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ARTICLES

Reflections on the Growing Influence of Good Agricultural Practices in the Global South

Yuichiro Amekawa

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Abstract EurepGAP is a pioneering field level food safety protocol called 'good agricultural practices' 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 powerful 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

Y. Amekawa (✉)
Department of Sociology, Graduate Program, Iowa State University,
103 East Hall, Ames, IA 50011, USA
e-mail: sociology@iastate.edu; amekawa@yahoo.com

Introduction

Private standards have recently emerged as a dynamic power in global agri-food systems (Busch and Bain 2004; Denise et al. 2005; Fulponi 2007; Hatanaka et al. 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, p. 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, avian influenza, 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 various 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 "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 embraced more than 80 countries, over 92,000 certified growers, and more than 100 independent accredited

[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).

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 et al. 1999; Farina and Reardon 2001; Maertens et al. 2007; Martinez and Poole 2004; Gutman 2005; Jank et al. 1999).[2] There are also reported cases where many small-scale farmers engage in and successfully comply with stringent private SPS measures—a large exporter outgrower 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.

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.

[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 Berdegué 2002).

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

The Rise of EUREGAP

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.

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 et al. 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 tarrifs and quantitative restrictions, coupled with growing visibility of non-tarrif 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, p. 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, p. 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, p. 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 impact of standards on food security can be disproportionately higher than that on food safety. Otsuki et al. (2001) 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 nine African countries by 64% 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 gravely 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 <20% attended five or more meetings. These clearly contrasted with the case of the members in the 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).

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 middle of the 1990s, major European retailers had come 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 mass producing 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 13 European retailers launched the 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. 2006, p. 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).

EUREP Good Agricultural Practice 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 value chain (Jahn et al. 2009). 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 14 countries whose GAP scheme had gained equivalence to EurepGAP,[4] along with four countries applying for equivalency (GlobalGAP 2008a).[5] The international organization Food and Agricultural Organization (FAO) 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).

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 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 (Fig. 1). 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" (fruit and vegetables, combinable crops, flower and ornamentals, green coffee, tea, cotton, cattle and sheep, dairy, pigs, poultry, salmon, shrimp, pongasius, 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

[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: Austria, Chile, Colombia, Germany, Japan, Kenya, Mexico, New Zealand, Spain, Sweden, Switzerland, The Netherlands, Uruguay, and United Kingdom (GlobalGAP 2008a).

[5] These countries include: Brazil, China, Scotland, and Uruguay (GlobalGAP 2008a).

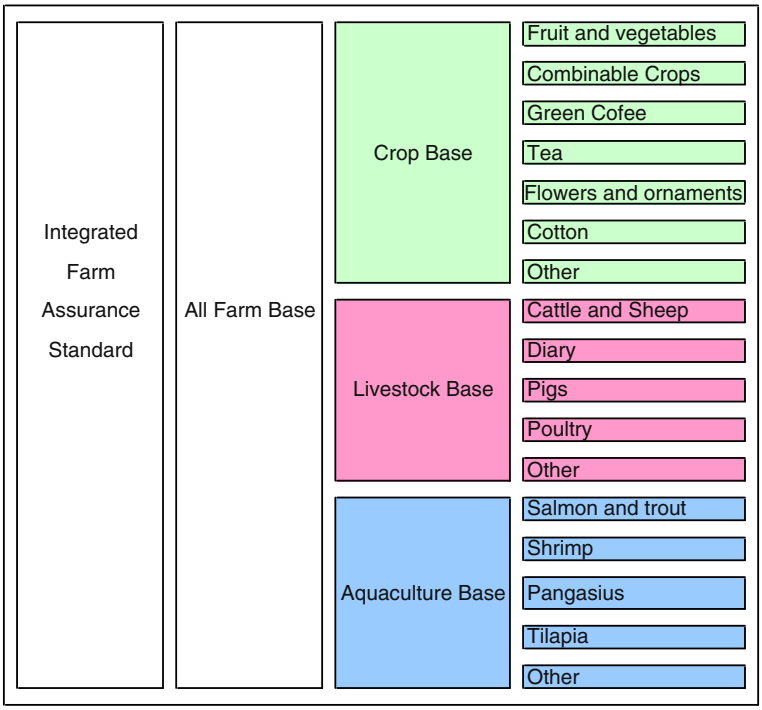

Fig. 1 GlobalGAP integrated farm assurance standard v3.0-2 Sep07 from GlobalGAP (2008b)

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.

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

From GlobalGAP (2007b)

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 April 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).

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 et al. 2007). Critically, detected non-compliance of one member in the group may result in de-certification of the entire group (EurepGAP 2004).

The Potential Effect of EUREGAP 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 equipments

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 (Cavalcanti 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 value chain 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 value 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).

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 overheads 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 employing small-scale farmers. They continued to employ 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 intensivity of FFV crops (Brown and Sander 2007; Dolan and Humphrey 2000; Henson et al. 2005; Poulton et al. 1998). An underemployed family labor 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 spread areas, albeit 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 exporter 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 ten 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 a total of 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 58–160% of their annual profit with subsequent costs reducing to 19–53% of annual profits. On the other hand, the initial capital outlay for a grower with 2.0–6.0 ha is much lower, which is 8–23% of annual profit with subsequent costs reducing to only 3–8% 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 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 that 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

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

From Greffham et al. (2007)

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

Economic and Ecological Risks

There are yet some small-scale producers capable of remaining in the FFV export sector for EurepGAP certification. They are not free from various risks. The biggest economic risk 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 by 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

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

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 3 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 were 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.

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, p. 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 other social theory—here, risk society theory comes in.

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, therefore, 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 it 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 et al. 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 involvements. Albeit with the potential risk for appropriation by multinational corporate interests (Murray and Raynolds 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 governmentality. 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, p. 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 thinkers such as 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 that 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-infrastructural 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, p. 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 concept of the 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 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, p. 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, p. 309). Wallis succinctly states this aspect of ecological modernization: "the soundness of the *part* is overridden by the unsoundness of the *whole*" (2001, p. 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 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.

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 (Asia Pacific Economic Cooperation 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 Hazadous Analysis and Critical Control Point (HACCP) and the International Organization for Standardization (ISO) 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 farmer field schools (FFS). Under the advisory extension system of the Department of Agriculture and Extension, participating FFS farmers, typically organized into groups of 20 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. About 28 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. 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 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-weighed average of 10–20% in 1990 to 50–60% of the retail sector in 2000—the change that took 50 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 Berdegué 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 et al. 2003), these standards could allow domestic supermarkets to find more amenable to

[7] The 28 crops include 14 fruit crops (banana, coffee, durian, longan, longkong, lychee, mango, mangosteen, pineapple, pummelo, rambutan, tamarind, tangerine, and young coconut). The rest are vegetables (asparagus, baby corn, sweet corn, fresh soybean, groundnut, ginger, chili, okra, rice, vegetables in Family Cruciferae, legumes, capsicum, eggplant, melons and herbs; Surmsuk 2007). Out of them, 12 crop items are being exported. Major importing destinations include EU, China, Hong Kong, Singapore, Japan, USA, and Malaysia (APEC 2006).

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).

Here 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. To cast a glance, the checklist of Q-GAP for any crop (as of April 2008) covers 84 total control points, with 51% 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 elements of their public support systems including subsidies, input distribution, and official agricultural extension (Rapley 2002).

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 involvement 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 could identify 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 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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