast Thailand ($15^{\circ} 48' 28''$ N, $102^{\circ} 1' 59''$ E) (Figure 1).

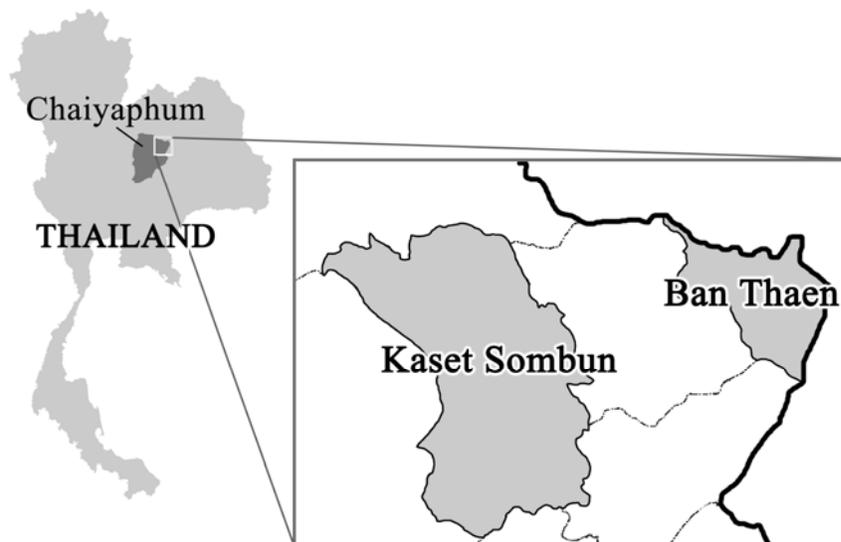


Figure 1. Map of the study area

The first area is located in Kaset Sombun district and the second area stretches in Ban Thaen district. The two areas are approximately fifty miles apart, with Phu Khiau district located in between them. Both areas had a pummelo producer group to which all the Q-GAP certified pummelo producers in each area belonged, given that such group membership was the official rule for producers to be qualified for receiving Q-GAP inspection and certification.⁶ In both areas, sticky rice and sugarcane are predominant sources of agricultural products and livelihoods for producers.

The researched pummelo production area in Kaset Sombun, approximately 12 kilometers distant from the district center, centers on Bungsi Village (108 households in total) adjoined by Rimprom Village (65 households) and Lau Village (79 households). This area is located in Nonthong Subdistrict. This subdistrict involves 11 villages with the approximate total land area of 28,700 acres and the approximate total population of 7,400. 76 percent of the subdistrict area is covered by the mountain called Mt. Khiau and forests, with the annual rain fall ranging from 760 to 1,446 millimeters during 2002-2006 (Nong Thong Subdistrict Administrative Organizations (SAO) 2008). As will be seen, many production and institutional features were influenced by the mountainous agroecology. Across the area, there is a river called Whrom River from which producers could obtain water for agriculture through a pumping method using a tractor motor. The river water comes from a dam in the neighboring Khon San

⁶ In both Kaset Sombun and Ban Thaen, there were producers who were currently found in producer group membership but had not yet participated in the group by the time of inspection. In Ban Thaen, the main reason why they did not participate despite the ten-year existence of the group was found to be their relatively short pummelo production experiences to seek membership. In Kaset Sombun, the reason was likely related to the relatively short presence of the group, i.e., three years since 2004.

District. The majority of producers need to sail across the river by boat in order to arrive at their pummelo orchards.

The first adopter of pummelo production in Kaset Sombun was a villager of this area, bringing local pummelo varieties from the woods of Mt. Khiau more than forty years ago.⁷ In 1995, the district agricultural extension began extension efforts to disseminate pummelo production in this area through introducing a major cash crop variety called ‘Thong Di,’ a Thai variety most popular among urban and foreign consumers. Since then, the majority of interested producers shifted commodity production from corn to pummelo.

In 2004, a pummelo producer group was established in this area. As of April 2008, the producer group had 67 members. The members included twenty new members who were administratively grouped as an FFS group, in addition to several other independent new members. Out of the total, there were 35 GAP certified producers.⁸ Of them, the author could interview 29 producers.⁹ None of these interviewed producers had any reservoirs, ditches, or sprinklers in their orchards, except for one who had a reservoir. In addition, this area focused on local and domestic sales of fresh pummelo produce, with the prevailing price of 5 Baht (note: 1US Dollar was approximately 31 Baht throughout the time of the

⁷ This person was one of the surveyed GAP certified producers. He was still growing pummelo at the time of this field research.

⁸ Two members were certified in October 2006 and the rest 33 members were certified in June 2007. These represented the first certification of this area, and at the time of the research re-certification was underway for two farmers who were certified in 2006.

⁹ The six grower households who could not be interviewed include three who had ceased to grow pummelo by the time of research, two who had moved to Bangkok for seasonal migration, and two who said they were too busy for interview.

research) per kg for sales to domestic markets in 2007.¹⁰ It was estimated that about 100 households were producing pummelo around the area.

In contrast to Kaset Sombun, the production area in Ban Thaen is characterized as lowland agroecology. The area centers about Ban Thaen Subdistrict where 72 percent of the area is used for agriculture while only 9 percent is occupied as community forests. In the subdistrict, the major pummelo production area is Nongphaklot Village (920 households) adjoined by other producer villages such as Nadi Village (492 households), Nondun Village, Mon Village (523 households), and Maimuangmon Village (932 households) (Ban Thaen SAO 2006). Beside Ban Thaen Subdistrict, there is Suansam Subdistrict where there are also a fair number of pummelo producers concentrated in Lubkhai Village. Unfortunately, the data of annual rainfall for this area were not available, yet it was said to be less than the production area in Kaset Sombun.

About one kilometer from Nongphgaklot Village, there is a dam with the capacity to supply water through an elaborated web of irrigation channels for rice, sugarcane, and other crops produced in Ban Thaen District and Phu Khiau District. The dam water is occasionally set to flow into the constructed waterways based on villagers' bargaining with the Ban Thaen district authority. Then, water from the waterways flows into a reservoir typically built in the pummelo orchards. Most of the early adopters established lines of irrigation ditches within orchards from which they pump water for the trees using a tractor motor on the boat. Some of them, and the majority of late adopters, now use sprinklers for

¹⁰ A product of good size and quality is weighed 10 kg and is thus priced 10 Baht per pummelo in Kaset Sombun.

pummelo production. In this area, professors and students from the agronomy department of Khon Kaen University were key collaborators with local producers and agricultural extension officers for dissemination of alternative technologies for pummelo production.¹¹

The first person who initiated pummelo production in Ban Thaen has been the chairman of the Ban Thaen pummelo producer group, growing pummelo since 1988. The adopters of the first generation included the chairman's household and three other households, all of which were his relatives. The second generation appeared in 1997. Having seen the impressive success of the pioneers in increased incomes from pummelo sales for export, 11 households decided to join pummelo production activities through participating in the pummelo producer group established in 1997.¹² At the time of the research, the group had 67 members, including 20 new members. The group was divided into three smaller administrative units of FFS groups. Such division appeared merely nominal because there were no FFS activities going on that were inherent to such a grouping. Each year, the group holds three to four entire group meetings, which they called 'FFS meetings.' As of April 2008, out of the total group members there were 41 GAP certified producers.¹³ Among them, 35 were interviewed.¹⁴ It was estimated that about 120 households were growing pummelo in this area.

¹¹ Khon Kaen University is a national university located in Khon Kaen province, Northeast Thailand.

¹² At the time when the second-generation adopters came in, the pioneer producer was earning some 600,000 Baht (approximately US\$18,000). In twenty years of pummelo production, his pummelo orchard's production and export sales have been dropped due to aging of pummelo trees and associated productivity decline. In 2007, his orchard earned some 400,000 Baht.

¹³ All of them were certified in June 2006. At the time of the research, inquiries for recertification in 2008 were on a planning stage by the certification agency in Chaiyaphum city.

In addition to local and domestic markets, pummelo sales in this area included export to three Asian countries such as Hong Kong, Taiwan, and Singapore.¹⁵ Export products were bought and shipped by middlemen to Nakhon Pathom, a provincial city located in Central Thailand, the most prosperous pummelo production area in Thailand. They were then exported with the prestigious ‘Nakhon Pathom’ label. The producers’ sale prices for export in this area used to be 20-23 Baht per fruit, yet had dropped to 15-20 Baht in 2007 due mainly to the changes in the international currency exchange rate. Depending upon the quality of harvested fruits, producers’ sale prices for domestic markets in this area in 2007 were 10-20 Baht per fruit (most likely 15 Baht). Weight is not the measurement norm of this area. Yet assuming that an average fruit in this area is weighed roughly 2 kg, the producers’ sale prices for export were equivalent to 7-10 Baht per kg while those for domestic markets were equivalent to 5-10 Baht per kg. Thus, the prices could be roughly 0 to 100 percent higher than in Kaset Sombun. The major crop variety adopted there was Thong Di, too.

Statistics comparing the two pummelo production areas are provided below. No significant differences in basic socioeconomic variables are found between the two GAP certified pummelo producer groups (Table 1).

¹⁴ The six people who were not interviewed were those who quitted growing pummelo after they were certified in June 2006.

¹⁵ Pummelo was said to be traditionally popular among these countries in relation to its use for Chinese religious ceremonies.

Table 1. Basic socioeconomic characteristics of surveyed pummelo producers

Socioeconomic variable	Pummelo Production Areas Compared	
	Kaset Sombun	Ban Thaen
(1) Number of GAP certified pummelo producers	35	41
(2) Number of GAP certified producers interviewed	29	35
(3) Age (years)	53.3	51.2
(4) Education (years of school)	4.5	5.5
(5) Number of household members	3.2	3.5
(6) Number of onfarm family laborers available	1.8	2
(7) Total land owned (rai)	20.6	20.3
(8) 2007 Income excluding credits per household (Thai Baht)	131,722	152,200

Note 1. All values represent group averages per farmer. The data for (1) ~ (7) are as of the time of resea
Regarding the variables (8), the data are as of the year 2007 (when US\$1 was around 31 Thai Baht).

In both Kaset Sombun and Ban Thaen, over 60 percent of the interviewees had four years of schooling at the elementary level. Meanwhile, pummelo production structures exhibit some clear differences between the two sites (Table 2).

Table 2. Basic pummelo production profile of surveyed pummelo producers

	Pummelo Production Areas Compared	
	Kaset Sombun	Ban Thaen
Pummelo production experience (years)	13.7	9.6
Existence of pummelo producer group (years)	4	10
Length of pummelo producer membership (years)	3.6	8.8
Number of pummelo trees per orchard	146	249
Number of pummelo trees per rai	26	39
Land used for pummelo production (rai)	5.6	6.4
Percentage of trees aged less than four years	22.1	10
Percentage of integrated pummelo orchard	44.8	14.3
Percentage of Thong Di variety	81.9	95
Farmers who adopt more than one variety (percentage)	86.2	37.1

Note 2. Integrated pummelo orchard refers to the pummelo orchard in which other kinds of fruit trees and/or vegetables are grown together.

The number of pummelo trees per orchard in Ban Thaen is 70 percent higher than that in Kaset Sombun. Likewise, the number of pummelo trees per rai (note: 1 rai is 0.395 acre) in Ban Thaen is 50 percent higher than that in Kaset Sombun. Trees aged less than three years is considered not to have reached a productive stage yet, and that the percentage in Kaset Sombun is twice that in Ban Thaen. Trees severely damaged by major diseases were only to be cut down and replaced with new ones. This is the case despite the longer average pummelo production by 4.1 years in Kaset Sombun than Ban Thaen. In Kaset Sombun, about three times higher proportion of orchards than in Ban Thaen are integrated with other fruit kinds and/or vegetables. Further, the area of Kaset Sombun devoted a higher percentage of planted pummelo trees to Thong Di than that of Ban Thaen. These suggest the more market-oriented tendency of pummelo production in Ban Thaen than Kaset Sombun.

5.4 Methodology

5.4.1 Extended Case Method

This study adopts the extended case method originally developed by the political sociologist Michael Burawoy. This methodology refers to a reflexive science perspective of ethnography deeply rooted in the critical science tradition in sociology. It constitutes unique alternative explanatory and interpretive practices as opposed to the assumptions of positivist science. It stands for justifying its

conscious violation of the '4Rs' – reactivity, reliability, replicability, and representativeness – what Burawoy (1998) refers to as the four prescriptive tenets of positive science.

The extended case method assumes the following four contextual effects, ones that undermine the assumptions of positive science to claim the validity of the approach. First, sociologists are encouraged to affect and thus 'distort' the worlds they study by intervening into the interviewee's life through constant dialogue and participant observation. This context effect (interview effects) called 'intervention' violates the injunction against reactivity. Second, reliability of research is undermined through the 'process,' whereby standardization of research questions is seen as too bounded by the respondent effects. Instead the observer is encouraged to unpack situational experiences by moving with the interviewees through their space and time (in historical interpretation and participant observation). Third, as ethnographic research proceeds, sociologists move beyond social processes to delineate the social forces. This effect is called 'structuration' whereby the observer confronts the wider field of social relations that has "its own autonomous dynamic, as it imposes on multiple locales" (Burawoy 1998: 15). The extralocal nature of studying the dialectic with social forces makes thwarted the goal of unequivocal coding of selection and replication, yet it does make positive methods "the handmaidens of reflexive science" (*ibid.*: 15). Fourth, typicality of the researched case, or the principle of representativeness, is violated as a logical consequence of invalidating other three 'R' criteria. Instead, generalizability of research findings is secured by incorporating more inclusive generality into elaborating existing theoretical standpoint. This context effect called 'reconstruction' aims for a progressive reformulation of

existing theory by maintaining the core postulates intact while constantly refuting and sophisticating the shape of the original theory by incorporating the findings from an extended case. By thus ‘extending out’ from the field to these four context effects could sociologists achieve strength in extracting “the general from the unique, to move from the ‘micro’ to the ‘macro,’ and to connect the present to the past in anticipation of the future, all by building on preexisting theory” (Burawoy 1998: 5).

5.4.2 Research Methods

During a month of exploration to find research sites, the author spent a week for preliminary research in Kaset Sombun and Ban Thaen. Then, during early March - mid April 2008, the author conducted structured interviews with sixty-four Q-GAP certified pummelo producer households (29 in Kaset Sombun and 35 in Ban Thaen).¹⁶ A main grower was selected for interview from every surveyed pummelo-producing household. Yet there were cases where the second person from the household, typically the partner of the first interviewee, was also interviewed to extend the coverage and/or improve the quality of information. Interviews were undertaken either in producers’ homes or their orchards, depending on their willingness or location at the time of the author’s visit. Approximately one half of the interviewees’ orchards were observed.

¹⁶ In addition to interviews with producers, a chief GAP certifier in Chaiyaphum and extension workers in Kaset Sombun and Ban Thaen were interviewed about the local implementation of GAP policies. In the early period of field research in Kaset Sombun, participant observation was also undertaken on the rechecking activity carried out by a group of certifiers from Chaiyaphum city for recertification in 2008. Further, secondary data related to the general information of the two research sites were collected from local subdistrict administrative offices, one in Kaset Sombun and two in Ban Thaen.

Most of the interviewees' primary language was Isan, the major regional language of Northeast Thailand being similar to Lao and to a lesser extent to Thai. With inability to speak Isan language, the Japanese author exclusively used Thai language for the interviews. Approximately 70 percent of the interviewees responded in Thai, while the rest 30 percent used Isan.¹⁷ In interviewing individual producers, notes were taken on the structured question form while all the interview conversations were tape-recorded. Time spent for an interview was roughly between 60 and 180 minutes, with the approximate average of 120 minutes.

Research questions were established when preliminary research in both sites was complete at the end of February. Many questions asked were identical for both sites. The questions were organized into four sections that address: (1) the basic household information about family composition and farming systems; (2) perceptions about agricultural extension and Q-GAP certification; (3) agricultural practices and cost-benefit data for pummelo production throughout 2005 - 2007 (and 2008 for data about fertilization);¹⁸ and (4) household livelihoods with emphasis on activities and incomes of 2007. There were several questions that were asked to producers in either one site only. For instance, questions about FFS were asked in Ban Thaen where annual FFS meetings played critical roles for extension while those were not asked in Kaset Sombun because the FFS group established there was still quite new. In addition, in the early stage of interviews in each site, new questions emerged and were added to the question list.

¹⁷ The author did not employ a translator for understanding Isan, since he had become familiar with the language and understood much of what farmers were telling him.

¹⁸ Farmers' agricultural practices and cost-benefit data were surveyed of the years from 2005 since many farmers' memories before the year appeared to lose clarity and thus reliability.

Producers who had been interviewed without those questions were revisited and requested to answer them.

5.5 Analysis

5.5.1 Intervention

From reflexive science points of view, Burawoy (1998) defines interview as “not simply a stimulus to reveal the true state of the interviewee but an intervention into her life” (p. 14). From this perspective, dialogues about producers’ familial and livelihood issues took an important part in the interviews, at times developing to be fairly open-ended interactions. In this regard, interviews with some middle-aged female producers in the two studied areas provide cases in point. Their husbands were working out of their homes as migrant workers. Some of their husbands’ intermittent migrant work had taken over 10 years and remittances from their husbands comprised the major part of their household incomes. They had to grow pummelos mostly by themselves. Agriculture without their husbands’ presence was relatively labor intensive and cumbersome for them; regarding pummelo farming it was particularly the case for watering labor using tractor motor. To add incomes for their children’s education, some of them were engaging in off-farm enterprises such as running a home store or selling foods to school children. In Kaset Sombun where the pummelo market conditions are not as attractive as in Ban Thaen, those women were not motivated as much to spend more time and energy for pummelo farming despite their willingness to do so, leaving it more like natural farming. As such, dialogical interviews

about the producers' livelihoods added the data in-depth contexts to understand their agricultural practices as well as the meaning of agriculture for the sustainability of their livelihoods.

The interventions stretched to collective dimensions as well. Producers in one site were asked what they think about pummelo production in another site. With signs of envy, producers in Kaset Sombun typically spoke of the quality production in Ban Thaen as owing to the availability of capital and the investment of a lot of agrochemicals. Some producers in Kaset Sombun even talked about a bad rumor about the pummelos produced in Ban Thaen. They had heard from other producers in Kaset Sombun that when they ate pummelos produced in Ban Thaen, they had to cough because of the chemical pollutions with the products. I talked about this rumor with a producer of the co-manager position in Ban Thaen. Once hearing it, he laughed and denied it as a totally groundless gossip as no such physical symptoms should occur with pummelos produced in 'good agricultural practices.' The author refrained from telling this concern to other producers in Ban Thaen, however, so that his interventions would not become too 'dominant' - the negative effects of power that might unnecessarily aggravate the relationships among participants (Burawoy 1998).

On the other hand, producers in Ban Thaen typically held the image of pummelos produced in Kaset Sombun as inferior to their own, particularly regarding taste. This was even the case with the narratives of some of those who have never tasted pummelos produced in Kaset Sombun; in responding to my questions, they revealed they had never tasted pummelos grown in Kaset Sombun despite the comparative claims they made. Their perceptions were only reliant upon the reputations created in their

own area. Hence, interventions were the important act of peering the interviewees' assumptions to reveal the bias of their collective beliefs.

5.5.2 Process

In the extended case method, situational knowledge of actors' practices and perceptions is aggregated into a social process perspective in a particular locale. It could thus highlight the historical and collective dimensions of production and management in the areas under scrutiny. First of all, pest management comprises a core component of the Q-system, and significant differences were identified between the two areas in the use of synthetic insecticides and fungicides. While none of producers in Kaset Sombun were found to apply insecticides or fungicides, all the producers in Ban Thaen applied them. As for herbicide, fourteen producers (40%) in Ban Thaen applied herbicides whereas five producers (17%) in Kaset Sombun did so. The interviews revealed that producers in Ban Thaen tended to apply herbicides throughout the entire orchard once a year after the harvest season, whereas those in Kaset Sombun did it on the quite pinpoint, necessity basis.

Such a striking contrast in the use of pesticides between the two sites calls forth a reflexive consideration of how unique individual situations have culminated to different geographic processes of pummelo production in between the two studied areas. First of all, the limited use or absent usage of pesticides in Kaset Sombun was not the recent phenomenon influenced by the Q-GAP policy but had long been the rule since they started to grow pummelo. Asked why they had not used pesticides in their

orchards, the majority of pummelo producers in Kaset Sombun pointed to the physical risks to be avoided from spraying pesticides (e.g., headaches, skin problems, insomnia, etc.). Regarding how to improve the fruit skin for better marketing opportunities, Kaset Sombun Producer #16 noted, for instance, “I would wrap the fruit (by plastic bag) because I am scared. . . scared by pesticides. That’s dangerous. It depends on people. We can apply pesticides but we get our skin problems and also headache. If we apply pesticides, the fruits become beautiful, but we are scared by pesticides. . . scared by poison.” [date of interview: 9 March 2008]

Knowing the benefits and risks of pesticide application, however, some producers were still ambiguous regarding why they did not apply pesticides in their pummelo orchards. Kaset Sombun Producer # 29 said, “Last year we had so many Wanthong insects. But I have never applied insecticides. I have never seen anybody applying it here (for pummelo), and I don’t either. I don’t know why others don’t apply. If others apply, I might do so, though it is scary.” [date of interview: 26 March 2008] This comment points to a collective dimension of path dependency in which producers’ decisions of not having used pesticides for pummelo farming depend on others’ behaviors. In addition, such their decisions may be seen conditioned on the market. 23 producers in Kaset Sombun (79%) said they could begin to apply insecticides if it enabled them to export their products.¹⁹ The producers’ perceptions of

¹⁹ Indeed, this region is not free from pesticides; many use insecticides for rice farming, though the amount may be no more than that applied in many other areas. In this region, the hazardous effects of the acute mixture of various insecticides and fungicides for pepper production are notorious, yet some villagers still continue the practice. Actual pesticide application might not be done by the producers themselves but wage laborers under contract instead.

pesticides as too dangerous to use for pummelo production, therefore, may be seen as a sort of cultural construct that originates in another factor.

Importantly, producers were aware that the existing pest problems in their area were not so serious as demanding significant amount of pesticide application. Wangthong insects, the most harmful insects for pummelo in their area, show up when pummelo bears flowers in February and March, and they are gone in April. In the harvest season of June and August, it will not be a major problem. The lack of a pressed need to use insecticides and fungicides for pummelo production in this area would have congealed the sentiments among producers to better avoid using them as a ‘dangerous’ input, rather than such preexisting sentiments having led to concurrent disuse of pesticides. Pummelo producers in Ban Thaen provided clues on this point. The majority of them referred to two main reasons why they had to use a lot more pesticides than those in Kaset Sombun. One was the magnitude of pest problems in Ban Thaen. By way of illustration, there were three insects and four diseases that producers in Kaset Sombun identified as harmful for their pummelo farming whereas the counterparts in Ban Thaen were as many as 10 insects and 10 diseases respectively. In Kaset Sombun, a number of mountainous characteristics – cooler and rainier weather, woody environment, polycultural farming systems, nutrient rich soils, and consequently the physically endurable trees that grow – combine to maintain the occurrence of pests in a relatively low equilibrium. The contrastive lowland features in Ban Thaen – drier weather, monocultural production, plain and deforested land, nutrient deficient soils, and the feeble trees – cumulate to be the

hotbeds for a number of harmful insects and fungi. It is plausible to think, therefore, that environmental factors have been essential for the observed differences in pesticide practices between the two sites.

Whereas there were only limited pesticide issues for Q-GAP certification among producers in Kaset Sombun due to their disuse of insecticides and fungicides, one may wonder whether the local introduction of Q-GAP affected producers in Ban Thaen in their pesticide application practices. They were clear in that any changes they had made in the applied amounts of pesticides over the recent years were related rather to the growth stage of pummelo trees than the introduction of the official program. Some producers had increased their application of pesticides as trees had got larger and required more amounts of pesticides to cover the expanding body of trees. Meanwhile, others responded that they had reduced the amount of application as the tree growth had transformed the floras and faunas in the orchard in ways that reduced pest problems. Other factors of reduction in pesticide use, such as price increases of pesticides or the increased producers' awareness about food safety/sustainability issues through participation in Q-GAP, were not found very pertinent to how much they had applied pesticides. These do not necessarily follow, however, that producers in Ban Thaen were not at all conscious about food safety and sustainability concerns. As GAP certified producers, all of them had allegedly refrained from spraying pesticides for a period (usually two months) before the first harvest of pummelo produce of a year in July.²⁰ Throughout the harvest season that followed, they had kept out of pesticide application.

²⁰ In addition, surveyed producers in both areas suggested high support for the utility of some kind of organic fertilization primarily from the standpoints of soil sustainability. They were asked whether they would still use non-synthetic fertilizers or combine them with chemical fertilizers if the price of chemical fertilizers became very cheap, such as one-tenth of the current

Closely tied to the goals of reduction and proper use of pesticides in Q-GAP is the dissemination of alternative pest management practices that are non-synthetic in nature. The public extension (and to a lesser degree university) played major roles for adoption and diffusion of alternative methods for pest management. In Kaset Sombun, the most popularly adopted method was the plastic bottle method. In this method, harmful insects are seduced into the bottle by bionatural liquids, cannot escape from it, and then die. This method was referred to by many producers as the most useful pummelo production practice introduced by local extension. Bionatural pesticides applied specifically for major diseases were of recent introduction, and few producers who applied the method felt it useful because the disease symptoms appeared resistant. Most other producers heard of the ineffectiveness of this method from those who had applied, which was why they did not wish to apply it in their own orchards.

In Ban Thaen, no alternative methods for insect and disease management were found to be adopted significantly. This result was related to the prevailed recognition among producers that synthetic insecticides and fungicides were significantly more efficient (in terms of labor required) and effective to control insects and diseases than alternative methods. In 2006, biological insect control and organic fungicides for diseases were introduced in Ban Thaen by Khon Kaen University. Yet, four out of seven producers who had adopted biological insect control declined it in 2007 because the targeted insects were limited, and the effectiveness did not appear very clear to the producers' eyes. Meanwhile, all five producers who had adopted organic fungicides expressed favor for the method. Nonetheless, diffusion of

price. To this question, 23 surveyed producers in Kaset Sombun (79%) said they would still combine both (70 %) or use only organic methods (9 %), while 33 surveyed producers in Ban Thaen (94%) said they would still combine both.

them still remained restrictive because the utility was limited only to specific types of diseases as opposed to the stronger and more pervasive effects of synthetic fungicides on a number of penetrating fungi.

Among factors that precluded a major shift from the use of synthetic to alternative pest management methods, the most crucial was identified as the limited durability of suppressive effects of alternative ones. Despite the significantly lower costs of purchase, alternative methods tend to be relatively time-consuming for preparation. For instance, some producers use the method of effective microorganisms (EM), and it takes weeks for fermentation.²¹ The effects tend to endure for a relatively short time while the pest insects returning quickly. Ban Thaen Producer #15 commented:

The government promotes organic methods such as EM but no benefits yet. It does not work well on this orchard. I am using chemicals only. Once I use organic, they will be gone but come back soon. To make fruits beautiful, I know you must apply pesticides often. Whether chemical or organic, it does not matter. They can make all beautiful. But organic pesticides must be applied as often as every seven to ten days. You must have time and be diligent. If you do not have time, you have to use chemicals. The difference lies in here. . . Regarding chemicals, you can go for one month. You can do something else in between. But if you apply organic, they will come back in six or seven days. This is true of weeding. If you apply herbicide, it takes three months for weeds to grow. But if you cut by machine, weeds will appear in seven days. [date of interview: 3 April 2008]

The restricted durability of alternative methods makes the sustained use a relatively labor-intensive endeavor. Therefore, as producers engaged in more agricultural activities or livelihood portfolios, they opted for using more synthetic production methods rather than natural or organic ones.

²¹ EM is made up of fruit, vegetables and/or food residues fermented with water, alcohol, sugar, and possibly something else, to produce enzymes by the working of microorganisms.

Along with synthetic pesticides, reduction of chemical fertilizer application is encouraged in Q-GAP by promoting organic methods of fertilization. There were two kinds of chemical fertilizers used in both areas. One is the ordinary type which emphasizes the nutrient composition of N (nitrogen) and P (phosphorus) for the promotion of tree and fruit growth. The most popular type included all 15 percent chemical composition of N, P, and K (potassium). Another type underscores K to sweeten fruits. Farmers called this type 'sweet fertilizer' and the most widely used of this type involves 13, 13, and 21 percent chemical composition of N, P, and K, respectively. The average amounts of chemical fertilizers applied by a household throughout 2005 to 2007 were significantly higher in Ban Thaen (ordinary chemical fertilizer: 375 kg; chemical fertilizer for fruit flavor: 130 kg) than those in Kaset Sombun (ordinary chemical fertilizer: 72 kg; chemical fertilizer for fruit flavor: 8 kg), a similar tendency with pesticide use. Producers in both areas recognized that pummelo production in Kaset Sombun did not require as much chemical fertilizers as in Ban Thaen, because soils in Kaset Sombun, which were nurtured based on the mountainous ecology, contained rich N and P content and were better suited for tree and fruit growth. For many areas in pummelo orchards in Kaset Sombun, therefore, putting more chemical fertilizers to promote tree and fruit growth was assessed as somewhat excess. They were generally skeptical about the possibility that any marginal improvements in obtained produce could either increase fruit sale prices or offset the growing expenses for more chemical fertilizers. In relation to the use of chemical fertilizer for flavor, Kaset Sombun Producer #17 touched on this point, "Middlemen follow the market standard of our village. So the price remains the same, 5-6 B (per kg) only. Whether or

not we apply sweet fertilizer, it remains the same in our village. So not applying is better.” [date of interview: 10 March 2008] Another factor which had served to restrict the use of chemical fertilizers in Kaset Sombun was the increasingly expensive costs of the purchase. In between 2005 and early 2008, the prices of chemical fertilizers had risen by 50-80 percent due in part to the rise in international oil prices, which recently led more producers in the nation to substitute chemical fertilizers for organic ones. The majority of producers in Kaset Sombun said they would wish to increase the use of chemical fertilizers if the prices became much cheaper, such as the same prices as organic fertilizers they were using.²²

On the other hand, producers in Ban Thaen used on average more than five times as much ordinary chemical fertilizer and over 16 times as much chemical fertilizer for flavor than those in Kaset Sombun. This was attributed mainly to the nutrient deficient soil conditions and more privileged market conditions in their area. Many producers in Ban Thaen were planning to reduce the use of chemical fertilizers, however. Producers in both areas were requested to give their planned estimates of fertilizer use for the year 2008, and an average producer in Ban Thaen planned to reduce the amount by 26 percent. Meanwhile, the adoption of grained organic fertilizer (a commercial organic product processed in grain

²² Such expressed wishes proved conditional, however. Asked “what would you do with fertilization if the cost of synthetic fertilizers were the same as organic fertilizers?,” twenty pummelo producers in Kaset Sombun (70%) responded that they would still combine chemical fertilizers with some kind of organic fertilization methods. Based on the long efforts of local extension and producers’ own experiential learning, those producers now recognized the agronomic importance of using different fertilizer types according to different fertilization goals. The essential functional difference acknowledged was to use chemical fertilizers in order to facilitate tree and fruit growth while to apply organic fertilizers (grained ones and manure) so as to maintain and improve the soil quality.

shapes, made up of animal manure, clay, and other ingredients) was steadily increasing in both areas. The projected rise of the adoption rate by 81 percent in Ban Thaen from 2007 (16 of 35 producers) to 2008 (29 of 35 producers) was related substantially to the establishment of the group procurement system by the pummelo producer group in Ban Thaen (through funding support from the Ban Thaen district authority) in early 2008. In contrast, the adoption rate of manure was projected to decline during this period due to the substitution effect with grained organic fertilizer. Interviews with producers in Ban Thaen revealed that the main motives of their shift from chemical to organic fertilizers were primarily economic rather than food safety or sustainability concerns. Like producers in Kaset Sombun, they were concerned about the rapidly rising costs of fertilizers. For instance, Ban Thaen Producer #3 said:

I use manure, organic, and chemical fertilizers; that's a combined usage. I have not changed it in a year but over years. This year I will apply a lot of organic fertilizer, and reduce chemical fertilizers. Chemicals have become expensive, right? This year I bought organic fertilizers at 350 Baht per sack. Chemical fertilizers cost more than 1,000 Baht per sack. Every year I applied chemical fertilizers with over ten sacks per time, but this year I will reduce to eight sacks, and next year to five sacks or something like that. [date of interview: 30 March 2008]

In both Kaset Sombun and Ban Thaen, EM compost was used to serve the dual fertilization goals of facilitating tree and fruit growth as well as improving the fruit flavor. Its adoption rate was roughly three times higher in Ban Thaen than in Kaset Sombun. Even in Ban Thaen it was still under 50% from 2005 till 2007, however. Like ordinary chemical fertilizer for flavor, EM compost was valued

particularly for its function to improve the fruit flavor. In Kaset Sombun, therefore, its adoption was not widespread for the same reason as that of chemical fertilizer for flavor: there is no market incentive for producers. In Ban Thaen, EM compost was regarded as less useful than chemical fertilizers because the arrival of its expected effects tends to be slower while it requires more amount of application and more labor than the case of chemical fertilizers. Hence, in the lowland agroecological conditions of Ban Thaen, environmental sustainability is compromised by existing pest problems and demanding market contexts.

Whether practicing or not, the majority of producers in the two areas was familiar with the set of alternative production methods introduced in their own local area. It was striking to realize, however, that only around half of producers in the two areas (21 producers in Ban Thaen (60%) and 13 producers in Kaset Sombun (45%)) showed a very basic understanding of Q-GAP. They were unable to relate the Q-GAP certificate they had obtained to the official food safety goals to be met via proper use and control of agrochemicals and other production practices. This situation was somewhat similar to what Getz and Shreck experienced in their study on Fair Trade bananas in the Dominican Republic: out of just over three quarters of the 115 producers interviewed, only about half of the producers identified as members of Fair Trade certified producer associations identified themselves as such (2006: 497). Getz and Shreck raised three factors that could help explain the lack of understanding about Fair Trade among producers: (1) top down organizing initiatives by exporters, not bottom up ones by producers themselves; (2) producers' limited education; and (3) little communication of the Fair Trade officials with producers. The first two conditions seem true of this case study. The program did not come out of the felt needs of

producers themselves but was introduced on a top down basis by the government. In the initial stage of the local introduction of Q-GAP, leaders of the pummelo producer groups in the two studied areas had training sessions together in the provincial capital center and then transmitted the knowledge to their members in local meetings. The official regrouping of the farmer field schools (FFS) on their existing group structure appeared to have little substance, given that they only renamed their regular whole group meetings as 'FFS meetings.' Producers' limited educational backgrounds, with many of them having only four years of schooling, might have made themselves dismissive or confused of a particular topic among many that were discussed in local meetings. Their age, which tended to be old, seemed complicit with it. As for the third condition, all the interviewed producer households had some direct contact by GAP officials in their field inspections. Yet many of them did not see any meaningful connections between the activity and the basic conception of Q-GAP.

Participants' lack of understanding about Q-GAP and their limited fulfillment of the required practices were perhaps related to what little additional commercial benefits the attainment of the certificate was considered to provide for them. In the aforementioned study by Getz and Shreck, none of the Fair Trade producers who were interviewed was reported to know anything about the minimum prices or a social premium that were granted to their Fair Trade banana produce. The top-down organizing approach resulted in creating even a group of producers whose members did not recognize the name of the association into which they were organized. The research on Q-GAP did not see such a huge imbalance between the guaranteed benefits and the awareness of them by beneficiaries themselves.

Although many producers were not aware of what Q-GAP was mainly about, they were at least cognizant that it was a kind of standards about agricultural practices, and that whether forceful or not, most of them acknowledged they were participants in the official policy by being a member of a pummelo producer group, engaging in field inspection, and eventually getting certified. Few producers in Kaset Sombun and Ban Thaen had seen any changes, however, regarding the commercial benefits that they had gained after Q-GAP was introduced locally and they got certified of it. In practice, when middlemen came to buy their produce, they rarely asked whether the producers had been Q-GAP certified. This finding makes sense regarding the general feature of GAP as a minimum food safety requirement for export; in this way it is different from more ideologically committed support systems such as Fair Trade that on the basis of a moral economy model attempt to guarantee minimum prices and a premium.

5.5.3 Structuration

The preceding analysis of processes has revealed that while the public GAP scheme could draw the participation of a broad cohort of local producers and serve to certify their production, the actual impact on their production, sales, and producers' consciousness is restricted. Even considering the fact that the finding comes from the initial stage of the policy implementation, one may notice that it could differ significantly from the case of private GAP programs such as GLOBALGAP. The stricter certification standards and monitoring systems of the latter programs compel producers to engage in

more explicit forms of participation that may result in a range of adjustments and changes in production, management, and knowledge generation.

In spite of this evaluation, Q-GAP is a public food safety program through which Thai government aims to fulfill the sustainability goal: to activate the access of small-scale producers to the mainstream market such as domestic supermarkets and foreign retails by ensuring the safety of food that they produce. It is therefore important to probe into the market mechanisms which relativize what Q-GAP accomplishes within a dialectical tension between local processes and extralocal forces.

Hence, the analysis of processes is extended to the analysis of structuration. The latter analysis is set to examine the similar conditions of independent cases “in a relation of mutual determination with an external field of social forces” (Burawoy 1998: 20). It was found that in Ban Thaen there were 12 producers (34%) who could sell their products for export in 2007. The total export sale was 459,900 Baht, i.e., 6.4 percent of total pummelo sales earned by surveyed pummelo producers in the area. Given that no producers in Kaset Sombun could export their certified pummelos and only a limited number of producers in Ban Thaen could export theirs to a sizeable degree in 2007 despite the willingness of most producers to do so, the inquiry will address this question: what might be the social mechanisms whereby the publicly assured ‘safe’ food fails to be sold internationally? In other words, what external forces might be at work, preventing the Q-GAP certified pummelo producers from accessing to the lucrative foreign market? As Regime Theory informs, this focus on the export market will prove useful to highlight how the global regime of agri-food economy and trade is in place to discipline the interlinked local systems

and bear various contradictions therein.

As for Ban Thaen, part of the answer to these questions was seen in the problem of fruit skin appearance. The export market demands that the skin must be clean and beautiful. For this condition to be met, producers need to apply insecticides and fungicides, usually in a combination. Ban Thaen Producer #6 noted: “GAP has benefits for export. But it is overridden by agrochemicals. Fruits must be beautiful, right? Regarding the chemical free products, there is no way for export because you must deal with skin, right (laugh)? It is true with my orchard. It has received GAP, but we cannot export.” [date of interview: 31 March 2008]

The 21 producers in Ban Thaen who could correctly identify the major objective of Q-GAP were asked what the most serious potential risk in participating in the policy would be. 12 respondents (57%) identified it as degradation of pummelo fruit skin through reduced application of pesticides. This view reflected the marketing context of the area for export.²³ Since beauty in fruit skin appearance was given predominant emphasis by middlemen for the purpose of export, producers in Ban Thaen had no choice but to use insecticides and fungicides as needed. They thus took degradation of fruit skin appearance as the most serious risk of undertaking Q-GAP innovations for reduced pesticide usage.

²³ Besides, three producers identified as the most serious potential risk a reduction in the amount of produced pummelos or deceleration of pummelo growth through reduced pesticide spraying; two producers identified as such an increase in labor time by incorporating more labor-intensive organic methods (e.g., EM composting and spraying), and one producer identified as such a reduction in the size of pummelo fruits caused by a reduction in the use of chemical fertilizers. The other three producers noted there were no potential risks.

This aesthetic demand conflicts with another market demand to ensure food safety which is best met by refraining from using pesticides. Within such a friction, the market forces that underscore the importance of aesthetic quality predominate over those that emphasize sanitary and hygienic goals. While most producers in Ban Thaen agreed that it would be much better to be able to export more pummelo in concert with a reduction in the use of pesticides, the reality compels the very opposite: more export demands more doses of pesticides. In addition, the aesthetic market force is bent on the pursuit of economies of scale. At times of purchase, middlemen prefer larger producers because they are capable of providing more good looking fruits than smaller ones. Ban Thaen Producer #6 continued: "To sell, 300 or 400 fruits are not enough. They want 10,000 fruits. Oh, it is for containers at all, you know, for the amount of 5-600,000 fruits. They choose fruits... choose good orchards for them... So selling by ourselves is better. Letting relatives and friends eat is better." [date of interview: 31 March 2008] Out of the twelve producers in Ban Thaen who could export their pummelos in 2007, there were six producers who took 30% or more of their total pummelo sales for export. Their average land holding for pummelo production was 10 rai. In contrast, out of the twelve producers in Ban Thaen who had the land holding of 4 rai or less for pummelo production, there was only one producer who could export an amount of produced pummelo. Regarding wholesaling in the domestic markets, middlemen are not always biased as such in buying pummelos from smaller producers. Thus, the producers' complaints concentrate on their picky buying behaviors that rest on the aesthetic criteria for export wholesaling.

In Kaset Sombun, the problem of the lack of exportability parted producers of the area into three views. The first related their inability to export to the fruit skin problem. They believed that once they began to apply insecticides and fungicides, the skin would become cleaner and so middlemen would be enticed to buy their pummelo for exports. The second view attributed it to the problem of the flavor of pummelos they produced. Producers of this opinion were those who had ever tried the flavor of pummelos produced in Ban Thaen or compared them with their own in the gathering. For instance, Kaset Sombun Producer #29 noted, "I have ever tasted theirs. I went to Chaiyaphum with friends for the gathering and the flavor was different. It was sweet and wet. The flavor of our pummelos is good, but in Ban Thaen it tastes so sweet. It does not have sour flavor." [date of interview: 26 March 2008] They concluded that the flavor of their pummelo fruits were not as good as that in Ban Thaen and thus did not meet the standard for export. The third suggested no clear ideas about the reason. Producers of this group believed that the quality of some of their fruits was high enough for export yet they were not sure why nobody had ever come to buy their fruits for export.

Asked on this problem, producers in Ban Thaen tended to see the problem of fruit flavor as more critical than the problem of fruit skin. Whether having ever tried the flavor of the pummelos produced in Kaset Sombun, they shared a view that it was inferior to their own and it could be the major reason for their inability to export their pummelo. In turn, those producers in Ban Thaen who had ever looked at pummelos produced without pesticide application in Kaset Sombun saw it as readily clean and beautiful and thus not the major reason for their lack of exportability. In addition, as seen, nearly 80

percent of producers in Kaset Sombun suggested that they would begin to apply insecticides and fungicides in their orchards if it enabled them to export their fruits. If the problem was really about fruit skin, one may infer that at least some of them should have already tried to use the risky materials in turn for the potential benefits that could offset the anticipated costs.

Some producers in Ban Thaen believed that the inferior flavor of pummelos produced in Kaset Sombun owed mainly to the lack or insufficient application of chemical fertilizer for flavor and that they would be able to export if this problem was solved. These producers believed that if producers in Kaset Sombun would begin to apply more chemical fertilizer for flavor, they could enhance the quality of their products and thus become competitive for export. Some producers in Kaset Sombun shared this view, attributing their inability to apply more chemical fertilizer for flavor in their orchards to the high expenses required to buy a load of it. They did not maintain the idea that producers in Ban Thaen had paid dearly for it through self-finance such as credit loans.

More producers in Ban Thaen believed, however, that the difference in the flavor was innate to the soil and thus it would be difficult for producers in Kaset Sombun to improve it to an exportable level.

Ban Thaen Producer #15 said, for instance:

It is related to soils a lot. Even if they apply more sweet fertilizer, they cannot beat Ban Thaen. Their flavor has bitterness, even if sweet. Flavor in Ban Thaen is sweet but no bitter. When people in Kaset Spmbun ate ours, they said, "Oh, this is not bitter at all." They know it. It is related to soils only. It is about nature. I don't apply a lot of sweet fertilizer. I use a little bit, but it tastes sweet for itself because soils make it sweet already. [date of interview: 3 April 2008]

Based upon their folk typology, these producers insisted that there were roughly two kinds of soils: sticky soils and sandy soils. ‘Sticky soils’ tend to be clayish with a blackish color, producing sturdier trees that are resistant to pest attacks as well as more beautiful and bigger trunks, leaves, and fruits. Yet the flavor of the pummelo fruits produced on this soil type tends to be bitter, less sweet, and less tasteful. Sandy soils, on the other hand, tend to be sandy with a reddish color, resulting in feeble trees susceptible to a number of pests, with various tree parts being smaller and less beautiful. Yet the fruits of the trees accommodate sweeter and more marketable flavor that has little or no bitterness. The producers in Ban Thaen suggested that the soils in Kaset Sombun had been nurtured based upon the mountaneous agroecology and thus be leaned considerably on the sticky soils. The pummelos produced upon the soils should have a lower quality in flavor than those produced upon sandier soils.

Notwithstanding the multitude of the meanings attached by producers in Ban Thaen, the majority of them concurred that Q-GAP certified producers in Kaset Sombun had been unable to export their pummelos because of the inferior quality in fruit flavor. From the standpoint of rural development, it could be said that this serves to deprive the producers’ vibrancy for local economic growth yet protect their base for livelihood and environmental sustainability.

5.5.4 Reconstruction

The final analytical procedure is reconstruction of preexisting theory. Regarding some of the critical findings from this study on Q-GAP, three theories are singled out for the relevance of reconstruction. They include: the GVC analysis, Regime Theory, and Barham's theory of value-based labeling.

In the GVC analysis, private standards are portrayed as TSCs' critical tool to market their agri-food products globally. On account of rising consumer concerns TSCs are concerned with a list of product attributes including quality, safety, authenticity, and goodness of the production process. To achieve these attributes, private standards are employed to control the production process from the top so that TSCs can meet consumers' satisfaction and thus achieve a competitive edge over the market. The GVC analysis reveals that in enforcing stringent agri-food standards TSCs invest heavily in infrastructural arrangements and are aligned with economically powerful upstream stakeholders. Consequently, many small and medium-scale producers and exporters are excluded from the certification process and thus expelled from the export market sector in which they used to take a significant part.

Q-GAP purports a standard design of sustainability that is more inclusive of less powerful upstream stakeholders in mainstream markets by proscribing much less demanding financial obligations and compliance criteria for them. In doing so, it is intended to fulfill the public responsibility for responding to given social situations of the developing economy. While this study on Q-GAP recognizes the comparatively high degree to which small-scale producers are allowed to participate in the

certification process, the finding does not just asymmetrically mirror the theoretical implications of the GVC analysis. In reality, certification of Q-GAP itself is far from a guaranty for the exportability of smallholders' produce. TSCs' criteria over the quality of products (i.e., appearance and tastiness) and economies of scale (i.e., the amount of sale produce accepted) hold sway over the export market. These criteria serve as 'hidden standards' to be passed on to middlemen's buying behaviors and producers' production processes. The analysis thus revises the GVC analysis: the publicity of a government-led GAP program makes it possible for a much larger gamut of small-scale producers to participate in the certification process than the case of private GAP standards. Consequently, the majority of them get certified. Yet the certification itself is only the minimum criteria for their access to the export market. Their exportability rests upon other factors. Without using their own formal standards, on the other hand, TSCs and other markets still do exert indirect yet powerful leverage over the upstream sectors based upon market-based relationship. These internal and external conditions, yet different from those observed in the GVC analysis, combine to lead to the similar consequence of small-scale producers' limited access to the export market.

Regime Theory fits well with the GVC analysis in predicting the smallholder exclusion from the global value chains through private standards. It formalizes the prediction with the formula that implementation of regulations the socio-technical regime enforces results in the demotion of a specific growth factor which requires financial compensation. The smallholder exclusion phenomena could thus

be considered as consequential on the financial compensation the regime requires to offset potential food safety losses through realignment with economically more prepared entities.

This explanation by Regime Theory seems neat and powerful, yet this study on Q-GAP suggests some elaboration on it. The socio-technical regime as interlinked agricultural institutions and infrastructures at any levels is a very abstract concept. It may obscure some of the critical incongruencies, cracks, or contradictions existing among the different entities that are unified intellectually. At one level, for instance, the 'GAP regime' is constitutive of different orientations such as the ones observed between private and public approaches. As a public approach, the Q-GAP program promotes a massive participation of small-scale producers in the national certification, which is unlikely with a private GAP approach. This is made possible, however, through mobilizing much looser certification criteria than those of private approaches. Observance of these criteria may lead to some safety and environmental imperfections, low awareness of participating producers, and market distrust in the global GAP system as a whole. These negatives are to be avoided more vigilantly in the more stringent private GAP standards.

At another level, value contestations may occur within a regime. As seen in the case of Ban Thoen, reduction of agrochemical use for improved food safety may not always be tried in the production site where a GAP policy is implemented because of the predominance of quality over safety concerns. The producers still need to use, despite their reluctance, a fair amount of synthetic pesticides and chemical fertilizers to meet the consumer demands for food qualities in appearance and flavor. On the

institutional level, their improved agricultural practices for ensuring food safety are not appreciated beyond the purview of ‘minimum requirement’ for export. The dual quest for safety and quality in the mainstream markets of affluent societies thus emerges as observed confusions on the production side, highlighting ideological contradictions existing within the socio-technical regime. Hence, it is suggested that Regime Theory would benefit from reading the internal ‘grammar’ of a regime more thoroughly. By examining some of the discordances produced therein should it sophisticate and enrich a comparative analysis of the socio-technical regime and extra-regimental forces such as niches and novelties.

Barham’s theory of value-based labeling is a moral economy theory which underscores morally positive aspects of standards. In light of this theory, Thai government may be considered to be playing the role of labeling groups in disembedding the economization of values in global markets. The reembedding act directs itself to one of the sustainability goals, i.e., valorization of as many small-scale producers as possible in the Q-GAP certification so that they could legitimately be connected to mainstream markets. For this goal to be met, the government assists the producers by biennially undertaking free inspections and certification for them. From the justice standpoints of supporting socially weak producers, the central moral embeddedness of the certification system is fairness-based.

Nonetheless, the fairness embeddedness of the Q-system is bounded by a couple of preconditions that are basic to a GAP standard: (1) certification as a minimum requirement for producers in their access to export markets, and (2) the absence of guaranteed minimum prices and a premium to be granted to them. Unlike fair trade certification initiatives, therefore, Q-GAP lacks internal

support-mechanisms whereby small-scale producers are brought in the export market. On top of these, the export market is governed by the logic of economies of size which demands minimization of transaction costs through buying a bundle of standardized products from larger producers. The global trade as perceived in the image of this system is thus still one of unequal relationships between North and South: the civic conventions center on Northern consumers' self-interests in personal health rather than other altruistic concerns such as supporting disadvantaged producers in the South. Furthermore, as seen in the case of high-input monocultural pummelo production in Ban Thaen, the Q-GAP standard permits a relatively high degree of industrial conventions in production. This attests to the limitations in ecological conventions. Hence, a realistic analysis of the public GAP program informs a sense of bounded embeddedness in fairness and naturalness, let alone the general lack of place embeddedness, thus delivering Barham's moral economy theory the notion of 'bounded morality.' It is proposed that this standpoint be usefully applied to an empirical analysis of even more authentic value-based labeling initiatives such as those of organic and fair trade certifications. That done, a realistic appraisal of convergent phenomena between political and moral economy perspectives may be made beyond building idealistic theoretical constructs.

5.6 Conclusions

Since around the turn of the millennium, several ASEAN countries have developed public GAP programs from the ground up. These programs represent a new food safety initiative within the

Global South that galvanizes support for a great number of domestic small-scale producers to engage in certification. They manifest themselves as a counterforce to the economizing propensity of major private GAP approaches that align themselves with ever larger upstream stakeholders. In developing regions, public standards tend to be employed mainly for the export market interface, and much less so for domestic markets due to the lack of incentive and capacity by governments (Henson and Reardon 2005). Yet public GAP programs sell quite a large volume of certified products in local and domestic markets, thus serving the food safety interests of domestic consumers. This may in turn affect the domain of production, given that the mass of domestic consumers is also producers in the region. Despite various potential advantages of public GAP approaches, however, actual mechanisms of the policy implementation have not been placed under close examination.

Using Burawoy's extended case method as the methodological framework, this study has examined a public GAP approach, namely Thailand's Q-system, through comparative policy analysis of pummelo production in two local areas of Chaiyaphum province. The analysis has led to the following three structural issues regarding the policy implementation. First, the program embraces a deep-rooted dilemma between participation and safety control. Concerned that proliferation of private standards could lead to excluding broad swathes of the supply chain, Henson and Reardon (2005) suggest that public standards be revised upwards to catch up with the evolution of private standards and thus make upstream stakeholders more competitive in ensuring food safety and quality. This holds true regarding the present level of global competitiveness of public food safety approaches vis-à-vis the

private counterparts. However, setting looser certification criteria is the very strength of the public approach in enabling a much broader participation of small-scale producers in the national certification than does a private GAP approach. To the degree that the criteria increase the level of stringency, there may appear more of those who slip the table off. To resolve this dilemma, it is essential to increase the general efficacy of the program itself through enhanced technical assistance and infrastructural improvements. This direction may be difficult to pursue in the region, however, from the point of financial feasibility of the governments.

Second, certification does not promise producers' access to lucrative foreign markets, and this is more specific to smaller producers. Q-GAP certification legitimizes producers' access to export markets yet this is in the sense of minimum requirement. In reality, the program does not contain internal mechanisms to support small-scale producers for ensuring their access to export markets. Export markets militate for larger producers by gathering copious amounts of agricultural produce from them; Q-GAP certification itself retains sheer neutrality for such a selection bias. Moreover, even when smaller producers have such access opportunities, the certification guarantees, unlike fair trade, neither minimum prices nor a premium. This economic disadvantage was the one about which the majority of interviewed small-scale producers who showed understanding of the major goal of the policy professed dissatisfaction. It thus attests to the halfway fairness embeddedness in the certification program. To paraphrase Giovanucchi and Ponte (2005), therefore, producers should be included in the standard

setting process so that certification could be a more equitable forum for their marketing activities along the value chain than what is provided through the market alone.

Third, Q-GAP certification itself is basically hands-off to the global market forces that prioritize food quality over food safety. A number of local producers suggested that domestic consumers, many of whom are producers and sensitive to the socio-ecological reality of agrochemical use in rural areas, are concerned much more about food safety than food quality (i.e., appearance and tastiness). Fruits with ugly skins, for instance, are at times preferably purchased by domestic consumers to those with clean and beautiful skins – a probable mark of heavy pesticide use. The conditions are reverse with export markets, however. Product appearance is given a high market priority; a healthy fruit with a tiny dot on the skin is not accepted for export sales. Tastiness is another critical factor for the marketability of fresh food products for export, compelling producers to apply more chemical fertilizers for flavor. Serving as ‘hidden standards,’ these TSCs-based criteria influence middlemen’s buying behaviors and thus producers’ usage of agrochemicals. Although Q-GAP certification keeps watch for illicit use of pesticides and other unlawful agricultural practices, the stringency is relatively low, allowing producers to keep using a fair amount of pesticides that may have measurable impacts on the local economy and ecology. As Giovanucchi and Ponte (2005) suggest, therefore, more collaboration between the private and civic sectors is key to ensure equity and transparency in the increasingly blurred boundaries between public and private good.

Meeting these three challenges will not be easy processes for developing societies such as those in the ASEAN region. Yet the evolving nature of the public GAP programs makes the presented appraisal only provisional. More research on this theme is definitely called for (e.g., on political processes of policy decision making) to execute the desirable changes for the agrarian sustainability of grades and standards.

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CHAPTER 6: CONCLUSIONS

6.1 Introduction

The objective of this dissertation was to propose perspectives that contextualize sustainable agriculture in relation to two broader contexts beyond farm and watershed: (1) the developing country context; and (2) the fresh fruit and vegetable (FFV) sector context □ with special reference to the agri-food standard called ‘good agricultural practices’ (GAP). Four separate papers in the main body of the dissertation are concerned with identifying the socio-ecological factors that help to define sustainable agriculture in the two contexts. This concluding chapter summarizes and synthesizes the results from the studies. Desirable agricultural development policy and practices are discussed that ultimately contribute to sustaining the livelihoods of small-scale farmers in the examined contexts.

6.2 Summaries

Chapter 2 provided a review analysis of literature on sustainable agriculture regarding the broadest demarcation of contexts for the sustainability of small-scale farmer livelihoods: developed and developing countries. In the context of developed countries, problems of overproduction and increasing consolidation of small farms due to agricultural industrialization have led consumers and small-scale producers to seek the forms of agriculture that accentuate the values of aesthetics, food safety, rurality, and the environment. In developing countries, threatened food security and economic self-sufficiency due to poverty, agricultural commercialization, and neoliberal de-agriculturalization have compelled

small-scale producers and supportive non-governmental organizations (NGOs) to pursue alternative types of agriculture that emphasize food security, survival, and household livelihood sustainability of small-scale farmers.

By its broad contextual nature, sustainable agriculture in the developing country context goes beyond simple technical application of agroecological principles and practices, requiring extensive efforts by farmers and their supporters for further recreation and innovations of social organization at the local, national, and global levels. Such agroecological practices and organizational efforts are necessarily multifunctional in responding to a multiplicity of livelihood needs of resource-poor, small-scale farmers. Thus, the concept of ‘agricultural multifunctionality,’ originally developed in West Europe, is modified and incorporated into the ‘Sustainable Livelihoods Framework’ – a useful conceptual medium to highlight the sociological nexus of poor people in improving and sustaining their livelihoods amidst adversities. With its ecological foundation in agroecology, the modified notion of agricultural multifunctionality expresses a standpoint of sustainable agriculture in developing countries as “incorporation of various commodities and non-commodities produced by the diverse activities of small-scale farmers practicing agroecological principles for enhancing their livelihood sustainability” (p.24-25 in this dissertation).

Under this reformulation of agricultural multifunctionality, the functional factors enumerated included: enhanced food and nutrition security, financial stability and spread of marketing risks through diversified farming practices, conservation of landraces, opposition to agricultural liberalization, sustenance of women’s role for agrobiodiversity preservation, coping with economic crisis, preservation of local cultural heritage, and protection of human health and the biophysical environment. The modified notion of agricultural multifunctionality

thus emphasizes the developmental implications of agroecological practices and seeks to rectify the ecologically-oriented limitations in the scientific discipline of agroecology.

Chapter 3 provided a critical review of the food safety protocol called ‘good agricultural practices’ with special reference to EurepGAP. This study focused on identifying agricultural sustainability in the fresh fruit and vegetables (FFV) sector context of the Global South. The chapter initially discussed the institutional origin and development of EurepGAP, along with export barriers and other risks it imposes upon upstream stakeholders in the global value chains. The greatest sustainability problem identified was that the institutional design in which private retailers pursue economic rationality serves to militate for larger and better resourced producers and exporters in developing countries while excluding smaller and less well resourced ones from the market.

In addition, from a wider theoretical standpoint, ethical implications of private sanitary and phytosanitary (SPS) measures were examined by applying three perspectives from environmental sociology including ecological modernization, risk society, and green socialism. First, ecological modernization theory upholds a hyper-modernist view of sustainable development which emphasizes the compatibility of industrial economic growth and environmental protection. It highlights the ethical dimension of private SPS measures in that they not only protect the health and safety of consumers and producers but also safeguard the retail sector and exporting areas from the possibility of a health crisis that might threaten the global reputation and marketability of their products. Second, critical of the role of industrialization for the risk and uncertainty of the global ecological crisis, risk society theory champions the view of reflexive modernization in which individual citizens and social movements reconfigure global politics towards the fundamental dissolution of environmental

risks. It also illuminates the ethical limitation of private SPS measures by critiquing the techno-administrative approach of ecological modernization to environmental risk management. In doing so, it illuminates the lack of direct civil society involvement in realizing the democratic design and implementation of private SPS measures. Third, green socialism makes a poignant critique of ecological modernization and private SPS measures by positing the perpetual presence of capitalism as the fundamental source of social and environmental problems. In light of the theoretical approach, three self-destructive moments of capitalism were identified in the operation of private SPS measures: (1) remaining structural fragility of industrial monoculture, (2) absence of systematic attention to injustices resulting from economic expansion (i.e., exclusion of smaller stakeholders in the upstream global value chain), and (3) neglect of the global dimension of developmental and distributive problems regarding the macro-structure of class, inequality, and dependency in North–South relations.

Finally, in view of the limitations of private GAP approaches, public GAP approaches promoted by some governments in the Global South were discussed regarding their potential to be a development alternative to the existing private SPS measures. Government support for public GAP approaches helps growers to reduce transaction costs, precipitating a much broader participation by small-scale producers in becoming certified to be able to access mainstream markets as well as for domestic consumers to benefit from the guaranteed safety. The relatively loose compliance criteria ingrained in the standard may hinder its successful global status, however. Further, these public approaches may not become rapidly widespread in the current neoliberal milieu of the Global South where state functions disrupted through SAPs do not lend themselves to equip such relatively costly programs.

Chapter 4 examined the feasibility of official institutional programs promoting sustainable

agriculture in Thailand during the last decade. Concurring Buch-Hansen's notion that bringing in a framework of enabling policies is key for agriculture to be sustainable, the analysis adopted Fischer et al.'s (2007) conceptual framework of sustainable governance. The framework consists of the modified form of 'situation analysis' which examines an inventory of incentives affecting actors' behaviors in a broad realm of natural resource management including agriculture. It is also paired by 'analysis of change' which addresses dynamic processes of institutional changes related to norms, incentives, and the level and approach to execute incentive measures.

Using the sustainable governance framework, the study examined the programs of three main official institutions promoting sustainable agriculture in Thailand based upon the field research conducted in Chaiyaphum Province, Northeast Thailand. The first program is related to Thai version of good agricultural practices called Q system administered by the Ministry of Agriculture and Cooperatives (MOAC). Based upon the governance structure of 'markets,' this program is operated by district Department of Agricultural Extension (DOAE) officers for various technical assistances to optimize producers' agrochemical use and by provincial Department of Agriculture (DOA) inspectors for field inspections related to the certification. Further, DOAE officers make organizing efforts to create farmer field schools (FFS) for a target crop, and regional DOA officers work at the process level to monitor and report to the central office regarding the changing situation of policy implementation. The second program is related to the promotion of organic agriculture by the Bank of Agriculture and Agricultural Cooperatives (BAAC) under the farmers' debt repayment suspension program. Grounded in 'command-and-control' approaches, the credit institution has combined debt moratorium with promotion of organic agriculture for the ultimate operational goal of

fully recovering defaulted loans from their farmer clients. Their nationwide organizing activities include seminar dissemination of organic production methods and marketing initiatives for organic and pesticide-free products. At the process level, provincial BAAC branches regularly reported the outcomes of the implementation of these policies to the BAAC headquarter in Bangkok with advisory notions on the policy process. The third program is related to industrial organic agriculture promoted by a local Subdistrict Administrative Organization (SAO) as part of the democratic decentralization of local governance. Centering upon the governance mode of ‘collective decision-making,’ the SAO council, with members having experience in operating a small vegetable community-supported agriculture (CSA) project, developed the operational infrastructure of organically produced fruit processing. They incorporated into it organizational arrangements of an inter-village division of labor, decision-making, and marketing. The nature of the program as the product of local decentralization did not allow it to form process level feedback loops, however, which might have contributed to the program’s failure and termination.

The main components of institutional governance of sustainable agriculture in Thailand were also discussed. First, the major change in the incentive structure was related to the shift of official interests from specific alternative production methods to controlled use of conventional agricultural devices through insertion of alternative production practices. It was suggested that economic responses to the intensifying forces of globalization on both the government and producers’ sides have stimulated this transition. Second, the operational feasibility was assessed with regard to the public nature of the programs. The Thai government could provide free extension, certification, and career rehabilitation services for less resourced producers. Additional efforts would be needed to address poor institutional features (e.g., low

levels of capitalization to improve hygiene conditions; relatively low compliance criteria in Q-GAP etc.). Third, the organizational dimension of governance was highlighted. Official promotion of FFS follows the international trend of farmer participation in sustainable agriculture. The rapid multiplication of FFS groups on the national level is essentially a top-down process; rather than reflecting farmers' own initiatives. Official efforts to promote sustainable agriculture such as Q-GAP could serve the needs of small-scale farmers. Yet due to limitations in demand, this may primarily be in the sense of bolstering the *status quo* of a more competitive cohort of those farmers to remain in mainstream markets, rather than encouraging less competitive ones to newly enter the markets and empower their livelihoods. The social impacts of public sustainable agricultural interventions in the past decade remain limited in relation to the estimated five million small-scale farmer households in Thailand.

Chapter 5 sought to provide an understanding of the basic sociological characteristics of Q-GAP in Thailand. This study is relevant for identifying agricultural sustainability in the FFV sector in the Global South. The political economy perspective was examined to focus on enforcement of standards by major global forces to discipline the actors involved in the global supply chain. The moral economy perspective was presented to highlight the dynamic constellations of quality and ethical values embedded in the alternative commodity circuits regarding production, certification, and trading.

The study then adopted Michael Burawoy's extended case method as the methodological lynchpin to analyze the sociological outcomes of Q-GAP policy implementation. This method assumes four contextual effects. First, attention to 'intervention' explicitly recognizes that sociologists affect the world they study. Second, attention to 'process' encourages observers to unpack interviewees' situational experiences by moving

with them through their time and space. Third, recognizing 'structuration' compels observers to move beyond social processes and confront the wider, autonomous field of social relations called 'social forces.' Fourth, 'reconstruction' helps achieve generalizability of research findings from an extended case by progressively incorporating them into reformulation of existing theory.

Based on the extended case method, analysis proceeded by applying the four contextual effects to data obtained through field research. First, intervention drew individual producers' own reflections on the meaning of pummelo farming for their livelihood sustainability as well as on how they perceive activities of producers in another production area. In Kaset Sombun, some female producers were obliged to work on the farm by themselves because of their husbands' international migration. With the labor intensive yet less commercially promising pummelo farming in their area, some of them left it like natural farming so that they could have more spare time for off-farm work to earn income for their children's education and other living expenses. Intervention in producers' perceptions of production in the other area also revealed that some of their perceptions had been shaped through rumors that were not based upon direct experiences.

Second, a process perspective was gained through aggregating the situational knowledge of actors' practices and perceptions. Clear differences were identified in the use of synthetic pesticides between the two study areas: none of the surveyed producers in Ban Thaen were using pesticides for pummelo production while all the surveyed producers in Ban Thaen were using them. The differences were not so much attributed to cultural factors as agroecological differences in the prevalence of pests. Alternative pest management methods were not adopted very widely by producers in both areas because of the limited durability of

the effects and the perceived superiority of synthetic pesticides. Similarly, producers in Ban Thaen applied more chemical fertilizer than those in Kaset Sombun reportedly due to differences in soil nutrient content. In both areas, commercial organic fertilizers were gaining increasing popularity due to the rapid rise in market prices of chemical fertilizers. Regarding perceptions of Q-GAP, only half of certified producers in both areas possessed a basic understanding of the policy's contents. The commercial benefits that the certificate could yield appeared restricted by the top down policy design, and producers' age and limited educational background.

Third, analysis of structuration discussed two important external market forces that were identified by the local producers as hindering the opportunity to sell their pummelos for export markets. One was related to the problem of fruit skin appearance. In Ban Thaen, even after the introduction of the Q-GAP policy, the aesthetic market demand for beauty and cleanliness predominated over another demand for food safety, compelling all the producers to apply synthetic pesticides. This was closely associated with the demand for volume, thus favoring larger producers. The other was related to the problem of fruit flavor. Producers in Ban Thaen viewed the inferior flavor of pummelos produced in Kaset Sombun as explaining why middlemen did not come to buy pummelos produced there. Combined with the condition of Q-GAP certification itself as the 'minimum requirement for export,' these extralocal market forces have prevented many small-scale producers from selling their products that are assured as 'safe food.'

Fourth, reconstruction of existing theory was carried out with reference to three selected theories. First, examination of Q-GAP informed GVC analysis that small-scale producers' participation in export markets could be limited due to the under-emphasis on

relevant standards in market interventions rather than its overemphasis observed in private standards. Second, the presence of considerably different orientations in a GAP regime (e.g., private and public), as well as value contestations observed in the Q-GAP approach, suggested that Regime Theory would benefit from more concrete and reflexive consideration of the concept of ‘regime.’ Third, analysis of Q-GAP revealed that the program is bounded in fairness and naturalness, with the general absence of place-embeddedness. In this context, the notion of ‘bounded morality’ in Barham’s theory may be usefully adopted in the analysis of more authentic value-based labeling initiatives.

Three structural issues were raised regarding the present state of Q-GAP policy implementation. First, the program reflects a deep-rooted dilemma between participation and safety control. While there is broad participation of small-scale producers in Q-GAP, it has been enabled by the relatively loose certification criteria for compliance. There has been a need for a public GAP initiative such as Q-GAP to elevate the criteria to the internationally renowned level while maintaining and expanding the scale of smallholder participation. However, this may require a substantial growth of new investments that may exceed the financial capability of some governments in the ASEAN region. Second, certification itself does not guarantee producers’ access to lucrative foreign markets – a point that is especially true for smaller producers. Q-GAP certification for producers’ access to export markets is an official minimum requirement which lacks any internal support mechanisms such as minimum prices and a premium, thus allowing the markets to favor large-scale producers. A fundamental solution suggested was that producers be involved directly in the standard setting process to improve their control over marketing. Third, Q-GAP certification itself does not intervene in the global market forces that prioritize food quality over food safety. Interviews with pummelo

producers revealed that product appearance and tastiness were given much higher priority by export-oriented middlemen than product safety assured through GAP certification. Producers for the export market were thus compelled to a level of pesticide use that may have measurable impacts on the local economy and ecology. More collaboration between the private and public sector is needed. With regard to meeting these three challenges, more research on this theme was suggested.

6.3 Analytical Synthesis

The concept of agroecological multifunctionality presented in Chapter 1 represents the nexus of ecological and sociological perspectives regarding agroecological practices among smallholders in the developing world. Reflecting the theoretical orientation of the sustainable livelihoods approach, it emphasizes the multifunctional advantages of agroecological practices for smallholder livelihoods, thus signifying a departure from the existing concept of agricultural multifunctionality that is ecologically centered (e.g., Altieri, 2000). This developmental, producer-centered focus characterizes the goals of sustainable agriculture proponents in developing countries compared to the more environmental, consumer-oriented emphasis in developed countries.

The discussion of agroecological multifunctionality and sustainable agriculture in Chapter 1 is primarily of theoretical nature and argues for more socio-cultural interventions and interdisciplinary collaboration in agroecology. It does not rebuff empirical observability, however. In the study on Thailand's Q-GAP policy, signs of agroecological multifunctionality were observed in the integrated pummelo orchards in the highland area of Kaset Sombun. Nearly half (45%) of orchards there were integrated with vegetables and other fruits for both

subsistence and commercial ends as opposed to only 14 percent of orchards in Ban Thaen. Fruits and vegetables grown for subsistence contribute to not only dietary and nutritional diversity but also a reduction in household expenditures to purchase food. In addition, while in both areas the principal cultivar of pummelo grown was Thong Di for commercial goals (81.9 percent of pummelo trees in Kaset Sombun and 95.0 percent in Ban Thaen were planted of this cultivar), 75 percent of orchards in Kaset Sombun were planted with another cultivar compared to 37 percent in Ban Thaen. Further, 45 percent of orchards in Kaset Sombun were planted with at least a third cultivar, with some orchards planted with locally native cultivars for subsistence purposes. Integrated pummelo farming in Kaset Sombun thus retains the conserving function of biodiversity and local dietary culture. Moreover, the fact that farmers in Kaset Sombun use neither pesticides nor insecticides for pummelo production helps minimize risks for disorders in ecological and human health. Farmers' decisions to avoid using these types of pesticides for pummelos may influence the ways that they produce other crops such as rice. The net effects on local ecological and human health may therefore be significant. In the lowland Kaset Sombun area, on the other hand, the structure of pummelo farming is characterized by monoculture and few indicators of such multifunctionality were detected.

Despite the agroecological multifunctionality observed in Kaset Sombun, however, it is too quick to assume that pummelo farmers there are fully self-aware of maintaining and enhancing it. In contrast to indigenous subsistence peasants in highland Peru or Mexico resisting the tide of neoliberal agricultural liberalization, farmers in Kaset Sombun do not appear to reject globalization, let alone agricultural export. Interviews revealed that they were eager for the opportunity to export their pummelos to improve their financial livelihoods and local status. No farmers in Kaset Sombun ever linked exportability to any negative

implications for their agriculture and livelihoods. It is appropriate to assume, therefore, that once it is possible to export pummelos, the structure of pummelo farming in Kaset Sombun could become a far more monocultural, densely planted of trees, capital-intensive one like that in Ban Thaen. Accordingly, the current agroecological multifunctionality in the Kaset Sombun pummelo orchards would be lost and their overall livelihood characteristics could become similar to that in Ban Thaen.

Chapters on GAP are concerned with identifying agricultural sustainability in the fresh fruit and vegetable (FFV) sector in the Global South. An important focus in these studies was to identify agricultural sustainability in relation to the feasibility of public GAP-based agricultural export by small-scale producers. The baseline assumption was that public food safety standards may be capable of transacting export production and marketing in ways that minimize ecological costs of agrochemical origins while providing significant financial benefits for the livelihood sustainability of small-scale producers.

From a broader political economy standpoint, however, this assumption applies only to rural economies that currently have comparative advantage in the fresh fruit and vegetable (FFV) sector. From wider perspectives of economic development, it is not appropriate to conclude that *all* developing countries should rely on agricultural exports. Some developing countries have an absolute advantage in international trade in producing FFV for export to developed countries either because of seasonality or rarity of particular species. Regarding cereals and other agricultural products such as meats and dairy products, however, many developed countries protect their agricultural industries by providing subsidies. Moreover, many African countries struggle to produce sufficient food for themselves. At least for a short time, liberalization of agricultural trade could benefit some developing countries that have

comparative advantage in the agricultural export sector; however, this may entail significant adjustment costs for those that do not have it. It is hence not easy for many developing countries to be internationally competitive in export agriculture with developed countries or even among themselves.

The second perspective is that even though a developing country may have comparative advantage in exporting a particular agricultural commodity, it may not be the best source of medium-term adjustment and long-term development. Given that export of agricultural products tends to be less efficient in producing economic returns than export of industrial products, it could be rational for a country to adopt a development strategy that does not reflect its comparative advantage in agriculture. A debate by two leading development economists, Ha-Joon Chang, a leading heterodox development economist, and Justin Lin, Chief Economist of the World Bank, provides clues for this point (Lin and Chang 2009). Justin Lin argues that many poor countries have comparative advantage in labour- and/or resource-intensive types of production activities and services; a focus on this comparative advantage allows them to be internationally competitive and build up the basis of capital accumulation for more capital intensive production and technological upgrading. This argument is theoretically sound, yet many poor countries remain poor even though the government plays a facilitating role in achieving comparative advantage. This is because the economy is not upgrading and thus the long-term growth is slowed down. As Ha-Joon Chang argues, a developing country trying to catch up with advanced economies needs to upgrade its technological capabilities by establishing and protecting industries in which it does not currently have comparative advantage. Historical evidence of economic development of Japan, South Korea, and other East Asian economies serve as cases in point.

In addition, it is misleading to assume that it is rational and viable for *all* small-scale producers to try to succeed in producing for export markets. Export agricultural production may not be *rational* for small-scale producers in the Global South because of three hindrances. First, market failures such as decline of international commodity prices or rapid decline of overseas demands may critically erode the basis of livelihoods which are reliant on export-oriented monocultural production. Second, pest outbreaks may lead to the ecological breakdown of monocultural production that characterizes export-oriented agricultural systems. These two types of failures may not be unique to small-scale producers but may also hold true for medium and large-scale producers. However, smallholders' lack of land and other capital may make their recovery more difficult, with the resultant indebtedness constraining other career opportunities of them. Third, selected crops for export production do not always fit to their subsistence needs; when the likelihood of the two failures is moderate to high, it may be more rational for smallholders to diversify their production to ensure that their subsistence needs are met. A shift to export-oriented production among small farmers can jeopardize the benefits of subsistence production.

Moreover, it is not *viable* for many smallholders to produce food for export markets for several reasons. Most fundamentally, they are institutionally excluded from the markets because they lack economies of scale. With regard to efficiency considerations, it is more costly and cumbersome for buyers to visit a large number of small farms and appraise the quality of their produce one by one; acquiring agricultural products for export from larger producers minimizes transaction costs. Second, many poor small-scale farmers in the Global South still reside in environmentally less favored areas (e.g., valleys, slopes, mountains, arid or semiarid zones, etc.) where they do not benefit from public investments devoted to superior

production areas. The qualities of produce in such areas often do not correspond to those demanded by overseas markets. Worse, many of those areas are located in remote or socially marginalized areas where opportunities for exterior connections are shunned.

Seen as such, sustainable export agriculture under the public GAP framework is confined to only certain regions of the Global South where small-scale farmers could draw socio-ecological benefits from the neoliberal trend. In contrast, those smallholders living in environmentally marginal areas and/or socially exclusive regions, livelihood benefits may be superior in multifunctional agroecological practices.

One promising way to realize sustainable agriculture under GAP is the innovative inclusion of meso-level local institutions in instituting farmer-to-farmer extension approaches. Given the knowledge intensive nature of on-field food safety control, a successful GAP implementation necessarily requires systematic engagements by producers in training and extension. This point should be more pronounced with the case of a public GAP approach than a private one as the former includes a much larger pool of participant producers. Like a private GAP program such as EurepGAP, Thailand's Q-GAP involves group certification under established producer organizations. Moreover, the public program promotes the creation and practices of the FFS. Government provides opportunities for small-scale farmers to obtain training and technical assistance related to understanding and applying GAP principles. Field observation in the two districts examined (Chapter 5) suggested that training and assistance provided by the government was not adequate for participating producers to fully acknowledge the significance of the policy, nor did they collectively engage in the field-based self-learning process. Regarding integrated pest management (IPM) practices, this result was partly related to idiosyncratic farming conditions of the two areas observed. In Kaset Sombun,

active innovations related to IPM might be considered unnecessary because none of the producers there were applying insecticides or herbicides. In Ban Thaen, it seems feasible to incorporate IPM and other alternative practices. Government extension officers and the majority of local producers in the district concurred, however, that modern technological backing such as pesticides and chemical fertilizers are imperative for combating the agroecological conditions there.

The government's adoption of the FFS approach contributes to scaling up of IPM and other approaches. This emphasis on collective efforts by people themselves is consistent with the recent trend of rural decentralization whereby much of the agenda of agricultural development has been enforced by local governments, the NGOs, and the communities themselves (Thiele et al. 2001). Although being far from a panacea, the FFS as a vital social capital creator could be incorporated into a public GAP framework more effectively than is currently performed in the Q-GAP program. This point resonates with Pontius et al.'s (2002) argument that the IPM FFS are not an end in themselves but is a starting point for sustainable agricultural development. The following is a list of examples with wide-ranging potential:

- Evidence suggests that rice farming in irrigated areas is advantageous for lowering use of insecticides and increasing yields without significant economic loss, investments in bio-control products, and learning costs related to monitoring techniques (Way and van Emden 2000). A multiplication of FFS initiatives on irrigated rice fields under the public GAP framework could thus have a sizeable impact on improving the agroecology of rice farming in Asia with relatively low costs.

- As evidenced in Peru, the original focus of the FFS on IPM could be transformed to cover integrated crop management (ICM) whereby a combination of crops that are of central importance to participant farmers is studied collectively on the experimental basis.
- In areas where water pollution has emerged as a serious problem for the local residents, agrochemical control through the FFS may be extended to the awareness raising and activities related to water management. Regarding the dispersive nature of water pollution, the behavioral impact on the FFS non-participants can be significant.
- In an advanced FFS training (beyond the mastery of IPM based upon agroecosystem analysis), the participants may learn and attempt to realize the multifunctional potential of agroecological practices for sustaining and improving their livelihoods. The trajectory of agroecological multifunctionality that they engage begins with an exemplary general model such as that offered in Chapter 2, yet it will then be developed by FFS members themselves taking into account the local/ community/ household portfolios of livelihood sustainability. Not all FFS participants may be interested in stepping into this level of engagements in agriculture, however. Therefore, interested farmers in the advanced level of the FFS may need to be recruited from several existing FFS groups. This way, an approach to ‘good agricultural practices’ could come closer to an approach to what may be termed ‘good livelihood practices.’
- The FFS has demonstrated it can be used to improve agricultural yields and the quality of produce through collective learning of soil fertility management (Mureithi et al. 2002; Rijpma, Bakkeren, and Haque 2003). Given that even in a region, soil conditions may significantly vary from farm to farm, collaborative exchange of knowledge among

farmers about different soil types and appropriate management methods through the FFS could contribute to upgrading soil fertility in each farm. Compared to pest management, the required frequency of efforts necessary to improving soil fertility (e.g., manure application) can be much less. It can therefore be part of the regular training of the IPM FFS.

- A FFS group can be organized to assure better chances for marketing of agricultural produce. With strong commitment to producing safe food, such a group could appeal the quality of the product to local and domestic consumers and intermediary buyers. In case multiple agricultural products are produced in an agroecologically sophisticated manner, a FFS group could transform itself to engage in a direct marketing with local and domestic consumers. Moreover, as Meijerink et al. (2005) demonstrate, marketing activities through the FFS could be linked to biodiversity conservation in an effort to select and develop more marketable crop varieties with which farmers could improve their livelihoods.
- A FFS group may link their activities to an international fair trade movement. Since the present institutional setting of a public approach to GAP such as Q-GAP is weak in supporting small-scale farmers for export, it should establish a special sector for fair trade. In light of the concept of GAP, organic FFV production is not appropriate for this goal. However, the production could gain integrity through non-pesticide FFV farming (while still allowing chemical fertilizers) operated by the FFS. Through engaging domestic exporters, foreign importers and retailers in this potentially profitable enterprise, it could be developed as a viable model of an international private-civic partnership.

- To make a public approach to GAP a more equitable forum for marketing activities of small-scale producers, they should be included in the standard setting process whereby the FFS and other forms of producer group comprise the basic unit to establish the agenda from the ground up. This way, a public approach to GAP could transform itself from a top-down production-centered protocol to a democratic farm-to-market protocol, thereby making viable the marketing practices recommended above.
- When FFS is introduced in areas where social forestry is needed, a FFS group promoting agroforestry/integrated farming may develop itself to be a ‘farmer forest management school (FFMS)’ engaging in a broad community forest conservation initiative.
- Government units in charge of GAP programs could be tied to those that are more generally responsible for rural development and education so that they could cooperatively develop ‘farmer life schools (FLS).’ Originally developed in Cambodia based on the concept of the FFS by Southeast Asian HIV program of United Nations Development Program (UNDP) (in collaboration with the Food and Agriculture Organization (FAO)), FLS is a social learning outlet for farmers to address livelihood issues. With an analogous conceptual framework adopted for addressing on-farm problems, farmers originally grouped in the FFS could mutually train and help each other to resolve their off-farm problems (e.g., HIV/AIDS, off-farm work, parental care and child education, etc.) (Winarto, unknown). Although this is a very far-reaching application of the FFS in a GAP framework, it could be adopted by active, interested FFS group members through appropriate official facilitation.

6.4 Closing Remarks

This dissertation has presented two perspectives of sustainable agriculture in the selected contexts: ‘agroecological multifunctionality’ in the developed country context, and sociological perspectives regarding ‘public GAP’ of the FFV export sector context. These two perspectives will guide the author’s future research projects to make contributions to the studies of sustainable agriculture and livelihoods of small-scale farmers in the developing world.

Presented in the following is the author’s future research plan. With respect to agroecological multifunctionality, comparative gender analysis will be conducted regarding the household division of labor and fairness in resource allocations between households practicing agroforestry and those engaging in conventional agriculture. With regard to public GAP, there are three projects related to Thailand. First, processes and outcomes of agricultural distribution and marketing related to Q-GAP certified products will be investigated regarding three marketing channels of rice, vegetables, and fruits involving (1) middlemen, (2) producer cooperative, and (3) contract farming. Second, producer cooperatives’ experiences of Q-GAP, EurepGAP, and other certifications will be elucidated from comparative viewpoints of the benefits and risks of certification. Third, a social and institutional framework will be envisaged regarding how agri-food standards could involve small-scale farmers in markets in ways that enhance their livelihood base. The “M4P” (*Making the Market Work for the Poor*) approach, which has emanated from sustainable livelihoods studies and New Institutional Economics, will serve this theoretical task. Moreover, it will be assisted further by the empirical results from the first and second research projects as well as broader literature on agricultural distribution and marketing.

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APPENDIX

Section 1. Basic Questions on Households and Pummelo Farming

1. Please provide your personal information related to name, address, age, education, and marital status (single, married, divorced, widowed).
2. Please provide the information of your family members in terms of the relationship with you, age, education, occupation, and place to live.
3. How many years have you been farming?
4. How many years have you grown pummelos?
5. In your family, who else have been growing pummelos?
6. How many years have they grown pummelos?
7. Please provide the information of land ownership (own, inherited, bought, parent owned; total land size) of each of your family members and the kinds and the land space of all the plants they grow. Please also specify the kinds of plants and the land size associated with GAP certification.
8. Please explain the history of your pummelo production.
9. Which pummelo cultivars do you grow?
10. How much land size is devoted to each cultivar?
11. Why do you choose to grow those cultivars?
12. Please provide information about the age and associated land size (and the number of trees if applicable) of pummelo trees in your entire pummelo orchard.
13. Why do you grow (the name of the specific pummelo cultivar) most?
14. Which pummelo cultivar is the easiest to grow, and why?
15. Which pummelo cultivar is the most difficult to grow, and why?
16. How do you assess the quality of your land (very good, good, not very good, not good at all), and why do you think so?
17. How do you sell your pummelo products? Where are they sold?

18. Have you had any livelihood crises or difficulties in the past five years? If yes, what are they? How has your household dealt/coped with them?
19. Have you had any crises or difficulties in your farming in the past five years? If yes, what are they? How has your household dealt/coped with them?

Section 2. Questions on the Q-GAP Policy

20. When did you begin to participate in your farmer group?
21. Why did you wish to participate in the group?
22. When was your land certified?
23. In your idea, what is GAP for?
24. How important is GAP for you (very much, much, not very much, not at all)? Why do you think so?
25. Have you tried GAP certification for other crops than pummelo? If yes, please provide the details of how you have tried. Have you passed it?
26. How do you evaluate the difficulty in passing GAP (very much, much, not very much, easy, very easy)? Why do you think so?
27. Please rank the benefits of the GAP policy in terms of importance (out of: improved sales to the markets, reduced costs, improved health for producers, improved health for consumers, improved knowledge about agricultural practices and environmental protection, other).
28. Please rank the risks of the GAP policy in terms of importance (out of: reduced/slowed production, reduced fruit size, reduced skin quality, nuisances in record keeping, increased costs (if applicable), increased work time (if applicable), other).
29. Do you think why there are some people who do not wish to belong to your farmer group?
30. How often do you attend the meeting of your farmer group (0-20%, 21-40%, 41-60%, 61-80%, 81-100%)?
31. Which training in your group has been most useful for you to produce pummelos? Why do you think so?
32. How often have FFS meetings been held? [asked in Ban Thaen District only]

33. What issues have been discussed, and discussed how? [asked in Ban Thaen District only]
34. Has FFS been useful for you (very much, much, not very much, not at all)? Why do you think so? [asked in Ban Thaen District only]
35. Do you think what the role of government agricultural extension for GAP has been?
36. What have you learned from extension most?
37. What extension efforts have been unnecessary for you?
38. Have you been record keeping your practices (very often, often, not very often, not at all)?
39. Have you read the GAP guide book for pummelo production (all, most, a little, not at all)? If you have read, what was most useful?
40. Do you think how much GAP has impacts on marketing of pummelo in Thailand (very much, much, not very much, not at all)? Why do you think so?
41. How much do you expect the possibility of pummelo export from getting GAP certified (very much, much, not very much, not at all)? Why do you think so? [asked in Kaset Sombun only]

Section 3. Questions on Agroecosystems

42. What are the most serious insects that cause production problems?
43. When do the insect problems occur?
44. Do you apply insecticides? Why do (not) you apply them?
45. If you do, when do you apply them?
46. How long have you applied insecticides?
47. How has your use of insecticides changed over time?
48. Have you faced any health problems using insecticides? If yes, what are they?
49. Except for insecticides, do you apply any other method to expel insects? If yes, what are they?
50. How have you learned the alternative methods? How long have you practiced them?

51. What are the most serious plant disease problems?
52. Are they associated with insects?
53. When do the disease problems occur?
54. Do you apply fungicides? Why do (not) you apply them?
55. If you do, when do you apply them?
56. How long have you practiced it?
57. How has your use of fungicides changed over time?
58. Except for fungicides, do you apply any other method to get rid of fungi? If yes, what are they?
59. How have you learned the alternative methods? How long have you practiced them?
60. What major problems in pummelo farming might you associate with weeds?
61. Do you apply herbicides? Why do (not) you apply them? If you do, when do you apply them?
62. How long have you practiced them?
63. How has your use of herbicides changed over time?
64. Have you faced any health problems using herbicides? If yes, what are they?
65. Except for herbicides, do you apply any other method to remove weeds? If yes, what are they?
66. How have you learned the alternative methods? How long have you practiced them?
67. What kind of chemical fertilizers do you use?
68. When do you apply them?
69. How long have you used them?
70. Has your use of chemical fertilizers changed over time? If yes, how?
71. What are the advantages of using chemical fertilizers in pummelo production?

72. What are the disadvantages/problems of using chemical fertilizers in pummelo production?
73. What kind of organic fertilizers do you use?
74. When do you apply them?
75. How long have you applied them?
76. Has your use of organic fertilizers changed over time? If yes, how?
77. What are the advantages of using those organic fertilizers in pummelo production?
78. What are the disadvantages/problems of applying organic fertilizers?
79. What kind of water systems do you use in your pummelo production (sucking water from river/drip irrigation/orchard ridges/other)?
80. How long have you used the systems?
81. Why do you choose to use them?
82. Do you wrap your pummelo fruits? If yes, why and how? If not, why?
83. If the prices of chemical fertilizers and organic fertilizers are the same, do you still apply organic fertilizers? If yes, why?
84. Do you want sprinklers? [asked in Kaset Sombun only]
85. How much was the expenses of establishing sprinklers in your orchard? [asked in Ban Thaen only]
86. Assuming that you will be able to export your pummelo if you use pesticides, will you use them? If yes, why? [asked in Kaset Sombun only]
87. Assuming that you can export your pummelos even if you do not use pesticides, how do you think? [asked in Ban Thaen only]
88. Do you think why farmers in Kaset Sombun cannot export their pummelos? Have you ever tasted their pummelos? [asked in Ban Thaen only]
89. Please provide information about your use of chemical/organic fertilizers, insecticides, fungicides, herbicides, water systems, and if any, others, in terms of the yearly amount applied per rai, number of times applied, and costs from the year 2005 to 2007. Similarly, could you provide your estimate of fertilizer use for the year 2008?

Section 4. Questions on Livelihoods

90. Please provide your family incomes from plant production, livestock, remittance, rent, non-farm work, and others for the year 2007? Please also provide detailed information about each activity.

91. Do you think GAP has affected the financial status of your household? If yes, how?

92. Do you think that in general, GAP improves or exacerbates the problem of rural debt? Why do you think so?

93. Do you think your livelihood is self-sufficient? Why do you think so?