



## **New Markets and Their Supporting Institutions: Opportunities and Constraints for Demand Growth<sup>1</sup>**

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**November, 2006**

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<sup>1</sup> This document is part of a series of contributions by Rimisp-Latin American Center for Rural Development ([www.rimisp.org/wdr2008](http://www.rimisp.org/wdr2008)) to the preparation of the World Development Report 2008 "Agriculture for Development". This work was carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada ([www.idrc.ca](http://www.idrc.ca)). The contents of this document are the exclusive responsibility of the authors.

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## Executive Summary

Trends in food consumption patterns in both industrialized and developing countries are bringing about profound changes in markets for agricultural and food products that present potentially valuable opportunities for developing countries. Such trends reflect the complex inter-play of a wide range of economic, demographic, social and psychological factors alongside developments in the technology of food production and processing and other supply-side evolutions. Observed shifts in food consumption patterns at the broad commodity level are reflected in global agricultural and food products trade flows, including those of current or potential interest to developing countries. Thus, the share of tropical commodities in the agricultural and food exports of developing countries has declined, while the share of unprocessed and processed non-traditional exports, including fish and seafood and fruit and vegetables has increased. Indeed, 'non-traditional' products now dominate developing country agricultural and food exports and are also more dynamic, with high income elasticities of demand and relatively low rates of trade protection in industrialized country markets. The demand for such products is also expanding in developing countries, most notably among middle and high-income urban consumers.

Alongside broad trends in food consumption patterns within industrialized countries there have been pervasive trends in consumer demand that have put greater focus on product safety and quality over price. On the one hand, despite major advances in agricultural and food technology and scientific understanding of the risks associated with food, consumer concerns about food safety persist. On the other, consumers have increasingly focused on a broader array of food product and process attributes when assessing product quality, many of which are experience or credence characteristics. Thus, agricultural and food products are increasingly viewed as a complex array of quality attributes that are packaged in differing combinations and quantities, many of which cannot be directly observed at the point of purchase, and sometimes even post-consumption. Niche markets have become established in many industrialized countries for food products that embody specific quality attributes, for example organic and fair trade products.

While examining the evolution of particular agricultural and food markets in isolation provides some indication of the potential scope for developing countries to enhance export revenues, a critical issue is whether such opportunities will be confounded if a number of countries (or even one large country) pursue such opportunities. Broadly, the scope for 'adding-up' problems is not as great for non-traditional exports as traditional and unprocessed commodities, although under certain circumstances there is the scope for market potential to be curtailed by the over-exuberance of market participants. Thus, a close eye needs to be kept on products for which exports are dominated by one or two countries and/or where a number of smaller countries simultaneously make efforts to expand their export market shares.

Alongside demand-side trends that are part of the complex set of drivers behind the development of 'mainstream' and niche markets for high-value agricultural food products, the structure and organization of related supply chains and institutions is evolving. At the same time, the integration of agriculture, and predominantly small-scale farmers, into high-value markets must be seen alongside on-going and well-established processes of commercialization and the structural transformation of agricultural supply chains; what has been termed 'agroindustrialization'. The level and nature of processes of integration reflect established and evolving resource endowments both internal and external to agricultural production. It is not

surprising, therefore, that the degree of integration, and the manner in which this occurs, will differ; we are likely to find sub-systems of agricultural production that are fully-integrated into high-value markets alongside sub-systems of subsistence or semi-subsistence production, or producers that supply local low-value markets. At the same time, the speed and path of integration of producers into high-value markets will be influenced by the existence of sub-systems of production that already supply such markets.

Supply chains for agricultural and food products are increasingly extending beyond national and regional boundaries, facilitated in part by new food, communications and transportation technologies and a policy environment that encourages more liberal international trade. This is being accompanied by spatial agglomeration and firm concentration in food processing and distribution (including food retailing and food service), and also in agricultural production, such that a diminishing number of key economic players have power over global agricultural and food markets, driving a shift towards buyer-driven supply chains for many products that are extending internationally with global sourcing and the emergence of multinational actors. While these profound structural and organizational changes are predominantly associated with supply chains to high-value markets in industrialized countries, similar processes of evolution are occurring within developing countries, which threatens other traditional supply chain participants including micro and small food processors, local 'spot' markets, wholesalers and other intermediaries and small retail outlets

As a result of these processes of supply chain transformation, a clear contrast can be made between the markets and supply chains for traditional and high-value markets. Traditional domestic markets remain dispersed and atomistic with multi-layered and fragmented supply chains, trading in 'commodities' that are differentiated along limited quality dimensions. In contrast, supply chains to markets for high-value agricultural and food products are more concentrated, often at all levels of the supply chain and shorter, with greater coordination and integration between actors. The level of transformation and/or processing undertaken through the supply chain, both before and after the farm gate, is also greater. Such markets trade in 'products' that may be highly differentiated along multiple quality dimensions, some of which are credence characteristics that can not be observed directly by the consumers even post-consumption. In most contexts, there is little interaction between these two marketing systems, despite the fact that they may operate in parallel in both domestic and export markets.

The degree of structural and organizational transformation of agricultural and food markets and supply chains and the relative importance of the traditional and high-value 'models' clearly differs by country and by region within countries. In general terms, the process of transformation has taken place in countries that have achieved the greatest level of integration into global supply chains for high-value agricultural and food products and/or where domestic high-value markets have evolved in response to economic, social and demographic change. In the latter case, this relates to more broad processes of economic growth and development, and thus is found in countries where the non-agricultural sector represents a greater share of the economy and overall rates of growth in GDP per capita are relatively high. However, even in very poor countries with low levels of overall economic development and where supply chains are predominantly traditional in nature, it is possible to find 'enclaves' where transformed and dynamic supply chains operate for particular export commodities.

The increasing focus of global agricultural and food systems on food safety and quality attributes has served to highlight the role of product and process standards. On the one hand, standards provide a mechanism through which public authorities can regulate the food system in order to pursue social food safety and quality objectives, including promoting public health and managing health-related costs. On the other, food safety and quality standards are central to meeting the market demands of consumers, forming the basis of product differentiation in contemporary food markets. Governments and the private sector have responded to developments in the demand and supply of food safety and quality through institutional reforms that have yielded a new paradigm in food safety and quality regulation and management. In the public sphere, regulations have been revised and significant institutional changes made in the oversight of food safety, including the implementation of process and performance-based approaches such as hazard analysis and critical control point (HACCP) and traceability. In parallel with the reform of public standards, the private sector has implemented its own food safety and quality standards to address the food safety and/or quality concerns of consumers, form the basis of quality-based competitive strategies and facilitate supply chain coordination.

The overlay of public and private standards has created a complex and diverse landscape of food safety and quality governance in supply chains for high-value agricultural and food products. Alongside plant and animal health and other requirements, this has brought about a complex web of standards with which exporters must comply that vary across markets, products and customers. While the information costs of keeping abreast of such requirements can be significant, such variation does afford choices to exporters in the food safety, quality and other standards with which they need to comply in order to achieve market access. In selecting the markets to target, exporters must weight the associated costs of compliance, and associated risks, against the potential commercial returns.

The rapid evolution of markets and the associated supply chains for high-value agricultural and food products present opportunities to developing countries for the enhancement of exports, but also significant challenges. While there are some dynamic countries that have been able to gain access and expand sales volume and revenue within high-value markets for 'non-traditional' agricultural and food products, predominantly in industrialized countries, this group remains the exception rather than the rule. An alternative route to high-value markets for developing countries is the de-commodification of traditional export such as coffee, cocoa, tea, cotton, etc, with the most well-established mechanisms being organic and/or fair trade certification. While demand for such niche products remains relatively small in size, developing countries have made promising inroads into these markets. In addition, the potential of urban high-value markets within developing countries mustis presenting new and potentially significant market opportunities.

In general, countries where agriculture makes a high contribution to growth in GDP have made rather limited inroads into high-value exports markets, while earlier market entrants have generally maintained or even enhanced their market position. At the same time, however, some exceptional low and lower middle-income countries have been able to gain a dominant position in one or a small number of specific product markets. For example, exports of fruit and vegetables are dominated by a small number of countries, that are predominantly from Latin America and Asia and in which agriculture represents a low proportion of value-added and makes a low contribution to growth in GDP. None of the countries where agriculture represents a high

proportion of value-added and makes a high contribution to growth in GDP have significant exports in global terms.

Among countries that have achieved significant penetration into high-value markets the commercial dimensions of establishing and maintaining market access has generally been dominated by the private sector, while the government has played a significant and multi-dimensional supporting role. Thus, the ‘take-off’ of high-value exports generally occurred during times of relative macroeconomic stability and a generally favorable investment climate. External catalysts have often played a key role in motivating market access, for example shortfalls in domestic supply in export markets and/or export market supply from other countries, inflows of foreign direct investment, establishment of strategic partnerships, improvements in national logistics capacity and enhanced access to critical export markets. Where domestic capacity was weak, international technical and marketing partnerships were critical in providing a vehicle for technology and knowledge transfer, identifying market opportunities and obtaining local export market contacts and linkages.

The demand and supply-side dynamics in supply chains to high-value agricultural and food markets, including the proliferation of food safety and quality standards, are requiring that established exporting countries make on-going and significant investments in their supply chain capacity. On the part of the private sector, quality control systems and procedures and logistics capacity need to be upgraded and investments made in on-going process and product innovation and improvements. On the part of the public sector, allied investments in accreditation and official certification systems are required, as well as bilateral and multilateral diplomacy on food safety and quality issues. Indeed, the reality of high-value agricultural and food markets, especially in industrialized countries, is one of continuous struggles and efforts to comply with prevailing requirements, and especially food safety and quality standards, while keeping ahead of emerging issues that might threaten market access and/or competitive positions. The more successful exporting countries and firms are those that manage such issues in a strategic and proactive manner.

The challenges for developing countries, and in particular low-income countries where agriculture plays a critical role in overall growth in GDP and who arguably have the most to gain from participating in high-value markets, are daunting. While existing exporters generally gained access to markets when food safety and quality standards and other requirements were less onerous and have been able to upgrade their capacity in stages over time as demand and supply conditions have evolved, today new entrants to the highest value (and most exacting) markets are required to have very significant capacities at the outset. This suggests that the fixed entry costs for such markets are high. At the same time, however, exporters do face market choices; they can instead target export markets with lower standards, perhaps in order to buy time for the upgrading of capacity. Alternatively, there are domestic and/or regional markets, for example supermarkets and food service firms, that generally have lower standards than many export markets. Such ‘diversion’ tactics, however, are likely only to be an option in the medium term; the general tendency in high-value markets as a whole is towards stricter standards.

The required functions and capacities to enter and maintain a presence in high-value markets are significant and require sizeable investments by both the public and private sectors, which are facilitated (and constrained) by prevailing resources both internal and external to supply chains

and require enabling economic, political, social and legal conditions. The most basic function required is the ability to produce to basic quality standards. This requires that a critical and sustainable level of productive capacity is in place, and thus necessarily precludes those sub-sectors of agricultural production that can not achieve this because of agronomic, climatic or other constraints. The next step is the ability to supply on a reliable basis to strict quantity, timing and quality control requirements, whether in domestic or export markets. As higher-value markets are targeted, compliance with strict food safety and quality standards becomes a critical issue. As attempts are made to access even higher-value and more exacting markets, advanced logistical capacity is needed to enable identity preservation and traceability through the supply chain, and ultimately to undertake product innovation on a continuous basis to maintain and enhance value as markets evolve. The need to develop critical capacities sequentially highlights the critical role of the 'starting point' for a country's and/or a supply chain's efforts to access high-value markets. It also raises the possibility of a significant first mover' advantage, perhaps explaining the continued dominance of developing countries that gained access to high-value markets earlier.

One issue that has received particular attention is the costs of compliance with food safety and quality standards, in particular, within high-value markets for agricultural and food products. Although it is recognized that the longer-term benefits of continued or enhanced market access often outweigh the costs of required capacity enhancement, and indeed the associated system upgrading can even act to reduce costs of production, the upfront costs can be an absolute barrier to market access and/or act to exclude existing participants. In other cases, the upgrading of controls may enhance variable costs by imposing recurring expenditures that can jeopardize market competitiveness. Here suppliers must adjust prevailing management systems so as to minimize costs and maintain competitiveness. Ironically, there is also scope in such situations for the enhancement of competitiveness through standards compliance reflecting inter-firm differences in the efficiency of adjustments to the new standards environment.

A key concern with the evolution of high-value markets and the promotion of the associated supply chains as an integral component of agricultural development strategies is the impact on small producers and agribusinesses. Indeed, in many high-value supply chains there is a trend towards the integration of production, processing and/or exporting and sourcing from larger contracted producers. There is evidence that small-scale producers may have lower production costs and/or that the economies of scale for many high-value crops are often limited, while small-scale producers can be competitive in the production of high-care fruit and vegetables, for example, where strict quality standards require high levels of labor input. At the same time, however, the producer, location and product-specific transaction costs associated with the coordination and management of supply chains involving numerous small suppliers can be prohibitive, especially where there are significant risks of transactions failure due to opportunism, lack of coordination or rent-seeking. There is evidence that such costs are being enhanced by the increasingly strict food safety and quality standards associated with high-value markets, to the potential exclusion of small-scale producers. Further, while there are numerous instances of supply chains having evolved to facilitate the participation of small-scale producers in supply chains to high-value markets, there is relatively little agreement on the most effective mechanisms of inclusion and the processes through which these might be brought about.

The key message in the paper is that demand and supply-side changes in high-value agricultural and food markets are presenting potentially lucrative opportunities for developing countries, both as a means to poverty alleviation in rural areas and to enhance the contribution made by agriculture to overall growth in GDP, most notably where agriculture represents a high proportion of value-added. While such changes may present a *fait accompli* to developing countries as they increasingly pervade domestic markets and even traditional commodity exports, they do pose enormous challenges, especially for low-income countries that have had limited exposure to such markets. The key question, therefore, is what strategies should developing countries more widely use to gain access to high-value agricultural and food markets? And for those countries that already have an established position in these markets, what should be done to consolidate this position and enhance competitiveness in order to increase market returns?

Critically, the challenges posed by rapidly evolving high-value markets for agricultural and food markets must be approached from a strategic perspective. While the challenges may be great and many of the requirements in high-value markets are driven by dominant buyers over which suppliers have only limited influence, in most cases developing countries, and exporters therein, do have significant room for maneuver. The evolution of target markets needs to be monitored on an on-going basis such that emerging challenges are identified and, to the extent possible, responses are proactive and utilize processes of capacity development and compliance to reposition products and gain competitive advantage. Indeed, the ability to act ‘ahead of the field’ is a critical strategic strength that should be at the forefront of developing country thinking.

Capacity development should be seen as an on-going and continuous process of improvement across the supply chain, avoiding the temptation to focus on one particular element or level of the chain rather than the efficiency and capabilities of the chain as a whole. Thus, attention should not be directed at individual supply chain participants (for example producers) but on overall supply chain capacity and the degree to which the chain as a whole is able to compete, while recognizing the realities of prevailing capacities and what might be realistically be achieved in a given timeframe. Interventions and/or strategic aimed at enhancing capacity might then focus on enhancing supply chain coordination or integration, pump-priming investments aimed at overcoming the up-front and fixed investments associated with establishing capacity and supply relations and/or shifting the entire operating threshold of the supply chain through introduction of new technologies, enhancement of enabling conditions, etc.

The critical role for government in the development of the capacities required to access high-value markets is to establish an enabling environment that minimizes the risks and costs for private sector exporters in establishing or enhancing their own internal capacity, while putting in place necessary external resources that are public goods or for which private markets have not been established. Governments should avoid trying to direct the process of private capacity development, although there is evidence that government involvement in such processes can be beneficial, for example by providing support function, lower-cost access to capital, etc. However, in developing the capacities required to access high-value markets there may be significant complementarities and substitutabilities between private and public investments. Further, there is significant scope for collaboration between the public and private sectors in establishing and/or managing capacity whether through public-private partnerships, non-profit enterprises, etc.

In most countries it is possible to discern 'islands' of enhanced capacity, whether sector or individual firms, that have managed to gain access to high-value markets despite detrimental economic, political, legal and/or social conditions. Such 'islands' of innovation and entrepreneurship are generally larger in middle-income countries and in countries that have a more established position in high-value markets. They can act as a critical catalyst and facilitator of capacity-development more generally. In countries, and predominantly low-income countries, these private sector leaders may be 'few and far between'. Here, foreign direct investment can be critical for initial capacity development in an effective and timely manner. However, a key concern is that, under conditions of general capacity weakness, significant levels of resource can be used to 'swim against the tide' of enhancing market requirements, while making little or no progress.

In exploring the options for development of capacity and participation in high-value supply chains at the country, agribusiness and producer levels it is evident that a wide range of options exist in terms of forms of intervention, organizational structures, catalysts and facilitators of upgrading, etc. Further, different approaches appear to come in and out of 'vogue' over time. On the one hand, none of these options should be excluded 'out of hand'. Different approaches may work better than others in particular contexts. On the other, the experiences in one context, and especially in other countries, may not work well in another. There are no 'blueprints' for developing country participation in high-value markets for agricultural and food products whatever approach is favoured at a particular point in time.

## Introduction

Through the 1990s and into the 2000s, international trade in high-value agricultural and food products expanded significantly, fuelled by changing consumer tastes, advances in production, transport and other supply-chain technologies, and the progressive liberalization of traditional barriers to trade. Mirroring this trend, the share of high-value products in the agricultural and food exports of developing countries increased, such that fresh and processed fruits and vegetables and fish and fishery products, in particular, have taken on a more prominent role in the agricultural and food exports of developing countries. Perversely, however, most of the attention and concerns about the trade performance of developing countries has continued to focus on traditional commodities, although the share of these in developing country agricultural and food exports has actually declined. This paper, therefore, attempts to refocus our attention towards the opportunities and challenges posed for developing countries from evolving markets for higher-value agricultural and food products.

While trends in agricultural and food markets in both industrialized and developing countries suggest on-going and expanding opportunities for developing countries in exports of high-value agricultural and food products, in exploiting these opportunities, developing countries face rather different (and arguably greater) challenges than those have historically been presented by basic commodity markets governed by price and quality grades.<sup>1</sup> On the one hand, global and (increasingly) developing country agricultural and food supply chains have been restructured to adjust to new modes of competition and market leadership by dominant buyers. On the other, new and enhanced capacities are needed to meet the demands of increasingly exacting consumers and market intermediaries. Thus, while a number of developing countries have made inroads into new and higher-value markets, these remain perhaps the exceptions rather than the rule. Indeed, it is evident that the majority of developing countries lack the capacity needed to enter and remain competitive in high-value agricultural and food markets. The challenge is how to build this capacity in a resource-constrained environment and in a manner that establishes and enhances a credible competitive position.

The paper starts by reviewing established and emerging trends in market demand and trade in agricultural and food products, highlighting the evolution of high-value markets for non-traditional exports and the performance of developing countries at an aggregate level. It then proceeds by reviewing the evolution of related supply chains from production to the final consumers in the light of the emergence of higher-value markets and associated modes of competition. The current state of supply chains in sub-groupings of developing countries is compared and contrasted. The paper then proceeds by exploring the key challenges that developing countries face in exploiting the opportunities presented by evolving high-value markets for agricultural and food products and highlighting notable successes at the country and/or exporter level. Finally, the strategic implications and challenges posed by the evolution of high-value are discussed and recommendations made for more effective approaches to address the challenges that many developing countries, and the smallest and/or poorest countries in particular, face.

## Market trends in agricultural and food products

Although the availability of a greater variety of foods, especially in industrialized countries, has resulted in larger inter-individual differences in eating patterns at the product level, it is possible to discern broad common trends in the consumption of food commodities over time. While these trends are most clearly discernible in industrialized countries, similar changes are now being observed in developing countries (see below). Such trends reflect the complex inter-play of a wide range of economic, demographic, social and psychological factors alongside developments in the technology of food production and processing and other supply-side evolutions (see below).<sup>2</sup> For example, eating patterns are being molded by changes in patterns of work and leisure, higher levels of participation of women in the paid labor force, greater awareness and exposure to foods from other geographical regions due to foreign travel and immigration, more awareness of food safety and quality issues resulting from the enhancement of media and communication technologies, etc. At the same time, the timing and location of food consumption is changing, predominantly with a greater propensity to eat outside of the home, with consequences for the types of food products being demanded.

An illustration of trends in food consumption patterns in industrialized countries at the broad commodity level is provided in table 1. Over the period 1980 to 2003, there were significant increases in annual per capita consumption of vegetables, fruits, tree nuts, vegetable oils, meat, milk and fish and seafood within the European Union. Consumption of stimulants (notably coffee and cocoa), pulses and sugar and sweeteners increased marginally, while consumption of starchy roots and alcoholic beverage declined. There were significant shifts in the relative importance of foods within these broad commodity groups. For example, consumption of citrus fruits, bananas, pineapple and grapes increased more significantly than consumption of apples. While per capita consumption of bovine meat declined, consumption of pig meat and (especially) poultry meat increased. Broadly, similar trends can be observed in the rest of Europe, United States, Canada, and other industrialized countries.

TABLE 1 HERE

These observed shifts in food consumption patterns at the broad commodity level are reflected in global agricultural and food products trade flows, including those of current or potential interest to developing countries. Imports to industrialized countries of tropical products (including coffee, tea, nuts, spices, sugar, etc.) for which there is little or no competition from industrialized countries, and which have traditionally been the major part of developing country agricultural and food exports, were approximately static over the period 1989-81 to 2000-01 (table 2).<sup>3</sup> Over this same period, however, imports to industrialized countries of fresh and processed fish and seafood and fruits and vegetables increased significantly. Likewise, imports of other processed products expanded rapidly, notably ‘other’ processed foods.

TABLE 2 HERE

As a result of the observed shifts in food consumption patterns and resultant changes in patterns of imports, the structure of global agricultural and food product trade has changed dramatically over the last 25 years. Thus, tropical products declined from 22.0 percent of world

agricultural and food trade in 1980-01 to 12.7 percent in 2000-01, and from 39.2 percent to 18.9 percent of developing country agricultural and food exports (table 3). Over this same period, the share of fish and seafood and fruit and vegetables in developing country agricultural and food exports increased from 21.6 percent to 41.0 percent. These ‘non-traditional’ exports now dominate agricultural and food exports from developing countries, and are also the most dynamic, with high income elasticities of demand and also relatively low rates of trade protection in industrialized country markets.<sup>4</sup> While developing country exports of other processed products did not exhibit the same impressive rates of growth, their share of world agricultural and food exports increased from 11.9 percent in 1980-81 to 17.9 percent in 2000-01, suggesting significant market potential for developing countries in the future.

#### TABLE 3 HERE

The value of fruit and vegetable exports expanded rapidly over the period 1980 to 2004, from \$27.0 billion to \$101.4 billion (figure 1). Of this, fresh produce accounted for 63 percent in 2000-01, while the remaining 37 percent consisted of fruit and vegetable products.<sup>5</sup> Traditionally, trade in fresh fruit has been dominated by bananas, citrus fruits, grapes and apples, which collectively accounted for 66 percent of global imports in 2000-01.<sup>3</sup> While trade in other tropical fruits exhibited an average annual growth rate of eight percent through the 1990s, they represent a relatively small proportion of world fresh fruit trade. Among fresh vegetables, the dominant products are tomatoes, beans, peas and lentils, which collectively account for 31 percent of global imports in 2000-01.<sup>4</sup> Processed fruit and vegetables include a wide range of products such as juices, jams, processed vegetables, etc. Within this sub-category, one highly dynamic sector is semi-prepared salads, sliced or mixed fruit, etc.<sup>6</sup>

Over the period 1980 to 2004, developing country exports of fruit and vegetables increased from \$9.5 billion to \$35.6 billion, representing a relatively constant share of global exports, averaging 36.4 percent (figure 1). Of this, fresh or dried fruits and nuts and fresh or simply-prepared vegetables accounted for 44.9 percent and 26.3 percent, respectively (figure 2). Global fruit and vegetable trade is dominated by EU countries, United States, Canada and a small number of middle-income countries including Mexico, Costa Rica, Chile and Argentina. Low-income countries as a whole only accounted for \$1.9 billion of world exports in 2000-01. Taking the average annual growth in imports of fruit and vegetables through the period 1991 to 2004 and assuming that developing countries maintain rather than expand their share of world trade, the value of developing country exports is expected to reach \$50 billion by 2010 and \$83 billion by 2020.

#### FIGURE 1 HERE

Within the category of ‘other’ fruit and vegetables, which consists of a wide range of dynamic niche products that individually are minor in world trade, developing countries have exhibited impressive trade performance. For example, developing countries dominate world exports of garlic, ginger and green chilies and peppers (figure 3). In the case of garlic, virtually all of the 65 percent growth in the value of exports over the period 1992 to 2001 was captured by

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<sup>3</sup> Diop and Jaffee 2005

<sup>4</sup> Diop and Jaffee 2005

developing countries.<sup>7</sup> Such products serve markets for immigrant communities in industrialized countries and cater to the heightened interest in ‘ethnic’ foods among ‘mainstream’ populations.

FIGURES 2 AND 3 HERE

Fish and fishery products also present high-value market export opportunities to developing countries. Fish and fishery product exports expanded rapidly over the period 1980 to 2003 from \$16.7 billion to \$57.8 billion (figure 4). Throughout this period, developing countries maintained a share of global exports of 50.5 percent. Developing country exports were thus \$29.4 billion in 2003, consisting predominantly of fresh, chilled or frozen fish (34.7%) and fresh or frozen shellfish (39.1%) (figure 5). While the majority of global fish and fishery product trade is derived from capture fisheries (that are not of interest here), aquaculture production is increasing rapidly, especially in developing countries. Thus, the proportion of food fish production from aquaculture increased from 6.5 percent in 1985 to 30.7 percent in 1997 globally and from 8.6 percent to 37.4 percent in developing countries.<sup>8</sup> Further, aquaculture plays a more dominant role in the production of some of the major fish and fishery exports including shrimp, salmon and trout.<sup>9</sup>

FIGURES 4 AND 5 HERE

Over the period 1990 to 2003, fish and fishery product exports increased at an average rate of 4.1 percent per annum. Assuming that this growth rate continues and that developing countries maintain an average market share of 50.5 percent, the value of exports is predicted to be around \$38.6 billion in 2010 and \$57.7 billion in 2020. Of this, assuming that the share of aquaculture production in total production continues to expand at the annual rate of 9.4 percent observed over the period 1985 to 1997, the value of exports from aquaculture production is estimated to be \$15.4 billion in 2010.

While developing country agricultural and food exports continue to be dominated by fresh or semi-processed products, there is evidence that more heavily processed exports are expanding, especially among dynamic non-traditional commodities such as fruit and vegetables and fish and fishery products.<sup>10</sup> This is an important trend if developing countries are to command a greater proportion of the value added along global supply chains (see below) as consumer demand for high-value products expands in industrialized countries. Indeed, for certain processed fruit and vegetables developing countries (and in particular middle-income countries) already command a dominant share of global markets (figure 6). Thus, the share of processed products in agricultural and food product exports from middle-income countries expanded from 17.4 percent in 1980-81 to 27.8 percent in 2000-01 (figure 7). Over this same period, however, the share of processed products in agricultural and food product exports from low-income countries only increased from 6.6 percent to 10.4 percent.

FIGURES 6 AND 7 HERE

Alongside the broad trends in food consumption patterns within industrialized countries highlighted above, there have been pervasive trends in consumer demand that have put greater focus on product safety and quality over price.<sup>11</sup> On the one hand, despite major advances in agricultural and food technology and scientific understanding of the risks associated with food, consumer concerns about food safety persist. Indeed, high profile food scares in a number of industrialized countries have served to fuel consumer concerns and erode confidence in

prevailing mechanisms of food safety control, focused predominantly on public regulation (table 4).<sup>12</sup> Indeed, it is some of these very advances in food technology (for example irradiation and genetic-modification) that have generated concerns among consumers in the form of so-called 'technological risks'.<sup>13</sup> On the other hand, consumers have increasingly focused on a broader array of food product and process attributes when assessing product quality, many of which are experience or credence characteristics. These quality attributes encompass the manner in which products are produced (for example organic production, animal welfare concerns, etc) and substances present in products that are perceived to be unsafe and/or unhealthy including naturally-occurring constituents (for example fat or cholesterol) and contaminants (for example pesticide residues and antibiotics), as well as the wider impacts of the agri-food chain on the environment, worker welfare, etc. Thus, agricultural and food products are increasingly viewed as a complex array of quality attributes that are packaged together in differing combinations and quantities, many of which cannot be directly observed at the point of purchase or even post-consumption.

#### TABLE 4 HERE

Reflecting consumer concerns about food safety and quality, niche markets have become established in many industrialized countries for food products that embody specific quality attributes, and that have generally been certified by a third party body to attest to the fact that these attributes are present. Prominent examples are organic and fair trade products, the demand for which is typically centered on distinct consumer sub-groups but which exhibited strong rates of growth in demand through the late 1990s and early 2000s. Given that a significant proportion of these products are imported, such niches are regarded as a potentially lucrative market for exports of non-traditional products from developing countries.<sup>14</sup>

The global market for organic food and drink products in 2005 is estimated to be \$24.2 billion (table 5), of which the European Union accounts for 52.4 percent (most notably Germany, UK, France and Italy) and the United States for 42.3 percent. In many countries, and especially UK, Canada, the Netherlands, France and Germany, upwards from 40 percent of organic food and drink products are imported, reflecting shortages of supply domestically and also the demand for non-temperate organic products, for example coffee, bananas, citrus fruits, etc. The current annual rate of growth of retail sales of organic food globally is \$2.4 billion, with growth rates of 14 percent per year in North America and 12 percent per year in Europe.<sup>15</sup> Thus, we might expect retail sales of organic food and drink products globally to have expanded to \$35.3 billion in 2010 and \$90.6 billion by 2020. However, by way of caution, there is evidence that the rate of market expansion is slowing quite dramatically and that markets may well become saturated in the not too distant future; the recorded rate of growth was 20 to 30 percent in some markets during the late-1990s.<sup>16</sup>

#### TABLE 5 HERE

Certified-fair trade products, by definition, are derived from developing countries. Estimated retail sales of fair trade products in 2005 were \$1.45 billion (table 6) with the dominant markets being the United States, UK, Switzerland and France. Although, the market share of certified fair trade products is low for many agricultural and food commodities, typically in the range of one to two percent, in some markets there has been greater penetration. For example, fair trade products

account for an estimated 20 percent and six percent of the coffee market in the UK and Switzerland, respectively. Further, the rate of growth in sales volumes for many agricultural and food products are high (figure 8), although often from a small base; for example, retail volumes of fair trade fresh fruit expanded 61 percent over the period 2004 to 2005.

#### TABLE 6 AND FIGURE 8 HERE

As in industrialized countries, trends are emerging in patterns of food consumption in developing countries, most notably in upper middle-income countries and among middle and upper-income consumers across developing countries generally. For example, tables 7 and 8 detail changes in consumption of broad food commodities in India and Kenya over the period 1980 to 2003. In both countries, one of which has a large and fast-growing middle and upper-class and one of which is low-income and has a relatively small high-income population, annual consumption per capita of vegetables, fruit, milk and vegetable oils and expanded considerably. Reflecting the quite considerable differences between these two countries, however, while consumption of meat and fish and seafood increased significantly in India, consumption remained broadly static in Kenya.

#### TABLES 7 AND 8 HERE

These food consumption trends, just as with export markets to industrialized countries, present potentially lucrative high-value market opportunities for agricultural producers and agribusinesses along supply chains, both domestically and regionally. For example, changes in food consumption patterns in India specifically, as well as Asia as a whole, have been recognized to have profound implications for producers.<sup>17</sup> The typical process through which such markets evolve is broadly similar across all developing countries. In most cases the dominant factor behind the genesis of higher-value domestic food markets is urbanization; as consumers move from rural areas there is a need for markets to develop to supply agricultural and food products to markets that are divorced from areas of production.<sup>18</sup> In most developing countries the urban population has expanded rapidly in recent years (figure 9). As incomes begin to rise within urban populations, there is an expansion of aggregate food intake and a gradual switch away from cereals and starchy roots towards vegetables, fruit and foods of animal origin, including meat, milk and eggs. Over time, demand for these products switches from raw and semi-processed to processed products, while the place of consumption begins to transition from the home to out of home.

#### FIGURE 9 HERE

At the current time, developing countries differ markedly in the degree to which domestic higher-value markets have evolved. For example, looking across South-East Asia, highly sophisticated processed food markets are well-established in Singapore and Brunei Darussalam, while in Thailand and Malaysia markets for branded packaged products are established but still evolving.<sup>19</sup> In Indonesia, the Philippines and Vietnam have some markets where branded and packaged products have penetrated, although these remain the exception, while in the remaining countries of South-East Asia most foods are unpackaged and have only been subject to rudimentary processing. At the less-developed end of the spectrum, the dominant drivers of food consumption patterns are prices and incomes, as in most low-income countries, but as higher-

value markets for agricultural and food products evolve other factors come into play, including consumer attitudes, lifestyle, etc.<sup>20</sup> Further, as incomes increase, demand patterns are less susceptible to price and income changes, as is typical in upper middle-income countries. At the same time, however, large differences can evolve between the eating patterns of the rich and the poor.<sup>21</sup>

In summary, the evolution of food demand, encompassing broad shifts in consumption patterns, changes in consumer attitudes towards food and related concerns about food safety and quality, present potentially lucrative opportunities at home and abroad for agricultural producers and agribusinesses in developing countries. These opportunities are summarized in table 9. On the one hand, there are ‘mainstream’ markets in industrialized countries, or domestically in the case of upper-middle income countries and/or countries with a significant middle or upper-income population. The focus here might be on unprocessed and processed non-traditional products, or on the addition of value to traditional commodities through processing. Alternatively, there are niche markets, predominantly in industrialized countries, where value can be added to traditional and/or non-traditional commodities through the incorporation of quality characteristics (for example organic), processing and/or by targeting a small but well-defined market.

#### TABLE 9 HERE

While examining the evolution of particular agricultural and food markets in isolation provides some indication of the potential scope for developing countries to enhance export revenues, a critical issue is whether such opportunities will be confounded if a number of countries (or even one large country) pursue such opportunities. Here the notion of the ‘fallacy of composition’ or the ‘adding-up’ problems is relevant<sup>22</sup>, which relates very closely to the potential for immiserizing growth. The notion of the ‘fallacy of composition’ highlights how the export market demand for one small exporting country acting in isolation may not be viable for a group of exporting countries acting at the same time. If all countries, and especially large countries, try to increase substantially their exports of a product there is a risk that they will encounter rising protectionist measures from industrialized countries and/or that the terms of trade will decline to such an extent that the benefits of any increased volume of exports is more than offset by losses from lower export prices.

While there is some evidence that developing countries face protectionist tendencies on the part of industrialized (and also some developing) countries when exports reach beyond a critical level,<sup>23</sup> the rules defined by the WTO perhaps reduce this risk. The risk of such protectionism is lowest for tropical products where there is limited developed country domestic competition and highest for in-season temperate products. The prominent concern, however, is that a significant expansion of exports relative to world production will bring about reductions in market prices. In extreme cases, the decline in market price can be large enough that the increase in export revenues is significantly less than the increase in production. At the very extreme, export revenues can even decline!

A critical indicator of the potential for the ‘adding-up’ problem is the magnitude of the elasticity of export revenue; the lower the value of this elasticity, the smaller are any gains in export revenue from expansion of export volumes.<sup>24</sup> Generally, the elasticity of export revenue is

lower, and the potential for the ‘adding-up’ problem is greater, where the exporter’s market share is small, the world market price elasticity of demand is small and the elasticity of supply of the rest of the world is high. Thus, the potential for export revenue to deteriorate as exports are increased is mainly observed in unprocessed commodity markets.<sup>25</sup>

A key question, therefore, is whether the ‘fallacy of composition’ is likely to be an issue for non-traditional and high-value agricultural and food exports. In general, processed products are less susceptible to this problem as the price elasticity of demand tends to be higher and a greater proportion of the end-product price is reflected in the export value. However, where large fixed investments are needed, whether in production or processing, the elasticity of supply is likely to be constrained, creating potential ‘adding-up’ problems. In the case of unprocessed or semi-processed high-value products, the price elasticity of demand tends to be greater and there is a diminished risk of ‘adding-up’ acting to diminish export revenues. For example, table 10 presents estimates of the own-price elasticity of demand for a range of non-traditional fruit and vegetable products.<sup>26</sup> Broadly, these selected commodities have elasticities greater than unity, although green beans, mangoes and green corn are relatively price inelastic. For these later commodities, expansion of exports by a single large exporter could potential result in the deterioration of export revenues. Indeed, estimates suggest that an increase in Chinese exports of green beans, for example, is likely to reduce world market prices with adverse effects on the export revenues of other developing countries.<sup>27</sup>

#### TABLE 10 HERE

While the scope for the ‘fallacy of composition’ is not as great for non-traditional exports as traditional and unprocessed commodities, under certain circumstances there is the scope for market potential to be curtailed by the over-exuberance of market participants. A close eye needs to be kept on products for which exports are dominated by one or two countries and/or where a number of smaller countries are simultaneously making efforts to expand their export market shares. This is particularly the case with unprocessed or semi-processed products for which the own-price elasticity is likely to be lower and/or where the fixed costs of production are greatest.

### **Restructuring of global agricultural and food markets**

Alongside demand-side trends that are part of the complex set of drivers behind the development of ‘mainstream’ and niche markets for high-value agricultural food products, the structure and organization of related supply chains and institutions is evolving. Indeed, these supply-side changes are endogenous to the establishment of high-value agricultural and food markets, and also one of the factors stimulating the observed trends in consumer demand (see below). An understanding of the ways in which high-value agricultural and food product supply chains are evolving is critical to appreciate the related opportunities and challenges for developing countries, and producers and agribusinesses therein.

The integration of agriculture, and predominantly small-scale farmers, into high-value markets must be seen alongside on-going and well-established processes of commercialization and the structural transformation of agricultural supply chains; what has been termed ‘agroindustrialization’.<sup>28</sup> Such processes are characterized by:

- Increased use of purchased inputs for production.
- Increased post-harvest activities such as agro-processing, and distribution to geographically dispersed markets.
- Institutional and organizational changes in relationships between agribusiness firms and farms.
- Changes in farming practices resulting from shifts in product composition, technology and productivity.
- Changing market structures and relationships along the supply chain.

Processes of structural transformation generally commence with the intensification of agricultural production through the increased use of new on-farm technologies and investments, along with complimentary improvements in market infrastructure and institutions, including input supply and output marketing and processing.<sup>29</sup> With increasing urbanization, distribution and marketing systems need to be established that assemble, process, sort and transport agricultural and food products to markets that are distant from the location of production, thus integrating producers into wider supply chains. Historically, such transformations were triggered by (usually) gradual shifts in demand, infrastructural and/or technological conditions.<sup>30</sup> The contemporary context, however, is quite different; consumer demand, down-stream supply chains and wider institutions are evolving rapidly and in profound ways. Further, processes of agroindustrialization can be seen as not only a response to globalization and induced institutional and technological change, but also an agent of wider economic and social processes.<sup>31</sup> These wider changes also mean that the transformation of traditional agriculture is likely to proceed quite differently, and also at a faster pace, than has been observed in many developing countries to date<sup>32</sup>, or indeed historically in industrialized countries.

The level and nature of the integration of agricultural producers into markets for high-value agricultural and food products reflects established and evolving resource endowments both internal and external to agricultural production (figure 10). We turn to the nature of these resource endowments in the next section. Thus, it is not surprising that the degree of integration, and the manner in which this occurs, will differ; we are likely to find sub-systems of agricultural production that are fully-integrated into high-value markets (largely the upper right-hand quadrant in figure 10) alongside sub-systems of subsistence or semi-subsistence production, or producers that supply local low-value markets (the left hand two quadrants in figure 10). At the same time, the speed and path of integration of producers into high-value markets will be influenced by the existence (or not) of sub-systems of production that already supply such markets.

FIGURE 10 HERE

Supply chains (also referred to in different literatures as value chains, commodity chains or sub-sectors) to high-value agricultural and food markets differ significantly to those for most traditional commodities and to local low-value markets (table 11), both in terms of the nature of the products handled and the vertical and horizontal structure and organization. This poses new

and great challenges for agricultural producers attempting to gain or maintain access to markets for high-value products, which are heightened by the fact that the associated supply chains are evolving rapidly. Certainly, many of these challenges relate less to production issues that are predominant for most traditional agricultural commodities and more to the ability to perform on-farm and off-farm tasks required of supply chains partners. This emphasizes the need to contextualize agricultural production in the wider supply or value chain, focusing as much on the linkages between technologically-separable stages or segments as on the management of processes within those stages or segments.<sup>33</sup>

#### TABLE 11 HERE

There has been a rapid transformation in the structure and organization of supply chains globally for many goods and services, with dominant processes of integration and coordination between actors, both vertically and horizontally.<sup>34</sup> Further, as supply chains increasingly extend globally, such processes are encompassing actors that are disbursed geographically, often across countries that are economically, politically and socially distinct. There is concentration of ownership and control of key supply chain functions, especially processing and retail distribution, while other functions that were previously undertaken by separate actors (for example wholesaling) are being integrated into the operations of these dominant actors. Modes of management that predominate in these supply chains have shifted from the simple coordination of product flows and transfer of ownership, to the implementation of closely attuned systems of production, processing and distribution. While such changes have been facilitated by technological advances in communications technologies, among others, they are also driven by the needs and demands of dominant actors in the context of buyer-driven supply chains.<sup>35</sup>

While retaining distinct feature related to the nature of agricultural food products, for example perishability and protracted production cycles, supply chains for high-value agricultural and food products are evolving in a similar manner to commodity chains more generally.<sup>36</sup> Thus, increasingly, supply chains for agricultural and food products are extending beyond national and regional boundaries, facilitated in part by new food, communications and transportation technologies and a policy environment that encourages more liberal international trade.<sup>37</sup> This is being accompanied by spatial agglomeration and firm concentration in food processing and distribution (including food retailing and food service), and also in agricultural production, such that a diminishing number of key economic players have power over global agricultural and food markets<sup>38</sup>, driving a shift towards buyer-driven supply chains for many products that are extending internationally with global sourcing and the emergence of multinational actors.<sup>39</sup>

While these profound structural and organizational changes are predominantly associated with supply chains to high-value markets in industrialized countries, similar processes of evolution are occurring within developing countries, which threatens other traditional supply chain participants including micro and small food processors, local 'spot' markets, wholesalers and other intermediaries and small retail outlets.<sup>40</sup> Agribusinesses at each level of the supply chain are establishing new vertical and horizontal relationships, with greater interdependencies and higher risks of transactions failure contrasts, contrasting starkly to the predominance of independent actions by multiple supply chain actors in most traditional markets. The efficacy of these relationships is becoming a critical element of competitive strategies for high-value products. At the same time, the centre of power within high-value supply chains increasingly

rests with dominant buyers, predominantly supermarket chains and food service operators and/or multinational processing firms.

Critical in processes of coordination and integration in supply chains for high-value agricultural and food products is the growth of the supermarket sector. The 'supermarket revolution', first in industrialized countries and now in developing countries, has received much attention of late and, while there is disagreement on the rate of penetration of supermarkets globally<sup>41</sup>, it is generally recognized that the market power and competitive strategies of the supermarket sector have profound implications for the ways in which high-value supply chains operate and the drivers of competitiveness. In many industrialized countries (and in particular Europe), the retail sector is characterized by high rates of concentration (figure 11) and there is an increasing propensity for retail firms to cooperate on issues that are considered of mutual concern and that do not form the basis of inter-firm rivalry.<sup>42</sup> The emergence of large supermarket chains has served to shift the locus of power in agricultural and food supply chains away from large processors and traders, which typically dominated through to the 1980s. At the same time, supermarkets have induced processes of restructuring and reorganization along the supply chain, back to agriculture and even input supply industries.

Through enhanced foreign direct investment, facilitated by increases in liberalized global capital flows, but also investments by local and regional firms, the supermarket sector is evolving in developing countries. This process is most well established in Latin America, where supermarkets typically account for 60 percent or more of retail food sales, although similar trends can also be observed in many parts of Asia and, to a lesser extent, sub-Saharan Africa.<sup>43</sup> However, there remains significant variation, both within and between countries, in the level of supermarkets penetration. Across Latin America there is a stark contrast between Brazil where supermarkets command 75 percent of retail food sales and Bolivia where their market share is only 10 percent.<sup>44</sup> Further, in many developing countries small urban centers remain 'untouched' by the 'supermarket revolution' although this is also changing as dominant chains seek to get a foothold in emerging domestic markets and 'escape' the saturation of markets in major urban centers. The importance of supermarkets also differs by commodity; while supermarkets have come to dominate the market for packaged foods in many developing countries, traditional markets have been more resilient in the case of fresh foods, in particular fruit and vegetables.<sup>45</sup>

The evolution of supermarkets in developing countries is a major factor fueling the development of domestic markets for high-value agricultural and food products, alongside wider processes of economic and social change. Certainly, it would seem that the pace at which consumer demand is growing for processed foods and higher-quality fresh produce has been enhanced by the marketing activities of supermarkets, although food processing firms also continue to play a more dominant role than in many industrialized countries. Further, many of these supermarket chains increasingly employ procurement practices that are similar to those of supermarkets in industrialized countries, with centralized distribution facilities and attempts to consolidated supply chains through 'preferred supplier' relations with larger producers that can meet easily and cheaply their requirements. Thus, there are fewer distinct differences in the nature of supply chains to domestic and international markets for high-value agricultural and food products.

FIGURE 11 HERE

While there has been greater interest (and maybe even a fixation) with the transformation of the retail food sector in developing countries, critical changes have also been taking place in the processing sector. In part this reflects the growing demand for processed products in domestic markets, but also product transformation and processing to meet the demands of markets in industrialized countries. Indeed, a number of high-value agricultural and food products require processing prior to export, for example fish and fishery products, such that the existence of a vibrant processing sector is required to exploit market opportunities. This is reflected in the growth in value-added in food and beverage processing in certain developing countries, that also tend to be more dynamic participants in high-value agricultural and food markets (table 12), stimulated by both foreign and domestic investment. In certain cases large food processors are the dominant players in high-value supply chains. Conversely, in many developing countries the level of transformation and value addition remains limited. This is especially so for traditional export commodities (for example cocoa and products), due in part to the persistence of escalating tariffs in key industrialized country markets (table 13).<sup>46</sup> Related food safety and quality standards are also an impediment to the establishment of viable food processing operations (see below). Indeed, the level of value-added in food and beverage processing in many developing countries, and particular low-income countries where agriculture represents a high share of value added, remains worryingly low. In some cases, the share of the food processing sector relative to agriculture has even declined over recent years.

#### TABLES 12 AND 13 HERE

One of the key concerns related to the evolution of supermarkets and other dominant players in markets for high-value agricultural and food products is the impact on power relations along the supply chain and the degree to which supermarkets and their purchasing agents operate in a competitive environment or are able to exert ‘unfair’ power.<sup>47</sup> Indeed, some critics argue that agro-industrialization and related processes of concentration have developed in a mutually-reinforcing cycle along agricultural and food supply chains.<sup>48</sup> At the same time, or indeed preceding the ‘supermarket revolution’, increased concentration has occurred in input sectors (for example agro-chemicals and biomass) and food processing. Thus, markets for many high-value agricultural and food products are controlled by a very small number of economic entities; in some cases these entities are specific to particular markets and in others their influence cuts across many geographical regions. There are related concerns about the distribution of rents along supply chains (or what are often referred to as global commodity chains in this literature) that are under the influence of such entities and the scope for agricultural producers (and especially small-scale producers) to influence the conduct and performance of supply chains and enhance their share of the returns through up-grading.<sup>49</sup>

At the same time, however, there is a need to consider the ‘counterfactual’ to these trends; what would be the situation in markets for high-value agricultural and food markets were there to be no ‘supermarket revolution’.<sup>50</sup> Further, the evolution of supermarkets needs to be viewed in the context of broader processes of transformation in global, national and rural economies.<sup>51</sup> On the one hand, processes of change in many high-value markets have been brought about by the competitive strategies of supermarkets, most notably in industrialized countries. On the other, in the absence of supermarkets as the fundamental driver of supply chains for high-value agricultural and food products, the power vacuum might have been filled by other powerful entities, for example large multi-national traders (as in the case of traditional commodity

markets) or branded food processors. We also need to consider the changes that would otherwise be occurring among agricultural producers and agribusinesses supplying into traditional supply chains.

As a result of these processes of supply chain transformation, both within developing countries and globally, a clear contrast can be made between the markets and supply chains for traditional and high-value markets.<sup>52</sup> Traditional domestic markets remain dispersed and atomistic with multi-layered and fragmented supply chains, trading in ‘commodities’ that are differentiated along limited quality dimensions (for example size, variety or color). In contrast, supply chains to markets for high-value agricultural and food products are more concentrated, often at all levels of the supply chain and shorter, with greater coordination and integration between actors. The level of transformation and/or processing undertaken through the supply chain, both before and after the farm gate, is also greater. Such markets trade in ‘products’ that may be highly differentiated along multiple quality dimensions, some of which are credence characteristics that can not be observed directly by the consumers even post-consumption. In most contexts there is little interaction between these two marketing systems, despite the fact that they may operate in parallel (and even in competition with one another) in both domestic and export markets. At the same time they can be complimentary or even mutually-dependent on one another; for example, the economic viability of certain high-value supply chains is critically linked to the existence of traditional markets through which disposal of sub-standard products can take place. This poses a critical question, to which we will return in the next section; to what extent is the development of transformed supply chains to high-value markets facilitated by the pre-existence of supply chain capacity more widely?

The degree of structural and organizational transformation of agricultural and food markets and supply chains and the relative importance of the traditional and high-value ‘models’ clearly differs by country and by region within countries. In general terms, the process of transformation has advanced most in countries that have achieved the greatest level of integration into global supply chains for high-value agricultural and food products and/or where domestic high-value markets have evolved in response to economic, social and demographic change. In the latter case, this relates to more broad processes of economic growth and development, and thus is found in countries where the non-agricultural sector represents a greater share of the economy and overall rates of growth in GDP per capita are relatively high. However, even in very poor countries with low levels of overall economic development and where supply chains are predominantly traditional in nature, it is possible to find ‘enclaves’ where transformed and dynamic supply chains operate for particular export commodities.

Among the countries where agriculture represents a large proportion of value added and accounts for a high proportion of growth in GDP, predominantly the low-income countries of sub-Saharan Africa, traditional supply chains for agricultural and food products predominate. In general, high-value domestic markets are in their infancy; an indicator of this is the low market penetration of supermarkets in most countries of sub-Saharan Africa, typically accounting for less than ten percent of retail food sales even in major urban centers<sup>53</sup> Usually, the food processing sector is small, and may even be stagnating, and there is little or no integration along the supply chain. There are exceptions to this general rule (for example Zambia and Ghana), however, where high-value markets are more pronounced, due to foreign investment in supermarkets, high level of remittances burgeoning middle and high income groups, etc. In a number of these countries

transformed supply chains have been established, predominantly to supply high-value markets in Europe. However, such supply chains remain the exception rather than the rule, and operate within a 'sea' of fragmented and multi-layered traditional markets.

In countries where agriculture represents a large share of value-added but makes a relatively small contribution to growth in GDP, the picture is mixed. In some cases agriculture is predominantly non-dynamic and has little or no engagement with markets for high-value agricultural and food products (for example Ethiopia). The food processing sector may be virtually non-existent, or at least stagnating. Here, agricultural and food supply chains are almost entirely traditional and even exports take place along fragmented and dispersed supply chains. At the other extreme in this group are countries where high-value agricultural and food exports are well-developed and there is significant value-addition post-farm. Key examples here are Kenya, India and Vietnam. Here we have the same scenario as for certain of the low-income countries of sub-Saharan Africa, where transformed supply chains operate within a predominant system of traditional marketing channels.

Finally, among countries where agriculture accounts for a small proportion of value-added and makes a small contribution to growth in GDP, the process of supply chain transformation is generally more pronounced and widespread. Urban high-value markets are typically well-developed, often with a high level of penetration of supermarkets (for example Brazil, Mexico, Malaysia, Egypt and Thailand). In many cases there is also a vibrant food processing sector that has evolved in response to the growth of domestic market demand and/or competitive 'gaps' in international markets for processed foods (for example, as in the case of canned tuna production in Thailand). Many of these countries are also significant exporters of high-value agricultural and food products and integrated into the associated global supply chains. However, supply chains to domestic and international high-value markets often co-exist and operate independently of one another. Indeed, it is possible to observe a continuum in the level of transformation, with traditional marketing channels (predominantly in rural and/or in low-income urban areas) at one extreme and export supply chains at the other, and a whole spectrum of supply chains to higher-value domestic markets in terms of the level of transformation in-between.

Trends in the level and nature of demand for food products in industrialized countries, and also increasingly among middle and high income consumers in developing countries, and the transformation of supply chains from agricultural production through to the final consumers should be seen as inter-related and endogenous processes. On the one hand, the existence of high-value markets (or at least latent demand for high-value products) is a necessary condition for the evolution of modern food processing and retail operations. On the other, dominant players in high-value supply chains, predominantly the major supermarket chains, are harnessing such demand as the basis for their competitive strategies. In turn, this has brought about a profound change in the governance structures and competitive modes of markets for high-value agricultural and food products and induced profound changes in related institutions.<sup>54</sup> In particular, dominant firms in the retail, food service and food processing sectors are utilizing product quality attributes as a means to 'de-commodification' and product differentiation.<sup>55</sup> Indeed, it is argued that the very ways in which agricultural and food markets are structured and operate are defined by such quality-based competition, and at the same time the associated institutional arrangements are crucial to the legitimacy of the quality attributes embedded in agricultural and food products, many of which are credence characteristics.<sup>56</sup>

The increasing focus of global agricultural and food systems on food safety and quality attributes has served to highlight the role of product and process standards. Standards are ubiquitous to market economies and play a fundamental role in the organization of supply chains for most products and services.<sup>57</sup> Indeed, basic grades and quality standards are found in traditional marketing systems; from social and market norms in local markets to international product standards for major traded commodities. However, consumer demand for food safety and quality, that encompasses fundamental elements of the processes through which products are produced, processed and brought to market, has enhanced the role of agri-food standards, while national and international institutional reforms have served to focus attention on the efficacy of alternative standards regimes and their secondary impacts, including on trade in agricultural and food products.<sup>58</sup> On the one hand, product and process standards provide a mechanism through which public authorities can regulate the food system in order to pursue social food safety and quality objectives, including promoting public health and managing health-related costs.<sup>59</sup> On the other, food safety and quality standards are central to meeting the market demands of consumers, while forming the very basis of product differentiation in contemporary food markets.<sup>60</sup>

Governments and the private sector have responded to developments in the demand and supply of food safety and quality through institutional reforms that have yielded a new paradigm in food safety and quality regulation and management. In the public sphere, regulations have been revised and significant institutional changes made in the oversight of food safety<sup>61</sup>, including the implementation of process and performance-based approaches such as hazard analysis and critical control point (HACCP) and traceability.<sup>62</sup> In many cases, food safety standards have been tightened on foods that have long raised safety concerns (for example *Salmonella* and *Campylobacter*), while new standards have been promulgated for emerging hazards and/or in areas that were previously less regulated (for example mycotoxins).<sup>63</sup> More generally, good safety regulations are being more strictly enforced, which means that exporting country governments are required to demonstrate levels of oversight that are at least equivalent to those in the countries to which they are importing. With respect to food quality, public standards have been implemented to ensure fair competition, reduce information costs to consumers (for example labeling of organic food products) and to otherwise promote quality-based competition on a 'level playing field'. Simultaneously, product liability has come to play a more prominent role, both through tort liability standards and the 'duty of care' required of food sellers with respect to their legal food safety obligations.<sup>64</sup>

In the sphere of export supply chains, food safety and quality standards operate alongside other controls, predominantly relating to plant and animals pests and diseases, with which exporters must also comply. Indeed, non-compliance with a particular export market's pest and disease requirements can act as an absolute preclusion to trade.<sup>65</sup> There is evidence that such controls are also being enhanced, or at least that existing controls are being enforced more judiciously.<sup>66</sup> In turn, this required that customs and related procedures can provide the required assurances to importing country governments in a timely manner, especially in the case of perishable high-value agricultural and food products for which delays can reduce product quality and/or shelf-life.

In parallel with the reform of public standards, the private sector has implemented its own food safety and quality standards to address the food safety and/or quality concerns of consumers and of the broader civil society. Much of the motivation behind this trend has been mitigation of

the reputational and/or commercial risks of food safety failures,<sup>67</sup> alongside quality-based modes of product differentiation<sup>68</sup>, as well as a range of market and firm-level factors.<sup>69</sup> Thus, there is a rapidly increasing plethora of private ‘codes of practice’, standards and other forms of supply chain governance<sup>70</sup>, promulgated by private firms in the form of business-to-business standards and/or by collective private entities.<sup>71</sup> Examples include the British Retail Consortium Global Standard for food processing (Box 1) and the EUREPGAP standard for good agricultural practice (GAP) in agricultural production (Box 2). While these efforts have been especially pronounced in supply chains to high-value markets in industrialized countries, systems of private food safety and quality governance are also being applied more widely in developing countries, driven predominantly by supermarkets.<sup>72</sup> Thus, not only are supply chains transformed structurally and operationally, but they are increasingly governed by an array of inter-related public and private standards, both of which are becoming *a priori* mandatory for agribusinesses wishing to engage with such markets.<sup>73</sup>

#### BOXES 1 AND 2 HERE

Both reflecting and supporting the promulgation of private food safety and quality standards has been the development of quality meta systems such as HACCP, good manufacturing practice (GMP), GAP and traceability.<sup>74</sup> Some of these systems are embedded in voluntary public standards at the national and/or international levels (for example ISO 9000) and/or propriety or collective private standards (for example EUREPGAP). These meta-systems can be viewed as ‘codes of conduct’ for the agri-food system in achieving a particular food safety or quality attribute and the processes by which this is achieved. Increasingly, such systems govern the way in which the entire supply chain operates regardless of whether it extends across national boundaries.

In the context of the transformation of supply chains for high-value agricultural and food products outlined above, private food safety and quality standards function as instruments of coordination by standardizing product requirements over suppliers, which may cover wide geographical regions that cut across national boundaries.<sup>75</sup> This becomes of greater importance as supply chains become more global and cut across differing regulatory, economic and regulatory environments.<sup>76</sup> In turn, standards act to reduce the transaction costs and risks associated with procurement, in particular where high levels of oversight are required to ensure food safety and/or quality attributes are delivered. The main reduction in costs comes from using process standards to co-ordinate supply chains, with firms complementing the private standards they implement with their own quality management meta-systems and branding.<sup>77</sup> Indeed, the construction of trust and reputation around the visible symbol of a brand arguably acts to enhance the credibility of private standards among consumers.<sup>78</sup>

To build confidence on the basis of consistency of compliance with food safety and quality standards over time requires rigorous vertical co-ordination that can be costly to achieve. Thus, the evolution of private food safety and quality standards has stimulated the development of a complimentary multi-tiered system of conformity assessment based around certification and accreditation.<sup>79</sup> Such systems generally entail inspection and certification by a third party that has been accredited as having the necessary competence and oversight. Third party certification acts to reduce the transaction costs associated with assuring food safety and quality attributes, especially in supply chains dispersed geographically.<sup>80</sup> However, it also redistributes much of the

associated cost of supply chain governance away from the buyer (predominantly major supermarkets) and on to the supplier (notably market intermediaries and their suppliers). Further, the costs of establishing the required systems of certification and accreditation, and creating mutual trust between supply chain partners in the first place, can be considerable. As we will see below, this is a critical issue for developing countries.

The overlay of public and private standards has created a complex and diverse landscape of food safety and quality governance in supply chains for high-value agricultural and food products. Alongside plant and animal health and other requirements, this has brought about a complex web of standards with which exporters must comply that vary across markets, products and customers. For example, table 14 outlines the standards with which fresh fruit and vegetable exporters from Ghana must comply in four potential EU markets.<sup>81</sup> While the information costs of keeping abreast of such requirements can be significant, such variation does afford choices to exporters in the food safety, quality and other standards with which they need to comply in order to achieve market access. In selecting the markets to target, exporters must weight the associated costs of compliance, and associated risks, against the potential commercial returns.

TABLE 14 HERE

In conclusion, it is evident that, trends in consumer demand are presenting potentially lucrative opportunities in high-value markets for agricultural and food products. However, the inter-related processes of structural, organizational and institutional change in supply chains to such markets are bringing about fundamental shifts in the nature of agri-food systems in developing countries. At the current time the extent of the process of transformation from traditional to modern systems of supply chain organization and governance differs widely between developing countries, reflecting the level of development of domestic high-value markets and/or integration into global high-value supply chains. These processes of transformation are posing challenges for developing countries, and producers and agribusinesses therein, to enter or maintain participation in these supply chains. These challenges relate to the consequent resource requirements and fundamental institutional development and changes that are required; to which we turn in the next section.

### **Implications for agribusiness in developing countries**

The picture painted above is of the rapid evolution of markets and the associated supply chains for high-value agricultural and food products that present opportunities to developing countries for the enhancement of exports and development of agri-food sectors. This section now explores the degree to which developing countries have been able to exploit these opportunities and the constraints they face in attempting to do so. As will be seen, experience to date sends mixed messages; while there are some dynamic countries that have been able to gain access and expand sales volume and revenue within high-value agricultural and food markets, predominantly in industrialized countries, this group remains the exception rather than the rule. The value of high-value exports for most developing countries remains low and the associated processes of upgrading have not progressed far.

Table 15 reports the value and contribution to global trade of fruit and vegetable exports from developing countries over the period 1990 to 2004. These data include bananas and citrus,

that some analysts discount from discussions of high-value and/or non-traditional exports.<sup>82</sup> There are very few developing countries that are major players in global fruit and vegetable markets, with the notable exceptions being China, Mexico, Turkey, Chile, Thailand, Brazil, South Africa, Argentina, Ecuador, India and Cost Rica.<sup>83</sup> Some of these countries have dominant positions in the export markets for particular fruit or vegetable products; for example, Mexico accounts for over 30 percent of global exports of avocados, mangoes, papayas, tomatoes, asparagus and onions and shallots.<sup>84</sup>

In the second tier, consisting of countries with exports exceeding \$500 million in 2004 but that account for a relatively small proportion of global trade, are Iran, Philippines, Morocco, Vietnam, Peru and Colombia. Finally, there is a relatively long list of developing countries with fruit and vegetable exports, valued at around \$100 million or higher, but that account for less than 0.5 percent of global trade (table 15). Some of these countries, however, are major players in particular product markets, most notably Peru for mangoes and asparagus, Kenya for green beans, Syria for tomatoes, Cote d'Ivoire for pineapple, Colombia for other fresh fruit and Kenya and Guatemala for green peas.<sup>85</sup>

The data in Table 15 reveal two critical characteristics of the performance of developing countries in export markets for fruit and vegetables. First, exports are dominated by a small number of countries, that are predominantly from Latin America and Asia and in which agriculture represents a low proportion of value-added and makes a low contribution to growth in GDP (table 16). None of the countries where agriculture represents a high proportion of value-added and makes a high contribution to growth in GDP have significant exports in global terms. Only three of the low-income countries of sub-Saharan Africa, namely Cote d'Ivoire, Kenya and Ghana, had exports valued at \$100 million or more in 2004. At the same time, however, some low and lower middle-income countries have been able to gain a dominant position in one or a small number of specific product markets. For example green beans in the case of Kenya (Box 3) and asparagus in the case of Peru (Box 4). Second, over the period 1990 to 2004, relatively few countries enhanced their share of fruit and vegetable exports, and indeed some established exporters (for example Brazil and Thailand) saw their share of global trade decline. Among minor and insignificant fruit and vegetable exporters there are some notable dynamic countries, for example Ghana, Cote d'Ivoire, Vietnam and Peru, that achieved significant growth in their share of global trade over the period 1990 to 2004. However, even among this dynamic group no country has evolved to become a major fruit and vegetable exporter in global terms.

#### BOXES 3 AND 4 HERE

To some extent these same conclusions can be drawn from examining particular product sectors, for example green beans (table 17) and green chilies and peppers (table 18). In the case of green beans, developing country exports are dominated by Kenya, Morocco and Mexico. While Mexico and Kenya were also dominant players in 1990, Morocco achieved a significant growth in exports over the period to 2004 from 2.0 percent to 7.1 percent of global exports. Over this same period, Mexico, China, Egypt and Syria experienced a significant decline in export market share. However, there have been no notable new market entrants and countries that were minor/insignificant exporters in 1990 have generally remained so. Likewise, in the case of green chilies and peppers, Mexico was the dominant developing country exporter in 1990s and remains

so (table 18). No developing countries established significant exports of green chilies and peppers over the period 1990 to 2004.

#### TABLES 17 AND 18 HERE

Table 19 reports the value and global market share of exports of frozen crustaceans over the period 1990 to 2001. Crustaceans, and in particular shrimp, are one of the predominant products of aquaculture entering global trade and are reported here as illustrative of the structure and dynamics of developing country exports of aquaculture products. To some extent, the relative value of exports from developing countries are more dynamic than for fruit and vegetables, although again none of the insignificant exporters in 1990 became major market players over the period to 2004. In all of the major developing country exporters, agriculture accounts for a low percentage of growth in GDP (table 16). Only two countries where agriculture accounts for a high percentage of growth in GDP, namely Mozambique and Pakistan, have notable exports of frozen crustaceans.

#### TABLE 19 HERE

An alternative route to high-value markets for developing countries is the decommodification of traditional export such as coffee, cocoa, tea, cotton, etc.<sup>86</sup> In this regard, the most well-established mechanisms are organic and/or fair trade certification (see above). It is evident that production of organic crops, in particular, is expanding rapidly in a number of developing countries and that there are now significant certified crop areas (table 20). The dominant countries in organic production are China and a number of middle-income Latin American countries, although a number of low-income countries in sub-Saharan Africa where agriculture makes a high contribution to growth in GDP have significant certified crop areas, for example Sudan, Zambia, Kenya and Uganda. Broadly, the countries of sub-Saharan Africa account for a large proportion of organic cotton production (table 21), while production of organic coffee (table 22) and cocoa (table 23) is dominated by developing countries in Latin America and/or Asia.

#### TABLES 20 TO 23 HERE

While much of the attention in this section has focused on exports of high-value agricultural and food products, the potential of urban high-value markets within developing countries must not be forgotten, both for domestic agricultural producers and inter-developing country trade. It has been estimated that the annual market demand for urban food in sub-Saharan Africa, for example, will increase from \$ 50 billion to \$150 billion over the period 2000 to 2030.<sup>87</sup> In such markets there will be increased demand for processed food products in traditional markets, as well as the scope to supply a growing supermarket sector. There may also be opportunities for product innovation, for example the development of convenience/prepared traditional recipes for sales through food service outlets or for consumption in the home.<sup>88</sup> In the short to medium term, the food safety and quality standards in domestic high-value markets will generally remain lower than in many exports markets in industrialized countries, although over time these will also be enhanced.<sup>89</sup> Thus, these market are not a perpetual 'safe haven' from the exacting standards generally required of high-value markets, but can be used as a 'stepping stone' along the road to capacity upgrading (see below).

In looking forward to the market potential for high-value agricultural and food products for developing countries, it is critical to examine experiences to date. It is evident that countries where agriculture makes a high contribution to growth in GDP have made rather limited inroads into high-value exports markets, while earlier market entrants have generally maintained or even enhanced their market position. In the case of fruit and vegetables, many of the earlier entrants targeted increasing ‘mainstream’ and/or immigrant markets for ‘exotic’ or tropical products (for example mangoes, papayas, okra and chilies) or counter-seasonal demand for temperate crops (for example green beans).<sup>90</sup> In some cases this was supported by pro-active breeders and/or seed companies, as in the case of the introduction of the MD2 variety of pineapple in Brazil. Over time, however, the focus of market entrance has shifted to price and/or quality-based competition, especially as a second generation of countries has made efforts to gain access to high-value markets.

It is also important to recognize the conditions under which some of the dominant developing country exporters of high-value agricultural and food products first gained market entry. In so doing, it is critical to recognize that the commercial dimensions of establishing and maintaining market access have been dominated by the private sector (although there are notable exceptions), while the government has played a significant and multi-dimensional supporting role.<sup>91</sup> Thus, the ‘take-off’ of high-value exports from countries such as Mexico, Brazil, Chile and Kenya occurred during times of relative macroeconomic stability and a generally favorable investment climate. External catalysts often played a key role in motivating market access, for example shortfalls in domestic supply in export markets and/or export market supply from other countries, inflows of foreign direct investment, establishment of strategic partnerships, improvements in national logistics capacity, enhanced access to critical export markets (for example through bi or multi-lateral trade agreements), etc.<sup>92</sup> Where domestic capacity was weak, international technical and marketing partnerships were critical in providing a vehicle for technology and knowledge transfer, identifying market opportunities and obtaining local export market contacts and linkages.

Alongside, the evolution of supply chains to high-value markets for agricultural and food markets are complimentary and necessary developments in allied services. Examples include supply of agricultural inputs, packaging materials and equipment, technical consulting and other business development services, certification and testing capacity, etc. Indeed, there may be considerable complementarities with other established or nascent industries, for example tourism and the domestic supermarket or food service sectors.<sup>93</sup> Frequently, exporters have had to make considerable investments in order to gain and consolidate market access (see the case of Kenya in box 3) and/or complimentary expenditures are required on the part of the public sector in basic transportation and communications infrastructure, research and development and farm advisory services, etc. Thus, in the more successful cases, a virtuous circle of supply chain and allied investments is established. This process generally occurs most rapidly where the economic and policy environment is conducive.

It is important to recognize the dynamics of high-value agricultural and food exports; in many cases the continued dominance of particular developing countries in this trade reflects their ability and willingness to build on initial markets access to add value, reposition themselves within markets and/or to otherwise respond to the dynamics of market demand and supply. The case of Kenya (box 3) provides a good example of this. Conversely, the failure of countries to

react to changing market conditions, and especially the entry of new market competitors or product innovation, largely explains loss of market share. Indeed, there are numerous examples of countries experiencing short-term spurts of exports, but relatively few cases where such early gains are consolidated into an established market position.<sup>94</sup> The case of pineapple exports from Ghana (box 5) is an example. On the one hand, such market dynamics may open up market opportunities for new developing country market entrants as existing exporters shift to new market niches. However, it also raises questions about the size and persistence of ‘first mover’ advantages and the scope for developing countries that currently have little or no position in high-value markets to establish a significant market presence, to which we return shortly.

#### BOX 5 AND FIGURE 12 HERE

The demand and supply-side dynamics in supply chains to high-value agricultural and food markets are requiring that established exporting countries make on-going and significant investments in their supply chain capacity. On the part of the private sector, quality control systems and procedures and logistics capacity need to be upgraded and investments made in on-going process and product innovation and improvements. There is also increasing scope for collective action on the part of agribusiness firms to monitor changing market conditions and requirements and otherwise share information and experiences to foster the collective growth of the sector. On the part of the public sector, allied investments in accreditation and official certification systems are required, as well as bilateral and multilateral diplomacy on food safety and quality issues.<sup>95</sup> There is certainly no scope for complacency; an established market position can be eroded almost overnight due to non-compliance with public and/or private food safety and quality standards or otherwise being out-competed on the basis of price and/or quality by export competitors.

The reality of high-value agricultural and food markets, especially in industrialized countries, is one of continuous struggles and efforts to comply with prevailing requirements, and especially food safety and quality standards, while keeping ahead of emerging issues that might threaten market access and/or competitive positions. The more successful exporting countries and firms are those that manage such issues in a strategic and proactive manner (see below).<sup>96</sup> An indicator of the on-going difficulties faced by developing country exporters in meeting food safety and quality standards in industrialized countries is the level of border detentions. It is estimated that \$1.8 billion of agricultural and food exports were rejected at the port of entry into export markets in 2000-01.<sup>97</sup> Further, arguably the ultimate risk faced by exporters is that their consignments will be turned back at the border, necessitating that the implicated products are destroyed or that the additional transport costs are incurred to bring the products home or divert them to an alternative market. In such cases markets may be lost if the detention results in the non-fulfillment of an order in a timely manner.

Figure 13 presents data on the number of ‘alerts’ and ‘information notices’ issued by the European Commission on EU member state imports of agricultural and food products in 2004.<sup>98</sup> The European Commission issued 691 alerts and 1,897 information notices<sup>99</sup>; of the information notices 82.0 percent applied to product consignments from developing countries. Lower-middle income countries alone accounted for 59.2 percent, most notably a relatively small number of major agricultural and food exporters including Brazil, Thailand, China and Morocco. Among low-income countries with high levels of information alerts were India, Ghana and Vietnam.

These three countries faced widespread but commodity-specific problems related to antibiotic residues in seafood (Vietnam and India), illegal colorings in chili and chili products (India) and illegal colorings in palm oil (Ghana). There were relatively few information alerts for most other low-income countries, even where exports to the EU were significant, for example Kenya.

FIGURE 13 HERE

It is evident that developing countries can and do participate in high-value markets for agricultural and food products, and notably markets in industrialized countries for products such as fruit and vegetables and fish and fishery products, on which we have largely focused. Further, despite the enhancement of food safety and quality standards and related changes in supply chain governance, a number of countries have maintained their market position. However, the challenges for developing countries, and in particular low-income countries where agriculture plays a critical role in overall growth in GDP and who arguably have the most to gain from participating in high-value markets, are daunting. While existing exporters generally gained access to markets when food safety and quality standards and other requirements were less onerous and have been able to upgrade their capacity in stages over time as demand and supply conditions have evolved, today new entrants to the highest value (and most exacting) markets are required to have very significant capacities at the outset. This suggests that the fixed entry costs for such markets are high. At the same time, however, exporters do face market choices; they can instead target export markets with lower standards (see table 14), perhaps in order to buy time for the upgrading of capacity. Alternatively, there are domestic and/or regional markets, for example supermarkets and food service firms, that generally have lower standards than many export markets. Such ‘diversion’ tactics, however, are likely only to be an option in the medium term; the general tendency in high-value markets as a whole is towards stricter standards.

Close examination of the differential requirements of alternative high-value markets for agricultural and food products, and the complementarities between distinct supply chain functions, suggests that there is a hierarchy of functions that developing countries and suppliers therein are required to perform in order to gain and maintain market access (depicted in the right-hand pyramid in figure 14). In turn, these functions are related to a hierarchy of capacities (depicted in the left-hand pyramid in Figure 14). On the one hand, certain critical functions must be undertaken to even gain entry to a market; for example, to comply with regulatory and/or private food safety requirements. On the other, the efficiency of the related capacities and ability to undertake ‘higher order’ functions is critical for competitiveness, for example determining the production and transaction costs of the supplier and also the transaction costs encountered by the buyer. It is assumed that any buyer having alternative sources of supply will choose the supply chain which has the lowest costs of procurement, which will in turn reflect the production and transaction costs for the buyer and seller within each supply chain.

FIGURE 14 HERE

The first stage and most basic function required to access high-value markets is the ability to produce to basic quality standards, generally encompassing size, level of damage, color, variety, etc (figure 14). This requires that a critical and sustainable level of productive capacity is in place, and thus necessarily precludes those sub-sectors of agricultural production that can not achieve this because of agronomic, climatic or other constraints. The next step up the pyramid is

the ability to supply on a reliable basis to strict quantity, timing and quality control requirements, whether in domestic or export markets. This implies the ability to undertake basic logistical functions such as packaging, transportation, storage, etc. As higher-value markets are targeted, the ability to comply with strict food safety and quality standards becomes a critical issue, requiring the development of capacity to undertake the associated control and assurance activities. As attempts are made to access even higher-value, and more exacting markets, more advanced logistical capacity is needed to enable identity preservation and traceability through the supply chain, and ultimately to undertake product innovation on a continuous basis to maintain and enhance value as markets evolve.

The pyramids in Figure 14 suggest that there is a hierarchy of functions and capacities that need to be developed in a sequential manner; for example, there is little point in developing advanced logistical capacity or food safety and quality controls and assurance systems if basic agricultural production capacity is not in place. As a country, and exporters therein, progress up these pyramids they will enhance their ability to access higher and higher value markets. Along the way, they should focus on markets that are best attuned to prevailing capacity at a particular point in time. At the same time, the relative importance of each of these functions will differ across products, markets and customers. Within any country, different sectors, and supply chains therein, may be at higher or lower levels of these pyramids; as highlighted above, it is frequently possible to observe 'islands' of enhanced capacity within a 'sea' of generally low capacity.

In turn, the development and maintenance of the five critical capacities in figure 14 will be facilitated (and constrained) by prevailing resources both internal and external to the supply chain.<sup>100</sup> Internal resources include the physical, natural, financial, human and social assets within individual supply chain actors, encompassing agricultural producers, processors, exporters, input suppliers and other agribusinesses, as well as across the supply chain as a whole. In the case of agricultural productive capacity, for example, such resources will include access to suitable land, irrigation, inputs, technologies and working capital, prevailing skills and experience on the part of the producer, nature of established systems of production, etc. On the part of the exporter, these resources may include access to skilled labor, packhouse and processing facilities, established processing techniques and quality control systems, level of entrepreneurial flare and managerial skills and experience, etc. External resources encompass the infrastructure, institutions and technological conditions required to establish each of the capacities in figure 14. These will include roads seaports, airports, communications infrastructure, research and development facilities, accreditation and certification systems and amenities, etc.

Ultimately, the development of the internal and external resources required in order to undertake the key capacities required to access high-value markets will be facilitated by the existence of enabling economic, political, social and legal conditions.<sup>101</sup> Such conditions include macroeconomic stability, well-established and enforced rules and regulations on (among others) land ownership and other property rights, contract establishment and enforcement and food safety and quality controls, lack of corruption, conducive trade policies, etc. Although it is evident that supply chains to high-value markets for agricultural and food products can evolve *despite* the lack of enabling conditions, it is also clear that many of the dominant developing country suppliers of high-value markets initially gained market access in times of macroeconomic stability, policies conducive to business investment, etc (see above).

A frequent assumption is to draw a direct linkage between internal resources and private sector investments and external resources and public sector expenditure. Such a dichotomy, however, is a gross simplification of the relative roles of the public and private sectors. Indeed, there may be significant complementarities and substitutabilities between private and public investments, and between internal and external resources.<sup>102</sup> Thus, for example, an exporter may invest in its own laboratory testing facilities, utilize the facilities operated by government or employ a private laboratory testing service. On the other hand, there is significant scope for collaboration between the public and private sectors in establishing and/or managing capacity whether through public-private partnerships, non-profit enterprises, etc. The critical issue is to put in place the required internal and external resources in the most efficient and effective manner, and which best overcomes prevailing resource limitations, especially in terms of human capital and finance.

The critical role of external capacity suggests that a particular supply chain may be constrained in its ability to develop enhanced capacity by the wider environment in which it operates. It also suggests that it may be easier to develop the higher levels of capacity in figure 14 within a context of overall higher levels of public and private capacity; for example, the conditions for the development of a dynamic sector supplying high-value agricultural and food products are more likely to be found where there are pre-existing export sectors, even for very different products. This relates closely to the concept of the virtuous process of cumulative causation of capital accumulation, technical progress and structural change whereby the development of productive capacities and growth of demand mutually reinforces.<sup>103</sup> Thus, ironically, we might expect that many of the middle-income countries, where agriculture represents a low proportion of value-added, will find it easier to put in place the required capacities to access high-value markets for agricultural and food markets. Among low-income countries, where agriculture represents a large part of value-added and makes a high contribution to growth in GDP, many of the external resources may be limited (for example transport and communications infrastructure) and can limit the ability of even entrepreneurial firms to access high-value markets. Indeed, this is the broad picture we see, and that was discussed above.

The hierarchical nature of the pyramids in figure 14 and the need to develop critical capacities sequentially highlights the critical role of the 'starting point' for a country's and/or a supply chain's efforts to access high-value markets. In many low-income countries, prevailing capacity tends to be weak, both internal and external to supply chains, often reflecting the very early stages of agricultural commercialization. For these countries, where high-value markets for agricultural and food products may actually have the greatest impact in terms of both agricultural and overall economic development, the capacity 'hurdle' can be enormous. Indeed, in some contexts prevailing functionality is so weak and fragile that it is difficult to see a way forwards and through which even the more basic capacities towards the base of the pyramid can be put in place. In these countries attention needs to focus on the highest potential supply chains, maybe directed at niche markets, as a means to 'get started' and to demonstrate the potential and scope to access high-value markets. Further, investments should focus on critical 'leverage' points that are critical constraints on the entire system and that yield significant enhancements in functionality.

The hierarchical nature of the critical capacities required to access high-value market also raises questions about the degree of 'first mover' advantage. For example, it has been observed

that districts in India that had medium or high levels of agricultural diversification into higher-value commodities in 1982 had further increased their share of related markets in 1998.<sup>104</sup> Conversely, in districts with low levels of diversification in 1982, the share of higher-value markets had only marginally increased, and in some cases had even declined, over the period to 1998. However, in the context of profound demand and supply-side evolution, the degree of ‘first mover’ advantage will depend on the specificity of capacities that have been developed in the past, and their related assets or resources. Investment in significant sunk investments that can not be adapted easily or cheaply to new supply chain requirements, for example stricter food safety and quality standards, may act to the detriment of early movers! In these cases there may actually be an advantage form being a new entrant!

One issue that has received particular attention is the costs of compliance with food safety and quality standards, in particular, within high-value markets for agricultural and food products.<sup>105</sup> Although it is recognized that the longer-term benefits of continued or enhanced market access often outweigh the costs of required capacity enhancement, and indeed the associated system upgrading can even act to reduce costs of production, the upfront costs can be an absolute barrier to market access and/or act to exclude existing participants.<sup>106</sup> The case of EUREPGAP implementation in the Ghanaian fruit and vegetable sector provides an example of this (box 6). In other cases, the upgrading of controls may enhance variable costs by imposing recurring expenditures that can jeopardize market competitiveness. Here suppliers must adjust prevailing management systems so as to minimize costs and maintain competitiveness (box 7); ironically, there is also scope in such situations for the enhancement of competitiveness through standards compliance reflecting inter-firm differences in the efficiency of adjustments to the new standards environment.<sup>107</sup>

#### BOXES 6 AND 7 AND FIGURES 15 AND 16 HERE

In turn, the costs of compliance with food safety and quality standards will reflect prevailing levels of internal and external resources and the degree of enabling conditions. Clearly, existing capacities are critical; the more that has to be done to achieve compliance, the greater the costs are likely to be. At the same time, however, higher levels of prevailing capacity can yield efficiencies in complying with food safety and quality standards. As a general rule, this is likely to act to the detriment of low-income countries where prevailing capacity is likely to be weakest, both within and outside of export supply chains, than in middle-income countries. For example, many African countries are required to use the services of an international certifier, at higher cost, because they lack organic certification capacity themselves.<sup>108</sup> There may also be significant economies of scale associated with costs of compliance to the extent that fixed investments, in particular, do not vary by firm size. The case of EUREPGAP implementation among Ghanaian fresh fruit exporters detailed in box 6 provides an example. This will generally act to the benefit of more established (and often bigger) exporters, bringing about considerable barriers to new entrants, and can have significant impacts on the structure of export sectors.

A key concern with the evolution of high-value markets and the promotion of the associated supply chains as an integral component of agricultural development strategies is the impact on small producers and agribusinesses. Indeed, in many high-value supply chains there is a trend towards the integration of production, processing and/or exporting (as in the Kenyan fresh vegetable sector described in box 3) and/or sourcing from larger contracted producers.<sup>109</sup> Indeed,

the specter has been raised of the gradual exclusion of small-scale producers in the context of stricter and stricter supply chain requirements in high-value markets.<sup>110</sup>

There is evidence that small-scale producers may have lower production costs and/or that the economies of scale for many high-value crops are often limited<sup>111</sup>, while small-scale producers can be more competitive in the production of high-care fruit and vegetables, for example, where strict quality standards require high levels of labor input (box 8).<sup>112</sup> Further, larger-scale exporters may utilize dispersed supply chains of small-scale growers as a means to offset and manage the supply and quality risks due to pests and/or weather.<sup>113</sup> At the same time, however, the producer, location and product-specific transaction costs associated with the coordination and management of supply chains involving numerous small suppliers can be prohibitive, especially where there are significant risks of transactions failure due to opportunism, lack of coordination or rent-seeking.<sup>114</sup> There is evidence that such costs are being enhanced by the increasingly strict food safety and quality standards associated with high-value markets, to the potential exclusion of small-scale producers.<sup>115</sup>

#### BOX 8 HERE

In many cases, the required ‘up front’ investment for small-scale producers to gain access to high-value supply chains is prohibitive, especially where they are unable to access formal credit institutions. At the same time, the entire cost structure of production can be changed, for example requiring high-value inputs such as agro-chemicals and fertilizers.<sup>116</sup> Indeed, the scale of the challenge faced by small-scale producers in obtaining the capacities required to participate in such supply chains invariably requires some form of external support not only to provide the required expertise and resources, but also to bring about the necessary changes to supply chain organization and operation.<sup>117</sup> In many cases this is provided by agribusiness buyers, while in others non-governmental organizations (NGOs) may play a leading role. In either case, donors frequently grant financial backing in order to offset the up-front costs of compliance and/or to allay the commercial risks for the exporter.<sup>118</sup> Of course, the sustainability of such interventions is also subject to question. However, there is mounting evidence that, if support focuses on both getting over the ‘hump’ of up-front costs associated with the establishment of capacity and longer-term competitiveness, and that this is undertaken within the context of overall supply chain upgrading,<sup>119</sup> the participation of small-scale producers can be achieved and sustained, often alongside larger competitors.<sup>120</sup> Indeed, the very process of meeting the capacity needs associated with exacting standards, for example, can actually strengthen supply chains and the position of small-scale producers therein.<sup>121</sup>

While there are numerous instances of supply chains having evolved to facilitate the participation of small-scale producers in supply chains to high-value markets, there is relatively little agreement on the most effective mechanisms of inclusion and the processes through which these might be brought about.<sup>122</sup> On the one hand, the economic returns to small-scale producers must at least defray the additional costs and risks associated with production of high-value agricultural products, especially as food safety and quality standards and other requirements evolve.<sup>123</sup> On the other, the buyer must maintain control measures that provide the required level of assurance as to compliance with prevailing standards within its supply base of small-scale producers, while keeping control costs at a level that enables it to compete in high-value markets (see box 7). Most notably, various forms of production and marketing contracts have been

employed by exporters,<sup>124</sup> while technical and/or financial assistance is often provided. Indeed, there may be strong economic incentives for exporters to contract out production rather than produce themselves, related to the level and nature of transaction costs and market imperfections<sup>125</sup>. At the same time, however, contracting implicitly favors larger scale because of the lower administrative costs of monitoring unless there are offsetting benefit from sourcing from small-scale producers, for example in terms of product quality.<sup>126</sup>

The need for collective action on the part of small-scale producers, whether brought about through the actions of producers themselves or induced externally by a potential contractor or third party, can offset transaction cost barriers and/or otherwise organize critical capacities.<sup>127</sup> Indeed it is argued that collective action among producers has become a necessity in order to rebalance power relations in contemporary agro-industrial supply systems.<sup>128</sup> At the same time, the economic, social and psychological barriers to the formation of groups is well established<sup>129</sup>, while the players, rules and relationships in high-value supply chains more generally are often alien to small farmers.<sup>130</sup> Arguably, therefore, the most critical issue regarding the participation of small-scale producers in high-value supply chains is the establishment and maintenance of effective forms of collective action.

The discussion to date takes as given that participation in high-value markets for agricultural and food products is, inherently, 'a good thing'. That is, on balance, the benefits outweigh the costs and that high-value markets can play a constructive role in poverty alleviation among agrarian populations and contribute to overall processes of economic growth, especially in countries where agriculture represents a high proportion of value-added. It is important, however, to not take this assumption for granted, rather we need to examine the evidence to date on the impact that the restructuring of high-value markets is having on developing countries.

A number of studies have highlighted how the incomes of small-scale producers have been enhanced through participation in high-value supply chains, although at the same time it is also recognized that the associated costs and risks can impose a significant burden on vulnerable farmers.<sup>131</sup> Further, there can be significant spill-over effects on the productivity of other agricultural activities, both among farmers that participate in high-value supply chains and the wider community.<sup>132</sup> There is also evidence that significant gains can accrue to women through enhanced incomes and reduced drudgery,<sup>133</sup> although as the economic importance of such activities grows with continued participation in high-value supply chain, control frequently migrate from women to men.<sup>134</sup> In addition, the increased focus on value-addition provides opportunities for the development of processing and other transformative businesses, generating employment<sup>135</sup> predominantly in urban areas and in the form of flexible and informal waged employment that 'attracts' women.<sup>136</sup>

It is perhaps inevitable, however, that the restructuring of agricultural and food markets will have profound distributional impacts on the agrarian economy, by changing the level and nature of comparative advantage between producers and agribusinesses within and across countries.<sup>137</sup> Thus, agricultural producers in more remote areas and with poor transport infrastructure, which is quite typical of low-income countries in which agriculture is a high proportion of value-added, may be excluded from processes of integration into high-value supply chains.<sup>138</sup> Likewise, the landless and agricultural producers that have poor land or lack irrigation may be unable to meet the production and other requirements of high-value markets. Conversely, these groups may gain

through the enhanced waged employment opportunities associated with large-scale production of high-value crops. Thus, the net effects on employment and poverty in rural areas is difficult to predict and depends substantially on the *ex-ante* spatial and sectoral distribution of the poor, the nature of the particular technologies introduced, etc.<sup>139</sup>

A critical and final factor relating to the benefits of enhanced participation in high-value supply chains for agricultural and food products is the distribution of rents (or profits) along supply chains that are, in most cases, driven by powerful buyers.<sup>140</sup> In particular what strategies can be used by developing country exporters, processors and producers to command a greater proportion of the value along the supply chain? Global commodity chain analysis suggests key roles for product differentiation and innovation (as in the case of Kenyan fresh produce exports described in box 3) and changes to the mix of activities undertaken to enhance the level of value-addition that is commanded, alongside overall improvements in firm and supply chain efficiency and inter-firm linkages. Indeed, there is evidence of significant differentiation, upgrading and inter-firm linkage opportunities in ‘loose’ supply chains where buyers source from multiple suppliers, as with many fresh fruit and vegetables.<sup>141</sup> Further, in the case of countries where prevailing levels of capacity are relatively weak, predominantly low-income countries where processes of agricultural commercialization may have not progressed significantly, there may be significant advantages from the clustering of nascent exporting firms to derive external economies or scale.<sup>142</sup>

### **Strategies to facilitate developing country participation in contemporary agricultural and food markets**

The cross-cutting message throughout the preceding discussion is that demand and supply-side changes in high-value agricultural and food markets are presenting potentially lucrative opportunities for developing countries, both as a means to poverty alleviation in rural areas and to enhance the contribution made by agriculture to overall growth in GDP, most notably where agriculture represents a high proportion of value-added. While such changes may be presenting a virtual *faite á compli* for developing countries as they increasingly pervade domestic markets and even traditional commodity exports, they do pose enormous challenges, especially for low-income countries that have had limited exposure to such markets. The key question, therefore, is what strategies should developing countries more widely use to gain access to high-value agricultural and food markets? And for those countries that already have an established position in these markets, what should be done to consolidate this position and enhance competitiveness in order to increase market returns?

Critically, the challenges posed by rapidly evolving high-value markets for agricultural and food markets must be approached from a strategic perspective. This requires an acknowledgment that, while the challenges may be great and many of the requirements in high-value markets are driven by dominant buyers over which suppliers have only limited influence, in most cases developing countries, and exporters therein, do have room for maneuver.<sup>143</sup> Further, the evolution of target markets needs to be monitored on an on-going basis such that emerging challenges are identified and, to the extent possible, responses are proactive and utilize processes of capacity development and compliance to reposition products and gain competitive advantage. Indeed, the ability to act ‘ahead of the field’ is a critical strategic strength that should be at the forefront of developing country thinking.

Alongside the need to think strategically, capacity development must be viewed from a supply chain perspective; the objective should be to establish sustainable supply chains that have access to all of the critical capacities in order to perform the functions required to achieve and enhance competitiveness.<sup>144</sup> Thus, attention should not focus on individual supply chain participants (for example producers, processors or exporters) but on overall supply chain capacity and the degree to which the chain as a whole is able to compete. Interventions and/or strategic aimed at enhancing capacity might then focus on enhancing supply chain coordination or integration (for example to improve overall system efficiency), pump-priming investments aimed at overcoming the up-front and fixed investments associated with establishing capacity and supply relations and/or shifting the entire operating threshold of the supply chain through introduction of new technologies, enhancement of enabling conditions, etc.<sup>145</sup> Where capacity development is needed at one particular level of the supply chain, for example among small-scale producers, this should be undertaken in the context of overall supply chain upgrading and competitive repositioning.

In identifying and prioritizing market opportunities, countries and agribusiness firms need to be realistic about their ability to compete in the context of prevailing capacities. Thus, if the production costs for a particular commodity are significantly higher than in key competitor nations given current production structures, it is unrealistic to expect to be able to compete. At the same time, attention should focus on market opportunities and requirements; production should be directed towards what the market is demanding (today and in the foreseeable future) rather than attempts being made to market what is currently being produced. This market versus production focus requires a fundamental cultural shift on the part of government officials, NGOs and others in many developing countries. The only exception here is first-mover innovation activities that create rather than respond to market demand, in which most developing countries are rarely involved.

The pyramids of functions and capacities presented in figure 14 suggest that there is a structural hierarchy and sequencing to the upgrading of capabilities, while there is a continuum of markets from lower to higher-value that, in turn, have less or more exacting requirements. Developing countries, and especially those with very under-developed capacity, can utilize this fact to develop sequenced and prioritized programs of capacity enhancement. Thus, markets with lower food safety and quality standards and other requirements should be seen as 'stepping stones' to higher-value opportunities that require more enhanced capacity, rather than oases that protect the country, and exporters therein, from the 'wind of change' occurring across agricultural and food markets. Lower-value markets thus should be used to 'buy time' for capacity development and to permit priorities to be pursued. At the same time, the need for capacities to be developed sequentially must be acknowledged, avoiding the temptation to 'leapfrog' over more basic capabilities (for example agricultural production) and concentrate on more advanced functions that address the economic or political priorities of powerful groups, or that are simply more 'exciting'.

The critical role for government in the development of the capacities required to access high-value markets is to establish an enabling environment that minimizes the risks and costs for private sector exporters in establishing or enhancing their own internal capacity, while putting in place necessary external resources that are public goods or for which private markets have not been established. This can include investments in basic transportation and communications

infrastructure and institutions for standards compliance and basic research and development, and establishment of a judicious and stable economic, legal and political environment.<sup>146</sup> Governments should, however, avoid trying to direct the process of private capacity development, although there is evidence that government involvement in such processes can be beneficial, for example by providing support function, lower-cost access to capital, etc. Throughout, care must be taken to avoid distorting market signals, especially in the context of emerging markets that tend to be weak and thin. More generally, private and public sector capacity, and involvement in the overall process of capacity enhancement, should be seen as complimentary rather than substitutes and, ideally, mutually-reinforcing.

In many successful high-value market sectors industry organizations have evolved to provide support to private enterprises, act as a conduit for relations with government, establish industry norms, foster the development of extension and business support services, etc. The government can play an important role in the establishment of these organizations, offsetting the short-term risks associated with start-up and perhaps providing financial support while the industry as a whole ‘gets on board’. In some cases there may also be scope for public-private partnerships through which critical support services are provided, for example certification, laboratory testing, research and development, etc. Again, however, the government should see its roles as supporting the nascence of such organizations rather than attempting to direct them in favor of policy prescriptions.

In developing strategic responses to the demands of high-value markets it is crucial that public and private sector decision-makers focus on the key attributes of export success, identifying ‘leverage points’ that are likely to result in the greatest enhancement of capacity for the resources expended and critical constraints that act as absolute barriers to market access. Such key success factors may include business professionalism and entrepreneurship, detailed market and product knowledge, access to scale economies (where these exist), understanding food safety and quality requirements, effective logistical systems and supply chain coordination, ability to innovate, etc.<sup>147</sup> All of these are embedded in the hierarchical pyramids in figure 14.

The prior discussion has highlighted the critical role of prevailing capacity as the ‘stepping stone’ for the upgrading of supply chains. In most countries it is possible to discern ‘islands’ of enhanced capacity, whether sector or individual firms, that have managed to gain access to high-value markets despite detrimental economic, political, legal and/or social conditions. Such ‘islands’ of innovation and entrepreneurship are generally larger in middle-income countries and in countries that have a more established position in high-value markets. They can act as a critical catalyst and facilitator of capacity-development more generally. In countries, and predominantly low-income countries, these private sector leaders may be ‘few and far between’. Here, foreign direct investment can be critical for initial capacity development in an effective and timely manner. Under conditions of general capacity weakness, significant levels of resource can be used to ‘swim against the tide’ of enhancing market requirements, while making little or no progress. Here, there may be a need to ‘leap-frog’ over entire stages of capacity enhancement through relatively quick and substantial investments. This does not imply skipping over levels of the capacity pyramid in figure 14, but rather the development of multiple levels of the pyramid simultaneously. In many low-income countries, in particular, the resources required to achieve this are not available to government, and often also the domestic industry.

In making efforts to access high-value markets, attention needs to be given not only to whether access is achieved but how; again this recognizes that there may be room for maneuver. Key concerns here are the scope for exclusion of small-scale producers, small and medium-sized agribusinesses and other vulnerable stakeholders. Either, efforts need to be made to facilitate the participation of these groups in high-value supply chains, provided it can be ascertained that they will be able to compete in such contexts into the medium and long term, or time and offsetting opportunities need to be provided for these groups to reconfigure their economic activities. Care must be taken not to encourage and/or facilitate the upgrading of capacity, for example among small-scale producers, where it is evident that the risk of failure is high. Further, support to the development of such capacity, and the facilitation of small-scale producer inclusion in supply chains to high-value markets, must give very close attention to the scope for sustainability; for example, too often governments, donors and NGOs have supported the development of farmer groups linked to supply chains, only for these initiatives to fail directly the support was removed. It must be clear from the start that small-scale producers are able to compete in this context, with the role of external support being to establish the conditions under which they can establish and exploit a competitive advantage.

In exploring the options for development of capacity and participation in high-value supply chains at the country, agribusiness and producer levels it is evident that a wide range of options exist in terms of forms of intervention, organizational structures, catalysts and facilitators of upgrading, etc. On the one hand, none of these options should be excluded 'out of hand'. Different approaches may work better than others in particular contexts. On the other, the experiences in one context, and especially in other countries, may not work well in another. There are no 'blueprints' for developing country participation in high-value markets for agricultural and food products. For example, looking across existing developing country exporters of high-value products it is possible to see (among others) large-scale integrated exporter/producers, large and medium-sized producers supplying autonomous processor/exporters under contract and small-scale outgrower schemes supplying exporters through farmer organizations or other intermediaries.<sup>148</sup> All appear to have the propensity to work, but also to fail! The critical factor is identifying what will work given prevailing capacity and enabling conditions and to nurture the necessary technical skills and entrepreneurial abilities.

Finally, the frustration for many developing countries is that the requirements of high-value markets are a seemingly never-ending target. For example, as soon as a particular food safety and quality standard has been complied with, the customer demands that something else is changed. Agribusinesses aiming to participate in such markets must recognize this as the 'new reality'; the dynamism of high-value markets is a different world to the relative stability of traditional commodity markets. Once initial market access has been achieved, there needs to be continuous attention and effort given to enhancing chain governance and upgrading.<sup>149</sup> Indeed, the need for continuous improvement must be seen as a critical element of competitiveness, and indeed should form the basis of a country's, or exporter's competitive position.<sup>150</sup> The first challenges faced after entering a new market often 'make or break' an export business; they can be the source of skill development and experience, or the cause of failure. Many of the prominent developing country exporters today faced fundamental challenges to their competitive position in changing markets and 'came out the stronger'.

## Conclusions

This paper has outlined the opportunities and challenges faced by developing countries in the context of high-value markets for agricultural and food products, both in industrialized countries and domestically. While such markets appear to be presenting significant opportunities with high rates of growth, only limited evidence of ‘adding-up’ problems and significant scope for product differentiation through which to establish a competitive position and command a significant share of supply chain value-added, the required capacities to enter and maintain a presence in such markets are significant. Indeed, developing country exports of high-value agricultural and food products to date have been dominated by a relatively small number of early entrants to such markets, while agriculture represents a relative small proportion of value-added and makes a low contribution to growth in GDP in the majority of these. The critical question, therefore, is how to facilitate the greater participation of developing countries, and of lower-income countries where agriculture plays a greater economic role, in such markets, while enhancing the competitive position of those countries that have already established a market position.

Due to the on-going evolution of demand and supply, high-value markets represent a ‘moving target’ for developing countries. Thus, the hierarchical capacities required to gain and maintain access to such markets are themselves evolving, presenting on-going challenges, especially for those countries that have had little or no presence in these markets to date. However, even in low-income countries where processes of agricultural commercialization are in their relative infancy and overall capacity to supply high-value markets remains weak, it is possible to discern ‘islands’ of enhanced capacity that are frequently product and/or supply chain specific. The challenge for these countries is to consolidate and expand on such capacity to develop more widespread access to high-value markets, utilizing private or public sector leaders as catalysts of broader processes of transformation and capacity development. In so doing, attention should first focus on critical core capacities that form the ‘bedrock’ of the functions needed to compete in exacting markets.

It is critical that developing countries adopt a strategic approach to identifying and exploiting high-value market opportunities for agricultural and food products. Further, capacity development should be seen as an on-going and continuous process of improvement across the supply chain, avoiding the temptation to focus on one particular element or level of the chain rather than the efficiency and capabilities of the chain as a whole. Along the way there will inevitably be losers and gainers, and successes and failures. Low-income countries, which actually have the most to gain in terms of agricultural development, rural poverty alleviation and overall economic growth, will face the biggest challenges and also have the greatest resource constraints. Critical here is to build on successes and to learn from experiences at home and abroad, while recognizing that ‘one size does not fit all’.

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**Table 1.** Average annual consumption of broad food commodities in the European Union 1980 to 2003 (kg/capita/year):

<b>Commodity</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2003</b>
<b>Cereals (excluding beer)</b>	<b>113.31</b>	<b>108.98</b>	<b>115.27</b>	<b>121.35</b>
Wheat	97.33	92.13	97.48	102.6
Rice (Milled Equivalent)	3.50	3.98	5.53	5.58
Maize	3.27	5.45	6.1	6.43
Rye	6.85	5.02	3.76	3.81
<b>Starchy Roots</b>	<b>85.05</b>	<b>83.07</b>	<b>80.08</b>	<b>76.61</b>
Potatoes	84.78	82.89	79.96	76.51
<b>Sugar &amp; Sweeteners</b>	<b>38.39</b>	<b>36.58</b>	<b>38.87</b>	<b>40.78</b>
<b>Pulses</b>	<b>2.8</b>	<b>3.47</b>	<b>3.48</b>	<b>3.12</b>
<b>Treenuts</b>	<b>3.45</b>	<b>4.11</b>	<b>4.7</b>	<b>5.07</b>
<b>Oilcrops</b>	<b>2.41</b>	<b>3.32</b>	<b>3.84</b>	<b>3.68</b>
<b>Vegetable Oils</b>	<b>14.76</b>	<b>18.12</b>	<b>20.27</b>	<b>19.70</b>
<b>Vegetables</b>	<b>109.56</b>	<b>122.98</b>	<b>129.72</b>	<b>125.58</b>
Tomatoes	24.33	32.75	35.14	32.91
Vegetables, Other	78.07	82.52	85.87	84.79
<b>Fruits (excluding wine)</b>	<b>88.06</b>	<b>107.26</b>	<b>114.47</b>	<b>117.36</b>
Oranges, Mandarins	18.86	26.3	27.11	33.31
Lemons, Limes	2.84	3.74	3.94	4.04
Grapefruit	1.81	1.88	2.27	2.58
Bananas	6.83	9.99	8.70	9.30
Apples	23.24	26.29	27.83	23.46
Pineapples	0.93	1.79	2.03	3.41
Grapes	7.69	7.99	9.9	9.17
Fruits, Other	25.64	29.11	31.94	31.05
<b>Stimulants</b>	<b>7.06</b>	<b>8.91</b>	<b>8.32</b>	<b>8.45</b>
Coffee	4.79	6.07	5.25	5.37
Cocoa Beans	1.56	2.27	2.51	2.42
Tea	0.71	0.57	0.56	0.66
<b>Spices</b>	<b>0.30</b>	<b>0.38</b>	<b>0.44</b>	<b>0.48</b>
<b>Alcoholic Beverages</b>	<b>135.53</b>	<b>127.96</b>	<b>114.5</b>	<b>111.82</b>
<b>Meat</b>	<b>81.76</b>	<b>87.3</b>	<b>91.28</b>	<b>91.51</b>
Bovine Meat	23.41	22.86	19.56	19.74
Pig meat	37.7	40.81	44.17	44.39
Poultry Meat	13.92	17.13	20.67	20.86
<b>Milk (excluding butter)</b>	<b>228.71</b>	<b>236.6</b>	<b>245.8</b>	<b>255.11</b>
<b>Eggs</b>	<b>13.97</b>	<b>12.97</b>	<b>12.69</b>	<b>12.47</b>
<b>Fish, Seafood</b>	<b>19.56</b>	<b>24.28</b>	<b>24.81</b>	<b>26.21</b>
Freshwater Fish	1.00	1.67	2.41	2.66
Demersal Fish	7.98	9.04	8.72	9.43
Pelagic Fish	4.61	5.46	5.28	5.33
Crustaceans	1.42	2.37	2.5	2.75
Mollusks, Other	2.55	2.8	3.21	3.20

Source: FAOSTAT

**Table 2.** Annual import growth rates for agricultural products 1980-81 to 2000-01 (%)

Product Classification	<i>Developing Countries</i>		<i>Industrialized Countries</i>	
	1980-81/ 1990-91	1990-91 /2000-01	1980-81 /1990-91	1990- 91/2000-01
<i>Tropical products</i>				
Coffee, cocoa and tea	1.9	5.1	-0.6	1.6
Nuts and spices	1.4	4.7	5.0	3.8
Textile fibers	3.8	0.8	0.2	-5.9
Sugar and confectionary	-5.7	3.7	0.4	0.2
<b>Subtotal</b>	<b>-0.3</b>	<b>2.9</b>	<b>0.2</b>	<b>0.1</b>
<i>Temperate products</i>				
Meats, fresh and processed	2.2	2.9	6.1	1.2
Milk and milk products	1.9	3.0	6.3	1.8
Grains, raw and processed	-1.3	1.6	0.4	1.8
Animal feed	5.3	5.9	3.8	1.2
Edible oil and oil seeds	2.0	6.8	1.3	1.0
<b>Subtotal</b>	<b>0.7</b>	<b>3.5</b>	<b>3.6</b>	<b>1.4</b>
<i>Fish and seafood, fruit and vegetables</i>				
Fish and seafood, fresh and processed	8.8	7.7	10.4	3.3
Fruits and vegetables, fresh and processed	2.8	6.4	8.3	1.9
<b>Subtotal</b>	<b>4.4</b>	<b>6.8</b>	<b>9.0</b>	<b>2.4</b>
<i>Other processed products</i>				
Tobacco and cigarettes	8.5	4.1	6.6	3.3
Beverages, alcoholic and nonalcoholic	4.9	6.6	8.8	4.6
Other processed food	5.6	11.9	13.6	4.9
Other	-2.0	2.6	0.2	0.6
<b>Subtotal</b>	<b>3.9</b>	<b>6.0</b>	<b>7.4</b>	<b>4.0</b>
<b>TOTAL</b>	<b>1.4</b>	<b>4.3</b>	<b>5.1</b>	<b>2.0</b>

Source: Aksoy 2005

**Table 3.** Structure of trade in agricultural and food products 1980-81 and 2000-01 (% of export value)

Product Classification	Developing Countries		Industrialized Countries		World Exports	
	1980-81/ 1990-91	1990-91 /2000-01	1980-81/ 1990-91	1990-91 /2000-01	1980-81/ 1990-91	1990-91 /2000-01
<i>Tropical products</i>						
Coffee, cocoa and tea	18.3	8.5	2.5	3.6	8.5	5.4
Nuts and spices	2.4	2.8	0.7	0.8	1.3	1.5
Textile fibers	8.0	3.3	4.5	2.6	5.9	2.8
Sugar and confectionary	10.5	4.3	3.9	2.3	6.4	3.1
<b>Subtotal</b>	<b>39.2</b>	<b>18.9</b>	<b>11.6</b>	<b>9.3</b>	<b>22.0</b>	<b>12.7</b>
<i>Temperate products</i>						
Meats, fresh and processed	7.2	6.0	14.8	15.4	11.9	12.0
Milk and milk products	0.3	1.1	7.9	7.6	5.0	5.2
Grains, raw and processed	9.3	7.0	21.6	11.6	16.9	9.9
Animal feed	7.5	8.5	7.7	5.3	7.7	6.4
Edible oil and oil seeds	4.6	5.5	4.8	4.4	4.7	4.8
<b>Subtotal</b>	<b>28.8</b>	<b>28.1</b>	<b>56.9</b>	<b>44.2</b>	<b>46.3</b>	<b>38.3</b>
<i>Fish and seafood, fruit and vegetables</i>						
Fish and seafood, fresh and	6.9	19.4	5.5	8.0	6.0	12.2
Fruits and vegetables, fresh and	14.7	21.5	13.1	17.3	13.7	18.9
<b>Subtotal</b>	<b>21.6</b>	<b>41.0</b>	<b>18.7</b>	<b>25.4</b>	<b>19.8</b>	<b>31.0</b>
<i>Other processed products</i>						
Tobacco and cigarettes	2.6	3.3	3.0	4.8	2.8	4.2
Beverages, alcoholic and	1.1	3.6	6.9	11.5	4.7	8.6
Other products and processed food	6.7	5.2	3.0	5.0	4.4	5.1
<b>Subtotal</b>	<b>10.4</b>	<b>12.1</b>	<b>12.8</b>	<b>21.2</b>	<b>11.9</b>	<b>17.9</b>
<b>TOTAL</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Source: Jaffee and Henson 2004

**Table 4.** Examples of high profile food safety events in industrialized countries

<b>Year</b>	<b>Event/Issue</b>	<b>Country</b>
1987/1988	Beef hormones	Italy/European Union
1988	Salmonella outbreak/scandal in poultry and eggs	United Kingdom
1989	Alar in apples	United States
1993	E.Coli outbreak in fast-food hamburgers	United States
1996	CJD linked to BSE and human health	United Kingdom
1996-1997	Microbiological contamination of berries	United States, Canada
1996	E. Coli outbreak in cooked meat	United Kingdom
1995-1997	Avian flu spreads to humans	Hong Kong, Taiwan
1999	Dioxins in animal feed	Belgium
2000	Large-scale food poisoning from dairy products	Japan
2001	Contaminated olive oil	Spain
2005	Avian influenza	South East Asia/Europe

Source: Adapted from Jaffee and Henson 2004

**Table 5.** Estimated global retail sales of organic food and drink products (\$ million)

<b>Country</b>	<b>Sales</b>
European Union	12,681.7
<i>Austria</i>	509.0
<i>Belgium</i>	381.8
<i>Denmark</i>	431.4
<i>Finland</i>	269.8
<i>France</i>	2,008.0
<i>Germany</i>	3,944.8
<i>Greece</i>	26.7
<i>Ireland</i>	57.3
<i>Italy</i>	1,781.5
<i>Luxembourg</i>	-
<i>Netherlands</i>	502.6
<i>Portugal</i>	-
<i>Spain</i>	183.2
<i>Sweden</i>	534.5
<i>United Kingdom</i>	2,044.9
United States	10,239.8
Canada	500.0
Asia	750.0
Oceania	250.0
<b>TOTAL</b>	<b>24,171.6</b>

Source: IFOAM 2006; Dimitri and Oberholtzer 2006

**Table 6.** Retail sales of certified-Fair Trade products 2004 and 2005 (\$)

<b>Country</b>	<b>2,004</b>	<b>2,005</b>
Austria	20,042,217	32,548,610
Belgium	17,278,350	19,050,000
Canada	22,271,450	44,256,537
Denmark	16,510,000	17,780,000
Finland	9,592,310	16,550,076
France	88,481,357	138,508,000
Germany	73,025,000	89,985,850
Ireland	6,415,570	8,320,926
Italy	31,750,000	35,560,000
Japan	3,175,000	4,272,915
Luxembourg	2,540,000	2,857,500
Netherlands	44,450,000	46,355,000
Norway	6,078,093	8,551,736
Sweden	6,978,021	11,774,675
Switzerland	172,720,000	181,758,895
United kingdom	261,056,909	351,491,934
USA	272,546,144	437,044,535
Australia & New Zealand	1,123,873	3,126,955
<b>Total</b>	<b>1,056,034,294</b>	<b>1,449,794,143</b>

Source: FLO (2005)

**Table 7.** Average annual consumption of broad food commodities in India 1980 to 2003 (kg/capita/year)

<b>Commodity</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2003</b>
<b>Cereals (excluding beer)</b>	<b>140.09</b>	<b>159.87</b>	<b>153.08</b>	<b>158.95</b>
Wheat	44.83	49.58	57.18	63.62
Rice (milled equivalent)	59.88	77.85	74.66	71.10
Maize	7.95	7.84	4.75	5.37
Rye	0	0	0	0
Oats	0	0	0	0
Millet	12.23	11.02	8.88	11.79
Sorghum	13.44	12.25	6.52	6.06
<b>Starchy Roots</b>	<b>18.18</b>	<b>19.6</b>	<b>24.86</b>	<b>24.37</b>
Cassava	8.05	5.49	5.62	6.26
Potatoes	8.32	12.71	18.21	17.31
Sweet Potatoes	1.81	1.4	1.04	0.8
<b>Sugar &amp; Sweeteners</b>	<b>19.12</b>	<b>22.31</b>	<b>24.49</b>	<b>24.17</b>
Honey	0.07	0.06	0.05	0.04
<b>Pulses</b>	<b>10.90</b>	<b>13.48</b>	<b>10.77</b>	<b>11.66</b>
<b>Treenuts</b>	<b>0.43</b>	<b>0.57</b>	<b>0.87</b>	<b>0.92</b>
<b>Oilcrops</b>	<b>4.39</b>	<b>6.64</b>	<b>6.56</b>	<b>6.50</b>
<b>Vegetable Oils</b>	<b>5.45</b>	<b>6.58</b>	<b>10.16</b>	<b>9.91</b>
<b>Vegetables</b>	<b>48.25</b>	<b>53.44</b>	<b>65.89</b>	<b>68.58</b>
Tomatoes	1.96	4.89	6.57	6.42
Vegetables, other	43.03	45.21	55.24	58.06
<b>Fruits (excluding wine)</b>	<b>25.64</b>	<b>28.09</b>	<b>35.65</b>	<b>37.74</b>
Oranges, Mandarins	1.52	2.13	2.63	2.54
Lemons, Limes	0.61	0.77	1.19	1.15
Bananas	5.06	6.76	11.12	12.62
Pineapples	0.8	1.04	1	1.23
Grapes	0.29	0.46	1	0.98
Fruits, Other	16.4	15.51	17.37	17.61
<b>Stimulants</b>	<b>0.57</b>	<b>0.6</b>	<b>0.7</b>	<b>0.69</b>
Tea	0.47	0.57	0.62	0.62
<b>Spices</b>	<b>1.32</b>	<b>1.72</b>	<b>2.68</b>	<b>2.71</b>
<b>Alcoholic Beverages</b>	<b>0.76</b>	<b>1.16</b>	<b>1.66</b>	<b>1.70</b>
<b>Meat</b>	<b>3.74</b>	<b>4.56</b>	<b>4.92</b>	<b>5.23</b>
Bovine Meat	2.36	2.76	2.53	2.43
Pig meat	0.38	0.49	0.47	0.46
Poultry Meat	0.19	0.44	1.12	1.55
<b>Milk (excluding butter)</b>	<b>38.57</b>	<b>53.95</b>	<b>64.36</b>	<b>67.99</b>
<b>Eggs</b>	<b>0.74</b>	<b>1.19</b>	<b>1.66</b>	<b>1.81</b>
<b>Fish, Seafood</b>	<b>3.15</b>	<b>3.85</b>	<b>4.67</b>	<b>4.74</b>
Freshwater Fish	1.32	1.89	2.73	2.86

Source: FAOSTAT

**Table 8.** Average annual consumption of broad food commodities in Kenya 1980 to 2003 (kg/capita/year)

<b>Commodity</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2003</b>
<b>Cereals - excluding beer</b>	<b>146.0</b>	<b>106.9</b>	<b>122.5</b>	<b>125.3</b>
Wheat	20.2	18.2	27.4	26.5
Rice (milled equivalent)	2.4	1.4	4.7	6.9
Maize	113.3	83.5	88.0	88.2
Millet	3.2	1.5	0.9	1.2
Sorghum	6.6	2.3	1.4	2.1
<b>Starchy Roots</b>	<b>65.0</b>	<b>60.4</b>	<b>46.0</b>	<b>61.8</b>
Cassava	37.6	23.8	13.3	12.8
Potatoes	7.7	26.8	16.5	31.1
Sweet Potatoes	19.2	9.2	15.6	17.3
<b>Sugar crops</b>	<b>15.3</b>	<b>11.9</b>	<b>7.9</b>	<b>1.7</b>
Sugar Cane	15.3	11.9	7.9	1.7
<b>Sugar &amp; Sweeteners</b>	<b>20.8</b>	<b>21.1</b>	<b>21.4</b>	<b>20.2</b>
<b>Pulses</b>	<b>13.3</b>	<b>12.6</b>	<b>17.6</b>	<b>14.5</b>
Beans	6.8	3.2	12.5	11.0
Pulses, Other	6.6	9.3	4.6	3.5
<b>Vegetable Oils</b>	<b>4.7</b>	<b>6.5</b>	<b>7.7</b>	<b>7.3</b>
<b>Vegetables</b>	<b>25.3</b>	<b>26.0</b>	<b>42.0</b>	<b>32.9</b>
Tomatoes	3.1	4.8	7.7	7.5
Vegetables, Other	21.3	20.5	32.6	23.8
<b>Fruits - excluding wine</b>	<b>35.8</b>	<b>50.1</b>	<b>55.0</b>	<b>53.9</b>
Bananas	7.0	7.2	5.7	5.6
Plantains	14.7	30.2	24.0	23.1
Pineapples	6.1	4.0	14.3	12.8
Fruits, Other	6.7	7.1	9.7	11.1
<b>Stimulants</b>	<b>0.8</b>	<b>1.1</b>	<b>1.5</b>	<b>0.5</b>
<b>Spices</b>	<b>0.3</b>	<b>0.3</b>	<b>0.2</b>	<b>0.2</b>
<b>Alcoholic Beverages</b>	<b>35.2</b>	<b>22.9</b>	<b>12.3</b>	<b>11.7</b>
Beer	13.3	14.0	6.8	4.2
Beverages, Fermented	20.1	7.6	4.6	6.7
<b>Meat</b>	<b>17.4</b>	<b>15.0</b>	<b>14.5</b>	<b>15.1</b>
Bovine Meat	11.7	9.0	9.4	9.5
Poultry Meat	2.0	2.0	1.8	1.7
Meat, Other	1.3	1.3	1.2	1.1
Offals, Edible	2.9	2.6	2.6	2.1
<b>Milk - Excluding Butter</b>	<b>64.8</b>	<b>97.6</b>	<b>87.3</b>	<b>98.9</b>
<b>Eggs</b>	<b>0.9</b>	<b>1.4</b>	<b>1.5</b>	<b>1.5</b>
<b>Fish, Seafood</b>	<b>3.0</b>	<b>7.4</b>	<b>6.2</b>	<b>4.4</b>
Freshwater Fish	2.6	7.0	5.6	3.7

Source: FAOSTAT

**Table 9.** High-value agricultural and food market opportunities for developing countries

<b>Product</b>	<b>Market</b>	
	<b>Mainstream</b>	<b>Niche</b>
Unprocessed/semi-processed commodities	Processed grains	Organic grains
Raw/semi-processed non-trationals	Shrimp Non-traditional vegetables	Fair Trade coffee/tea Organic coffee/tea Minor non-traditional vegetables
Processed non-traditionals	Canned fish	Minor fish products Sauces/Condiments

**Table 10.** Own-price demand elasticities for selected non-traditional fruits and vegetables

<b>Commodity</b>	<b>Own-price elasticity</b>
Asparagus	-1.69
Avocados	-2.67
Cabbages	-1.11
Green Peas	-1.14
Green Beans	-0.70
Green Corn	-0.90
Pineapples	-1.35
Mangoes	-0.84

Source: FAO 2004

**Table 11.** Nature of traditional and high-value supply chains for agricultural and food products

<b>Traditional</b>	<b>High-Value</b>
<ul style="list-style-type: none"> <li>• Low own-price elasticity of demand</li> <li>• Trader or processor-led supply chains</li> <li>• Low value to volume ratio</li> <li>• Quality defined by basic grades</li>   <li>• Limited need for quality and safety assurance infrastructure</li> <li>• Many products have low perishability</li> <li>• Low levels of product processing and transformation prior to export</li> <li>• Limited coordination of supply chains</li>   <li>• Historically, high levels of state intervention in supply chains</li> <li>• Numerous specialist small businesses</li> <li>• Little or no traceability/identity preservation through supply chain</li> <li>• Need for basic logistical capacity</li> </ul>	<ul style="list-style-type: none"> <li>• High own-price elasticity of demand</li> <li>• Retailer-led supply chains</li> <li>• High value to volume ratio</li> <li>• Quality defined by multi-layered and multi-dimensional standards</li> <li>• Quality and safety assurance infrastructure critical</li> <li>• Many products highly perishable</li> <li>• Can be high levels of product transformation and processing prior to export</li> <li>• High levels of supply chain integration or coordination</li> <li>• Little or no government intervention in supply chains</li> <li>• Limited numbers of specialized businesses</li> <li>• Enhanced need for traceability/identity preservation through supply chain</li> <li>• Need for advanced logistical capacity</li> </ul>

**Table 12.** Value-added in food and beverage manufacturing 1990 and 2002 (Percent of value-added in agriculture)

Country	1990	2002
Botswana	53.8	30.9
Burkina Faso	0.5	0.4
Chile	56.2	98.2
Colombia	38.1	22.6
Costa Rica	57.6	109.5
Cote d'Ivoire	24.4	21.6
Ecuador	31.8	16.0
El Salvador	45.7	116.4
Gabon	34.3	18.8
Ghana		10.9
Guatemala	22.1	27.0
Honduras	32.7	44.4
India	6.6	1.4
Indonesia	29.8	49.4
Iran	6.3	32.9
Jamaica	107.1	63.2
Jordan	51.5	173.4
Kenya	15.5	12.4
Madagascar	15.2	5.5
Malawi	16.4	20.3
Malaysia	20.7	32.2
Mexico	58.3	121.5
Morocco	22.9	32.2
Mozambique	3.3	22.5
Nepal	4.4	8.6
Nicaragua	30.4	51.3
Pakistan	16.1	13.7
Panama	50.8	58.2
Paraguay	33.8	20.2
Philippines	44.2	52.3
South Africa	76.6	78.0
Sri Lanka	28.8	31.4
Tanzania	10.3	6.6
Thailand	52.2	85.4
Togo	17.7	2.7
Tunisia	20.4	65.2
Turkey	17.1	25.4
Uganda	6.1	4.6
Venezuela	46.5	91.7
Vietnam		26.4
Zimbabwe	38.7	118.5

Source: World Bank (2006)

**Table 13.** Level of tariffs for cocoa by level of processing (Percent)

<b>Level of Processing Chain</b>	<b>Australia</b>	<b>Canada</b>	<b>European Union</b>	<b>Japan</b>	<b>United States</b>
Cocoa beans	1	0	0	0	0
Cocoa paste	0	0	10	8	0
Cocoa butter	0	0	8	0	0
Cocoa powder	9	6	27	19	16
Chocolate and products	17	57	18	21	15

Source: Regmi and Gehlar 2005

**Table 14.** Food safety and quality standards applied to Ghanaian fruit and vegetable exports

Standard	UK Supermarkets	Dutch German/Swiss Supermarkets	Other Continental European Supermarkets	Wholesale Markets	Regional Markets
Phytosanitary certificate	LLL -	LLL -	LLL -	LLL -	L -
Limits on pesticide residues	LL PPP	LL PP	LL P	C1 -	C1 -
HACCP	- PP	- PP	- P	- -	- -
Traceability	- PPP	- PP	- P	- -	- -
Microbial contamination	- PPP	- PP	- P	- -	- -
Good agricultural practice	L PPP	L PP	L P	L -	- -
Social welfare conditions	- PP	- P	- -	- -	- -
Quality grades	L PPP	L PP	L PP	L P	- -

Source: Henson 2006b

**Key:** LLL: Legally mandated and strictly enforced  
 LL: Legally mandated and some enforcement  
 L: Legally mandated and minimal enforcement  
 -: No legal requirements  
 PPP: Strict private standards  
 PP: Some private standards  
 P: Weak/minimal private standards  
 -: No private standards

**Table 15.** Value and share of fruit and vegetable exports from developing countries 1990 to 2004

Country	Value (\$ million)					Percent of Global Exports				
	1990	1995	2000	2003	2004	1990	1995	2000	2003	2004
China	2,295.2	3,732.1	3,563.4	5,429.5	6,380.77	4.50	5.30	5.28	6.03	6.29
Mexico	1,487.0	2,638.9	3,270.0	4,020.7	4,670.42	2.92	3.75	4.85	4.46	4.60
Turkey	1,736.3	2,179.2	1,817.5	2,549.2	3,407.40	3.40	3.09	2.69	2.83	3.36
Chile	900.6	1,374.8	1,536.6	2,013.8	2,190.19	1.77	1.95	2.28	2.24	2.16
Thailand	1,520.8	1,491.8	1,211.2	1,532.4	1,808.39	2.98	2.12	1.80	1.70	1.78
Brazil	1,745.3	1,487.3	1,525.0	1,810.2	1,797.37	3.42	2.11	2.26	2.01	1.77
South Africa	617.5	900.5	823.5	1,217.2	1,546.23	1.21	1.28	1.22	1.35	1.52
Argentina	619.9	1,035.0	968.4	1,082.5	1,245.05	1.22	1.47	1.44	1.20	1.23
Ecuador	476.6	898.4	924.9	1,269.8	1,203.98	0.93	1.28	1.37	1.41	1.19
India	404.3	709.2	951.9	961.1	1,166.97	0.79	1.01	1.41	1.07	1.15
Costa Rica	417.4	942.4	948.8	1,030.7	1,125.62	0.82	1.34	1.41	1.14	1.11
Iran	318.7	618.3	564.5	1,052.8	959.20	0.62	0.88	0.84	1.17	0.95
Philippines	422.7	581.2	652.8	840.8	778.27	0.83	0.83	0.97	0.93	0.77
Morocco	498.9	585.0	530.6	725.1	624.48	0.98	0.83	0.79	0.80	0.62
Vietnam	50.8	70.0	285.3	446.5	601.06	0.10	0.10	0.42	0.50	0.59
Peru	59.2	154.0	249.5	420.2	515.80	0.12	0.22	0.37	0.47	0.51
Colombia	361.4	497.0	552.9	478.0	511.09	0.71	0.71	0.82	0.53	0.50
Côte d'Ivoire	93.6	166.3	185.7	188.6	397.18	0.18	0.24	0.28	0.21	0.39
Indonesia	247.9	299.5	295.8	320.3	364.07	0.49	0.43	0.44	0.36	0.36
Honduras	404.9	158.2	172.6	212.6	360.85	0.79	0.22	0.26	0.24	0.36
Guatemala	109.8	215.3	353.6	317.3	349.71	0.22	0.31	0.52	0.35	0.34
Egypt	127.7	206.8	138.2	214.3	344.25	0.25	0.29	0.20	0.24	0.34
Kenya	112.3	134.8	175.3	260.7	272.27	0.22	0.19	0.26	0.29	0.27
Myanmar	88.2	242.2	265.7	274.0	256.99	0.17	0.34	0.39	0.30	0.25
Malaysia	155.1	191.3	205.0	234.5	241.62	0.30	0.27	0.30	0.26	0.24
Panama	231.2	208.7	173.3	172.7	204.79	0.45	0.30	0.26	0.19	0.20
Jordan	70.3	99.8	105.5	163.6	204.13	0.14	0.14	0.16	0.18	0.20
Pakistan	63.4	57.3	126.3	156.0	165.48	0.12	0.08	0.19	0.17	0.16
Syria	210.7	275.6	252.5	154.2	161.25	0.41	0.39	0.37	0.17	0.16
Tunisia	76.9	85.2	72.8	103.5	140.76	0.15	0.12	0.11	0.11	0.14
Ghana	6.1	11.7	36.3	89.5	125.48	0.01	0.02	0.05	0.10	0.12
Dominican Republic	43.0	59.3	97.5	93.9	107.10	0.08	0.08	0.14	0.10	0.11

Country	Value (\$ million)					Percent of Global Exports				
	1990	1995	2000	2003	2004	1990	1995	2000	2003	2004
Lebanon	79.3	69.7	59.8	84.3	102.86	0.16	0.10	0.09	0.09	0.10

Source: FAOSTAT

**Table 16.** Overview of significant developing country exporters of fruit and vegetable and frozen crustaceans, 1990-2004

<b>Contribution to GDP growth</b>	<b>High</b>	<b>Low</b>	<b>Low</b>
<b>% value-added</b>	<b>High</b>	<b>High</b>	<b>Low</b>
Fruit & vegetables	Cote d'Ivoire Myanmar Syria Ghana Tanzania	India Iran Philippines Vietnam Guatemala Honduras Kenya Sri Lanka	China Mexico Turkey Chile Thailand Brazil South Africa Argentina Ecuador Morocco Colombia Peru Egypt Dominican Republic
Frozen crustaceans	Mozambique Pakistan	Vietnam India Bangladesh Philippines Honduras Guyana Sri Lanka	Thailand Indonesia Mexico Argentina Ecuador Brazil Malaysia Venezuela Colombia Cuba Bahamas Morocco Tunisia

Key: Countries are color-coded by role in global markets; red = major exporters; green = minor exporters; blue = niche or very minor exporters

**Table 17.** Value and share of green bean exports from developing countries 1990 to 2004

Country	Value (\$'million)					% Global Exports				
	1990	1995	2000	2003	2004	1990	1995	2000	2003	2004
Kenya	19.94	21.81	37.58	61.56	85.24	14.43	11.78	16.82	17.73	22.62
Morocco	2.72	3.28	16.93	42.86	26.56	1.97	1.77	7.58	12.35	7.05
Mexico	17.09	13.51	26.95	24.49	24.12	12.37	7.29	12.06	7.05	6.40
Jordan	0.71	4.90	4.76	9.75	7.46	0.51	2.65	2.13	2.81	1.98
Ethiopia	0.00	0.00	1.13	0.73	5.77	0.00	0.00	0.51	0.21	1.53
Senegal	0.01	0.12	0.00	1.56	5.29	0.01	0.06	0.00	0.45	1.40
Egypt	2.65	3.58	1.10	2.09	4.69	1.92	1.93	0.49	0.60	1.24
Malaysia	1.85	1.75	2.14	3.41	3.39	1.34	0.94	0.96	0.98	0.90
China	5.93	10.23	1.07	2.49	2.54	4.29	5.52	0.48	0.72	0.67
Tanzania	0.25	0.50	0.46	0.07	1.51	0.18	0.27	0.21	0.02	0.40
Niger	0.00	0.60	9.18	1.37	1.37	0.00	0.32	4.11	0.39	0.36
Guatemala	0.00	0.24	0.94	0.73	1.20	0.00	0.13	0.42	0.21	0.32
Turkey	0.54	0.42	0.56	1.26	0.98	0.39	0.23	0.25	0.36	0.26
Zimbabwe	0.54	0.00	0.65	2.44	0.82	0.39	0.00	0.29	0.70	0.22
Peru	0.00	0.09	0.20	0.15	0.75	0.00	0.05	0.09	0.04	0.20
Palestine	0.00	0.00	0.48	0.6	0.6	0.00	0.00	0.21	0.17	0.16
Mali	0.28	0.15	0.00	0.45	0.44	0.20	0.08	0.00	0.13	0.12
Syria	1.45	5.77	0.82	0.79	0.35	1.05	3.12	0.37	0.23	0.09
India	0	0.05	0.08	0.25	0.32	0.00	0.03	0.04	0.07	0.08

Source: FAOSTAT

**Table 18.** Value and share of fresh chilli and pepper exports from developing countries 1990 to 2004

Country	Value (\$'million)					Percent of Global Exports				
	1990	1995	2000	2003	2004	1990	1995	2000	2003	2004
Mexico	129.2	221.3	374.3	424.9	576.7	17.32	17.14	23.34	18.04	20.51
Turkey	16.1	23.3	20.3	34.9	46.2	2.15	1.80	1.27	1.48	1.64
China	0.4	2.2	0.8	15.7	15.3	0.05	0.17	0.05	0.67	0.54
Jordan	2.1	4.6	5.9	10.2	13.7	0.28	0.36	0.37	0.43	0.49
Morocco	0.9	3.7	4.9	12.3	7.6	0.12	0.29	0.30	0.52	0.27
Dominican Republic	0.5	1.1	2.4	4.2	4.1	0.07	0.08	0.15	0.18	0.14
El Salvador	0.0	0.0	0.0	0.0	3.3	0.00	0.00	0.00	0.00	0.12
Syria	0.0	0.0	0.0	1.2	2.3	0.00	0.00	0.00	0.05	0.08
Iran	0.0	0.0	1.6	1.4	2.2	0.00	0.00	0.10	0.06	0.08
India	0.0	0.1	1.5	2.3	2.1	0.00	0.01	0.09	0.10	0.07
Thailand	1.7	3.0	2.5	2.7	1.6	0.22	0.23	0.16	0.11	0.06
Guatemala	0.0	0.0	3.0	1.4	1.5	0.00	0.00	0.19	0.06	0.05
Trinidad and Tobago	0.0	0.6	1.3	1.9	1.5	0.00	0.05	0.08	0.08	0.05
Egypt	0.2	0.1	0.0	0.5	1.2	0.02	0.00	0.00	0.02	0.04
Honduras	0.0	0.2	2.2	1.9	1.0	0.00	0.01	0.14	0.08	0.04
Palestine	0.0	0.0	2.1	0.9	0.9	0.00	0.00	0.13	0.04	0.03
Indonesia	0.0	0.2	0.1	0.5	0.5	0.00	0.02	0.00	0.02	0.02
South Africa	0.1	0.0	0.1	0.2	0.3	0.01	0.00	0.01	0.01	0.01
Lebanon	0.7	0.8	0.2	0.2	0.3	0.09	0.06	0.01	0.01	0.01
Zimbabwe	0.0	0.7	0.4	1.3	0.3	0.00	0.05	0.03	0.05	0.01
Yemen	0.0	0.0	0.0	0.0	0.3	0.00	0.00	0.00	0.00	0.01
Venezuela	0.3	0.1	0.3	0.1	0.3	0.04	0.01	0.02	0.00	0.01
Singapore	0.1	0.3	0.1	0.1	0.2	0.01	0.02	0.00	0.00	0.01

Source: FAOSTAT

**Table 19.** Value and share of frozen crustacean exports from developing countries (excluding China) 1990 to 2003

Country	Value (\$'million)				Percent of Global Exports			
	1990	1995	2000	2003	1990	1995	2000	2003
Thailand	787.0	1,986.6	1,497.6	1,230.9	10.4	19.0	14.0	15.2
Indonesia	678.8	1,002.7	977.5	917.5	9.0	9.6	9.1	11.3
Vietnam	118.5	274.2	725.5	855.4	1.6	2.6	6.8	10.5
India	367.5	703.3	961.8	830.1	4.9	6.7	9.0	10.2
Mexico	220.9	484.6	468.3	450.2	2.9	4.6	4.4	5.5
Argentina	54.7	69.6	202.6	406.6	0.7	0.7	1.9	5.0
Ecuador	373.2	673.8	272.6	281.3	5.0	6.4	2.5	3.5
Bangladesh	151.3	280.1	309.7	245.6	2.0	2.7	2.9	3.0
Brazil	110.3	111.0	156.9	189.2	1.5	1.1	1.5	2.3
Malaysia	75.1	122.8	167.0	148.7	1.0	1.2	1.6	1.8
Philippines	233.3	226.8	143.9	119.8	3.1	2.2	1.3	1.5
Venezuela	36.9	29.7	132.3	100.2	0.5	0.3	1.2	1.2
Colombia	79.3	118.0	96.1	89.2	1.1	1.1	0.9	1.1
Honduras	15.2	35.5	36.6	87.8	0.2	0.3	0.3	1.1
Mozambique	50.3	63.2	90.9	82.2	0.7	0.6	0.8	1.0
Panama	45.6	85.2	67.7	80.1	0.6	0.8	0.6	1.0
Cuba	96.6	121.5	85.5	76.6	1.3	1.2	0.8	0.9
Bahamas	43.8	56.2	87.9	69.2	0.6	0.5	0.8	0.9
Pakistan	62.8	83.8	81.2	61.8	0.8	0.8	0.8	0.8
Guyana	23.4	3.1	47.1	50.2	0.3	0.0	0.4	0.6
Sri Lanka	16.3	37.2	66.2	49.5	0.2	0.4	0.6	0.6
Costa Rica	10.4	32.0	46.6	46.6	0.1	0.3	0.4	0.6
Morocco	11.2	34.8	43.7	39.8	0.1	0.3	0.4	0.5
Tunisia	21.8	36.5	53.1	37.9	0.3	0.3	0.5	0.5
Nicaragua	9.8	62.6	118.0	33.0	0.1	0.6	1.1	0.4

Source: FAOSTAT

**Table 20.** Developing countries with significant areas under organic production 2005

<b>Country</b>	<b>Land Area (Hectares)</b>
China	3,466,570
Argentina	2,800,000
Brazil	887,637
Uruguay	759,000
Chile	639,200
Bolivia	364,100
Mexico	295,046
Peru	260,000
Sudan	200,000
Zambia	187,694
Kenya	182,438
Bangladesh	177,770
Tunisia	155,323
Uganda	122,000
India	114,037
Turkey	108,597
Paraguay	91,414
Dominican Republic	72,425
Nicaragua	59,000
Tanzania	55,867
Indonesia	52,882
South Africa	45,000
Colombia	33,000
Ecuador	27,436
Egypt	24,548
Pakistan	20,310
Morocco	20,040
Ghana	19,132
Venezuela	16,000
Sri Lanka	15,379
Guatemala	14,746
Philippines	14,134
Costa Rica	13,945
Thailand	13,900
Saudi Arabia	13,730
Syria	12,500
Cuba	10,445
El Salvador	9,100
Cameroon	7,000
Vietnam	6,475
Panama	5,244
<b>Total all countries</b>	<b>31,502,786</b>

Source: IFOAM 2006

**Table 21.** Organic cotton production areas in developing countries

<b>Country</b>	<b>Year</b>	<b>Area (Hectares)</b>
Uganda	2001	8,980
Turkey	2003	8,000
India	2003	7,533
Tanzania	2005	5,793
China	2004	2,00
Pakistan	2004	880
Benin	2005	400
Paraguay	2003	300
Peru	2003	280
Mali	2003	170
Azerbaijan	2005	144
Syria	2004	100
Kyrgystan	2005	98
Egypt	2005	73
Senegal	2001	53
Burkina Faso	2004	30
<b>Total</b>		<b>53,314</b>

Source: IFOAM 2006

**Table 22.** Organic coffee production areas by country:

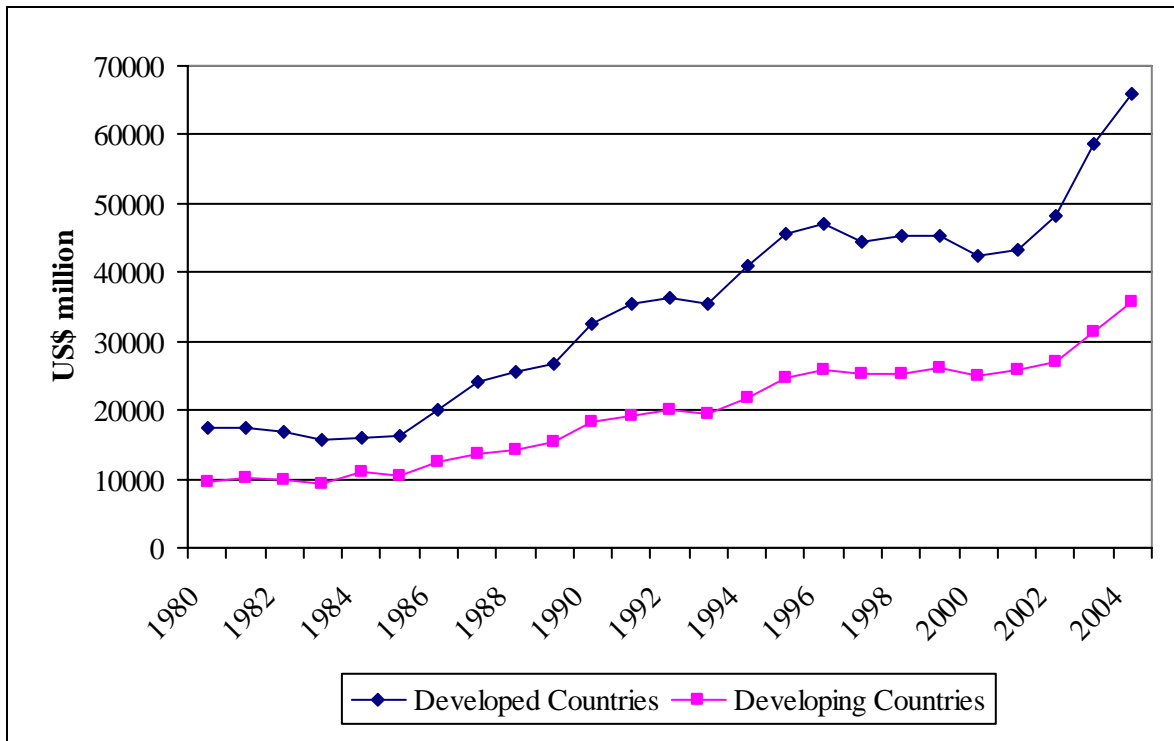
<b>Country</b>	<b>Date</b>	<b>Area (Hectares)</b>
Peru	2005	75,775
Indonesia	2005	26,882
Uganda	2005	18,135
Mexico	2005	14,137
Nicaragua	2005	10,282
Colombia	2005	7,531
Guatemala	2005	6,854
Brazil	2005	6,316
Dominican Republic	2005	6,310
El Salvador	2005	6,000
Bolivia	2005	4,206
Ecuador	2005	3,484
Costa Rica	2005	2,071
Honduras	2005	1,823
Cameroon	2005	700
China	2005	260
Nepal	2005	100
Ghana	2005	55
Panama	2005	40
Sri Lanka	1998	16
<b>Total</b>		<b>323,976</b>

Source: IFOAM 2006

**Table 23.** Organic cocoa production areas and/or volumes by country

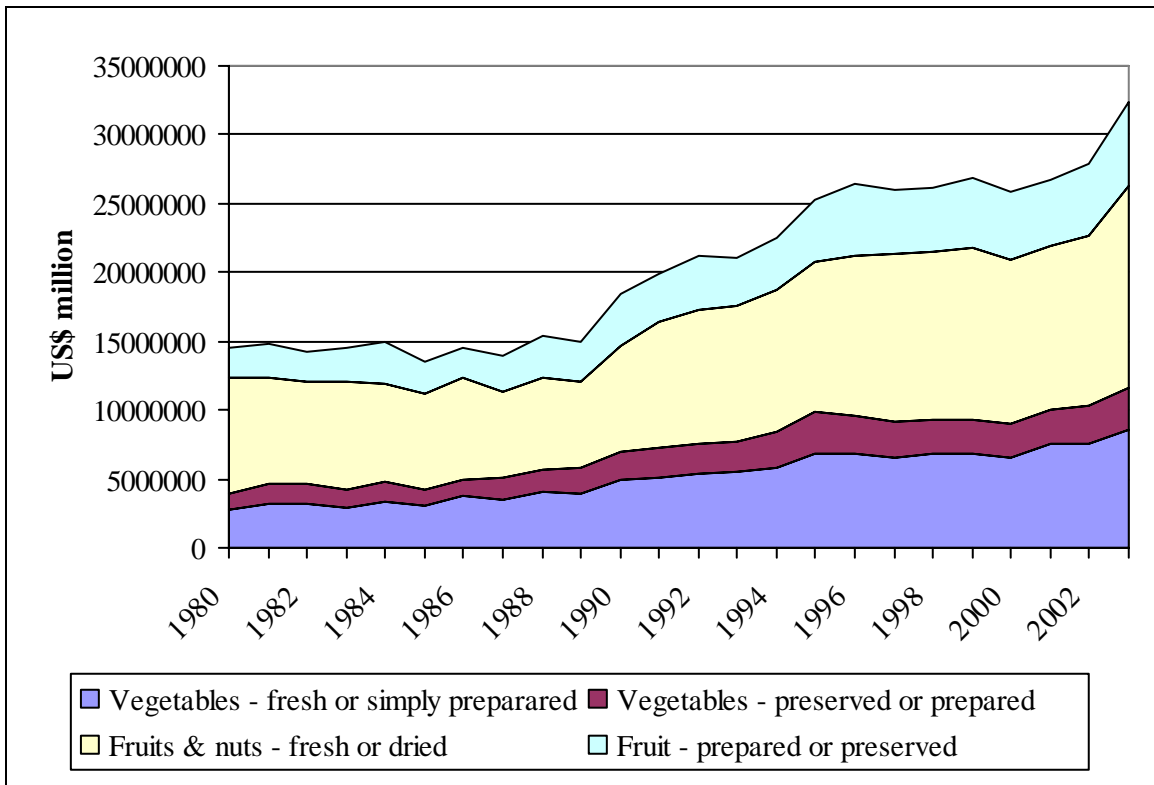
<b>Country</b>	<b>Year</b>	<b>Area</b>	<b>Production</b>
Dominican Republic	2005	31,073	43,000
Mexico	2005	17,314	9,419
Ecuador	2005	7,574	-
Panama	2005	4,850	-
Peru	2004	3,140	4,500
Uganda	2004	2,082	600
Brazil	2005	2,050	-
Costa Rica	2004	2,028	-
Cuba	2005	1,369	-
Nicaragua	2004	366	98
El Salvador	2005	200	-
Ghana	2005	22	-
Madagascar	2003	-	1,500
Tanzania	2003	-	800
Bolivia	2003	-	300
Belize	2003	-	30
Vanuatu	2002	-	500
Fiji	2002	-	50
<b>Total</b>		<b>72,267</b>	<b>57,616</b>

Source: IFOAM 2006



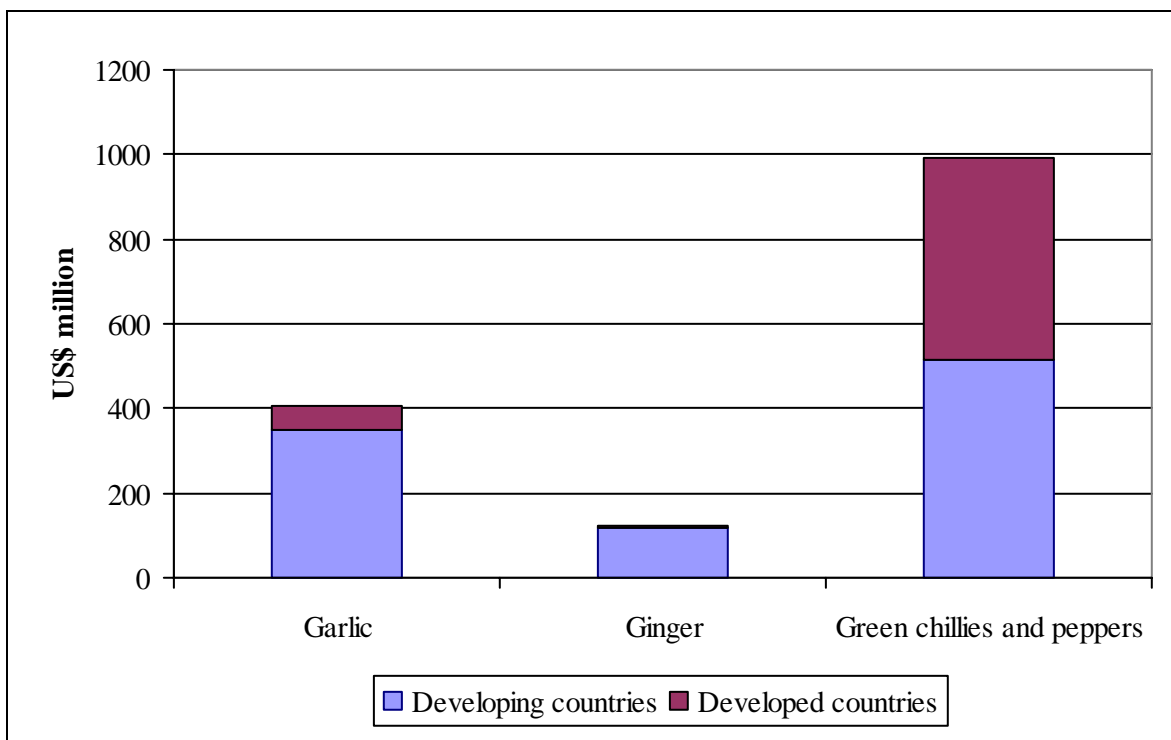
Source: FAOSTAT

**Figure 1.** Fruit and vegetable exports from developed and developing economies 1980 to 2003 (US\$ million)



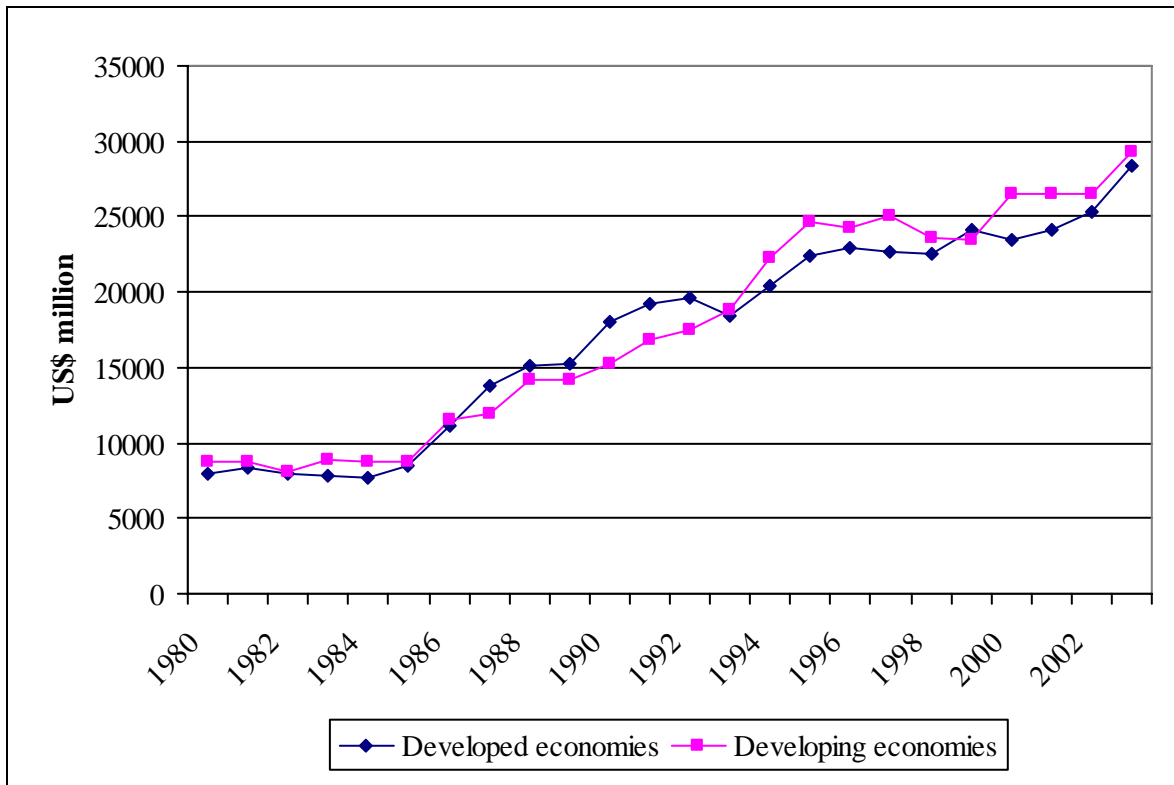
Source: FAOSTAT

**Figure 2.** Composition of fruit and vegetable exports from developing economies, 1980 to 2003 (\$ million)



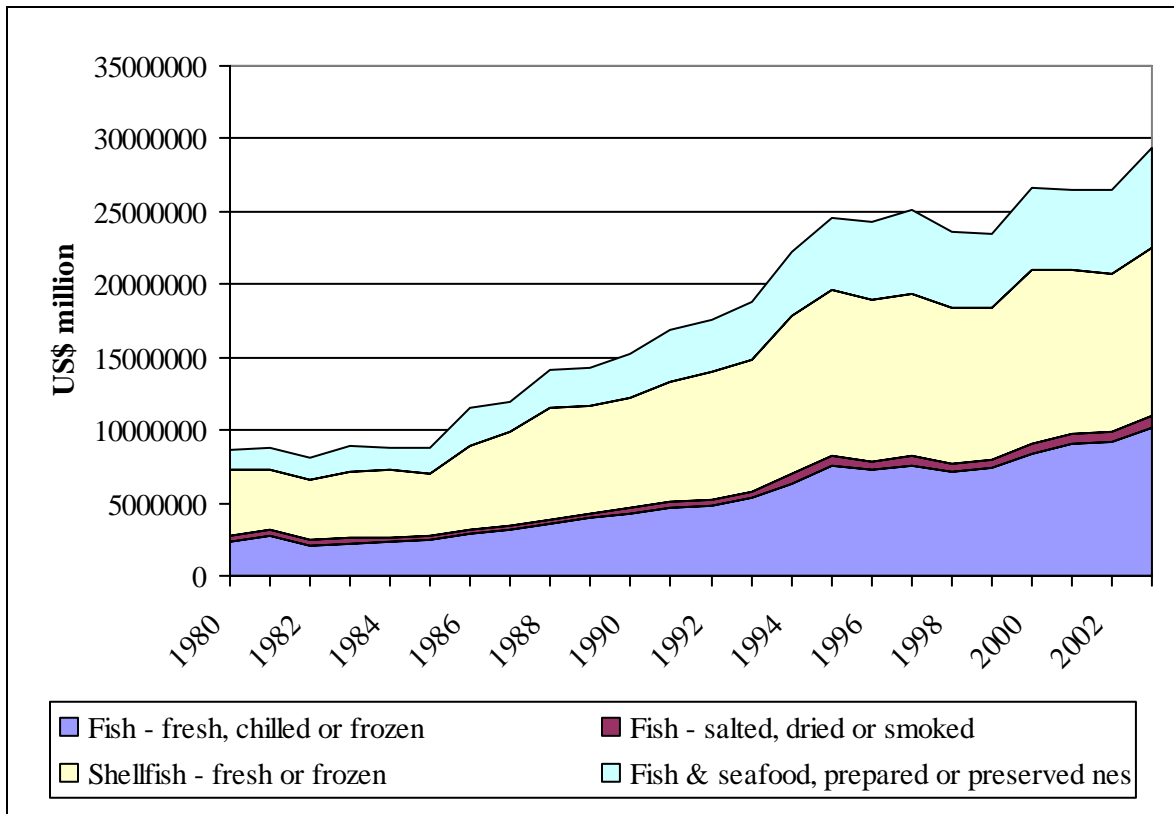
Source: FAO 2004

**Figure 3.** Developed and developing country exports of selected speciality non-traditional exports, 2001 (\$ million)



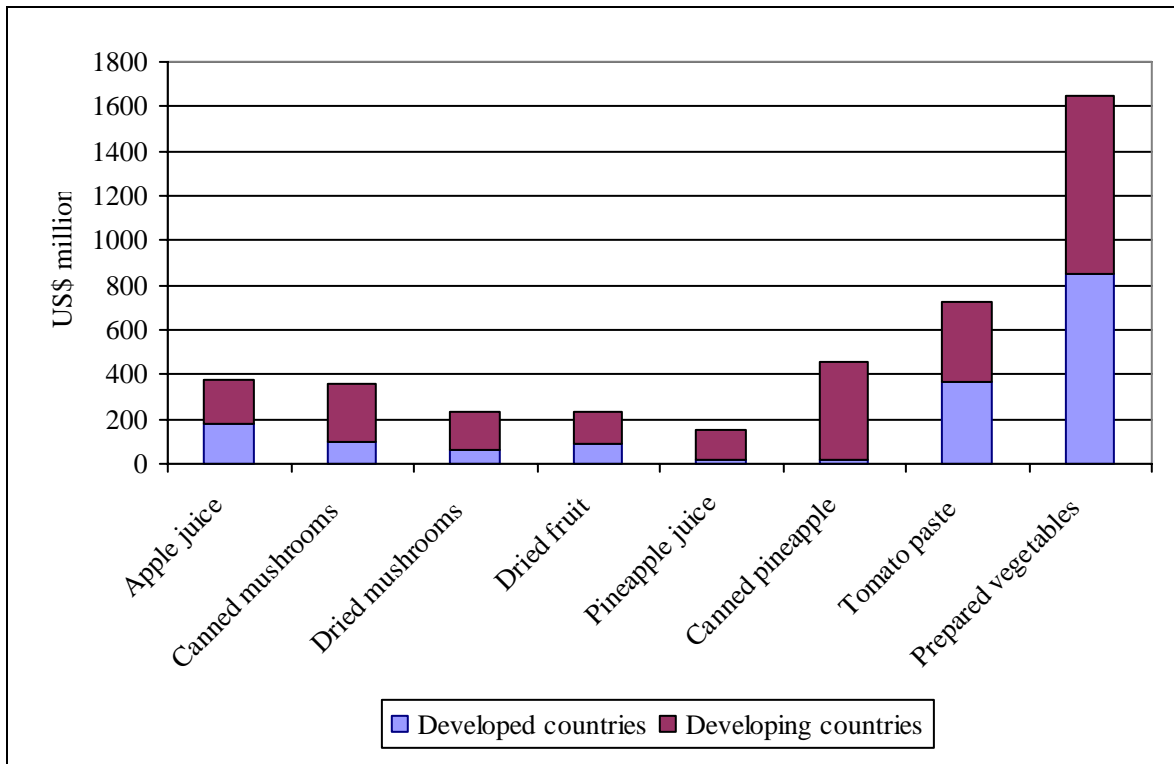
Source: UNCTAD

**Figure 4.** Fish and fishery product exports from developed and developing economies, 1980 to 2003 (\$ million)



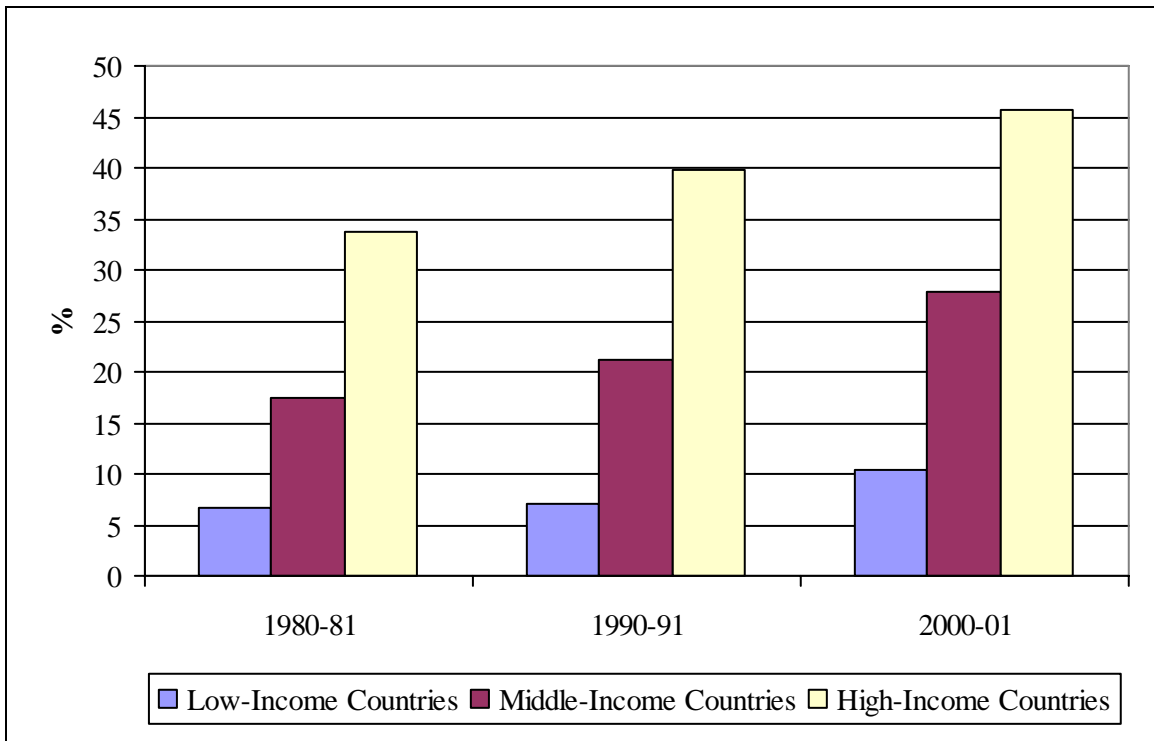
Source: COMTRADE

**Figure 5.** Composition of fish and fishery product exports from developing economies, 1980 to 2003 (\$ million)



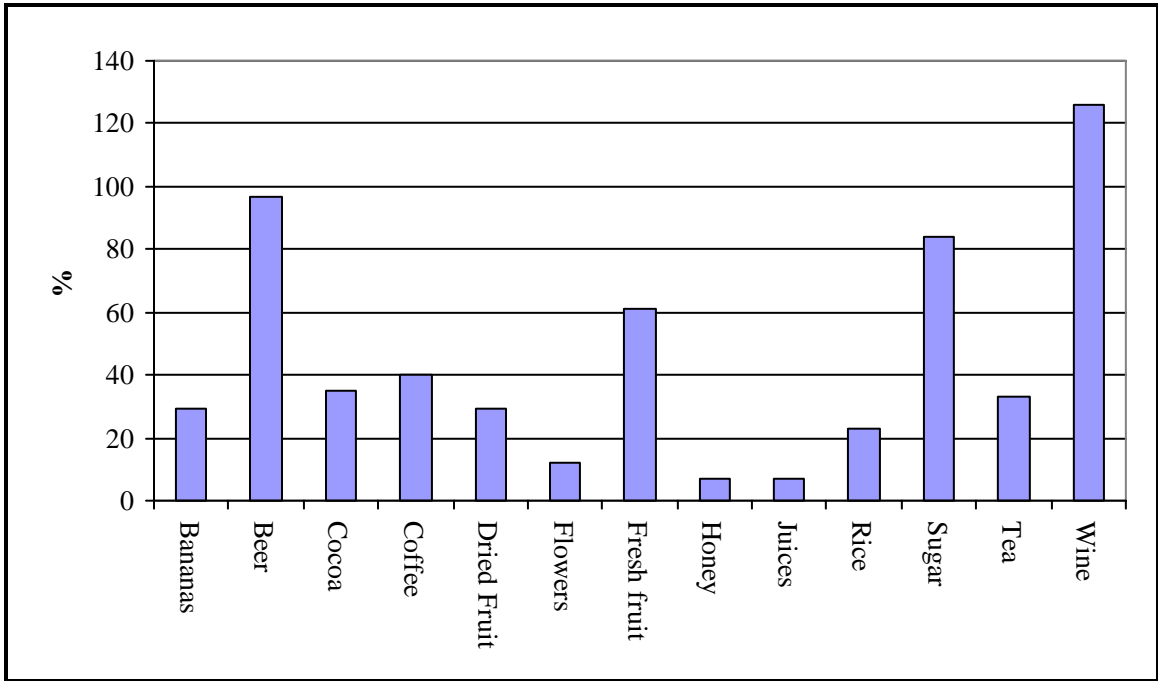
Source: FAO 2004

**Figure 6.** Developed and developing country exports of selected processed fruit and vegetables 2001 (\$ million)



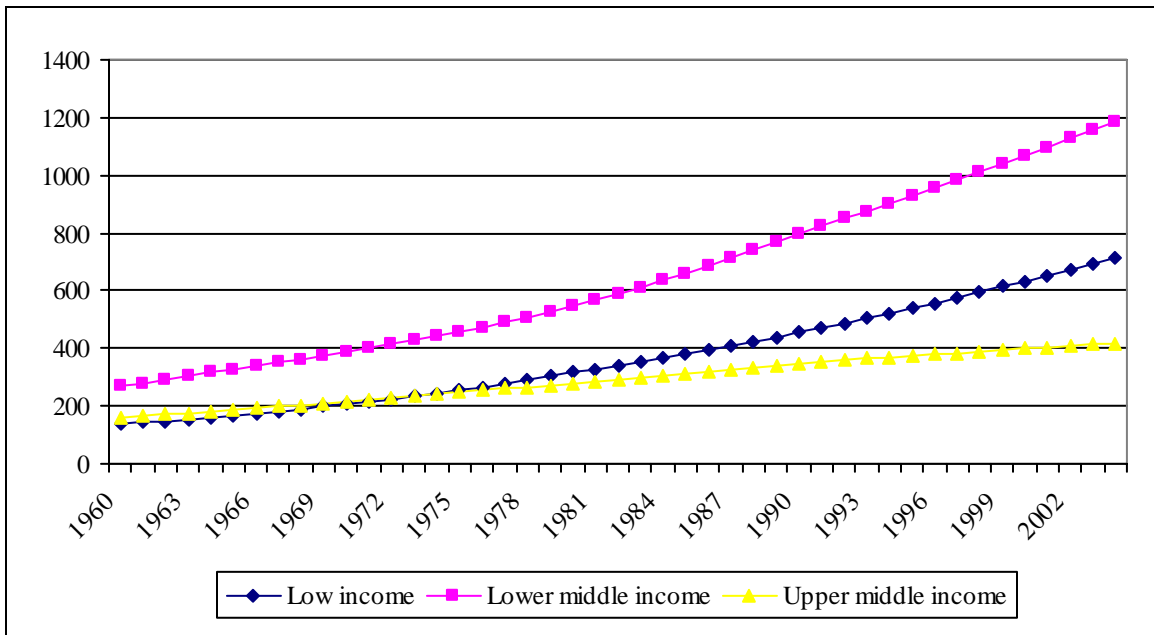
Source: Alsoy 2005

**Figure 7.** Share of processed products in agricultural and food exports 1980-81 to 2000-01 (%)



Source: FLO 2005

**Figure 8. Growth** in sales volumes of certified Fair Trade products 2004-2005 (%)



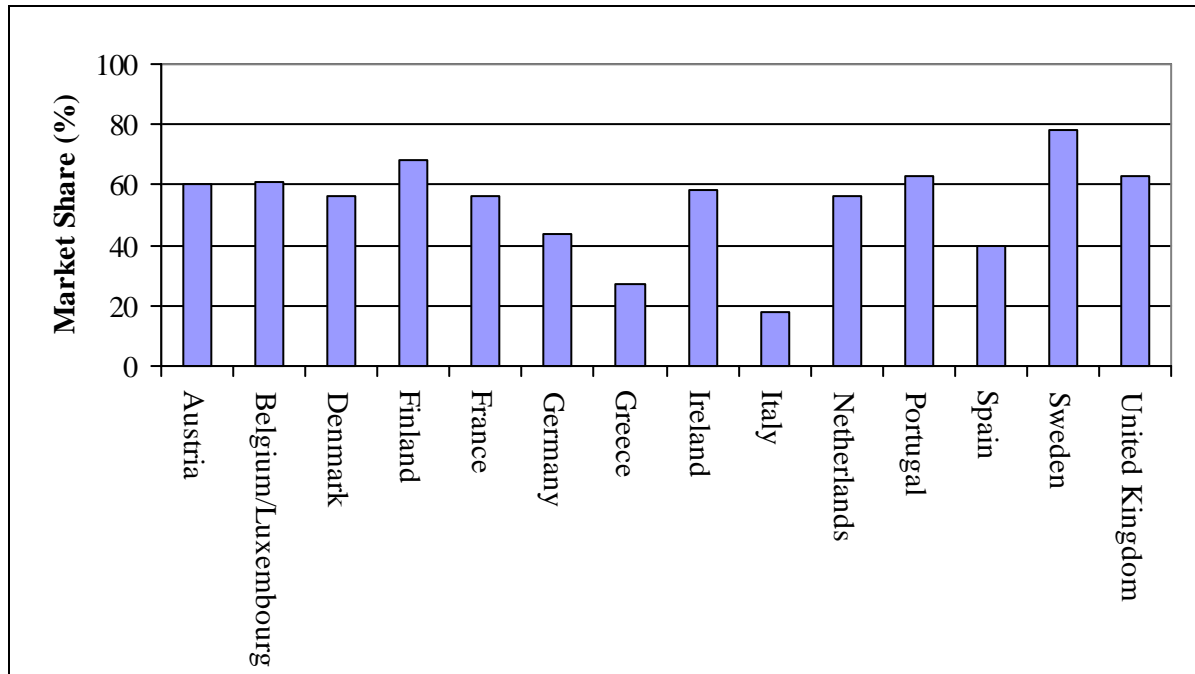
Source: World Bank

**Figure 9.** Size of urban population by income group 1960-2004 (millions)

		<b>Internal and External Resource Endowments</b>	
		<b>Low</b>	<b>High</b>
<b>Level of Diversification</b>	<b>High</b>	Subsistence Agriculture	Market-Oriented Diversification
	<b>Low</b>	Local Low-Value Market Focus	Specialized Agriculture

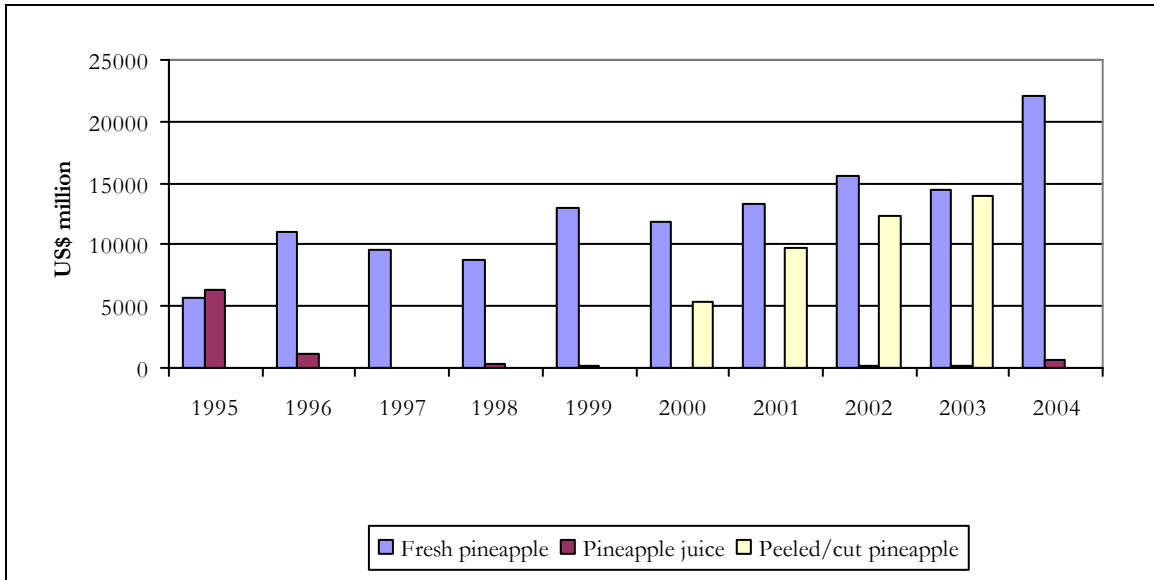
Source: Rao and others 2004

**Figure 10.** Agricultural diversification and resource endowments



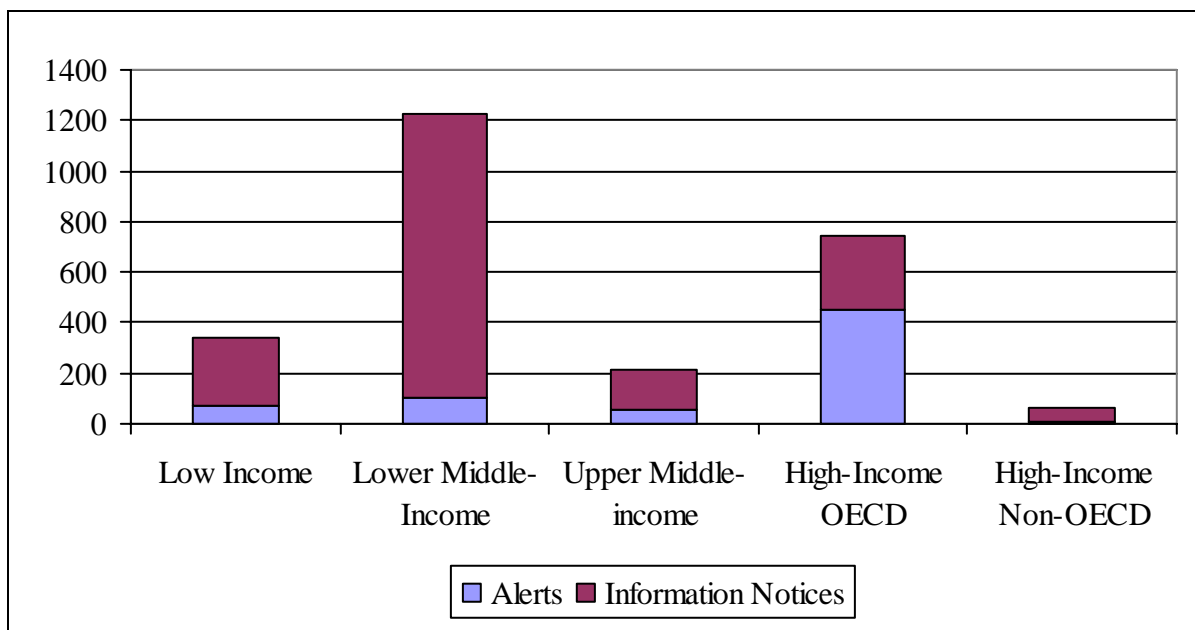
Source: Dobson 2003

**Figure 11.** Five-firm concentration ratios for retail food sales in selected industrialized countries 2003 (%)



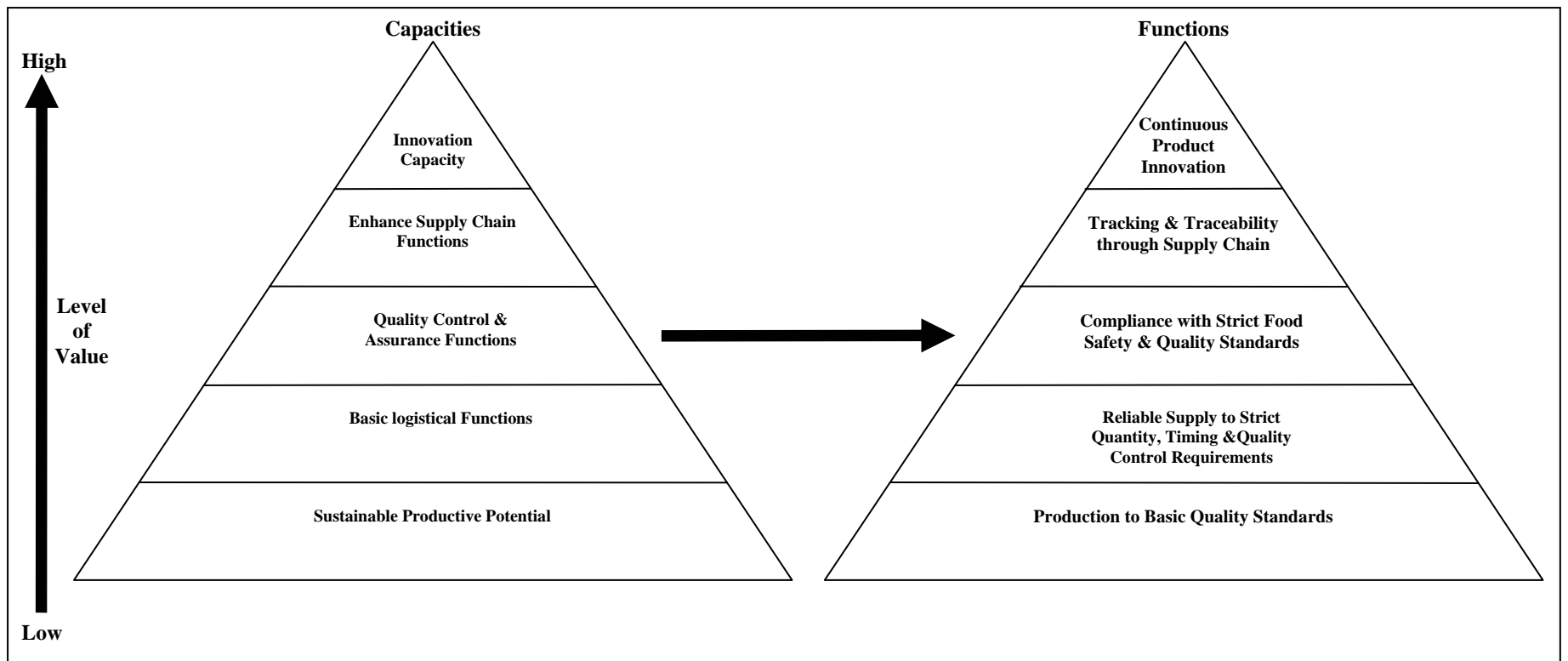
Source: OECD 2006

**Figure 12.** Value of pineapple exports 1995-2004 (US\$'000):

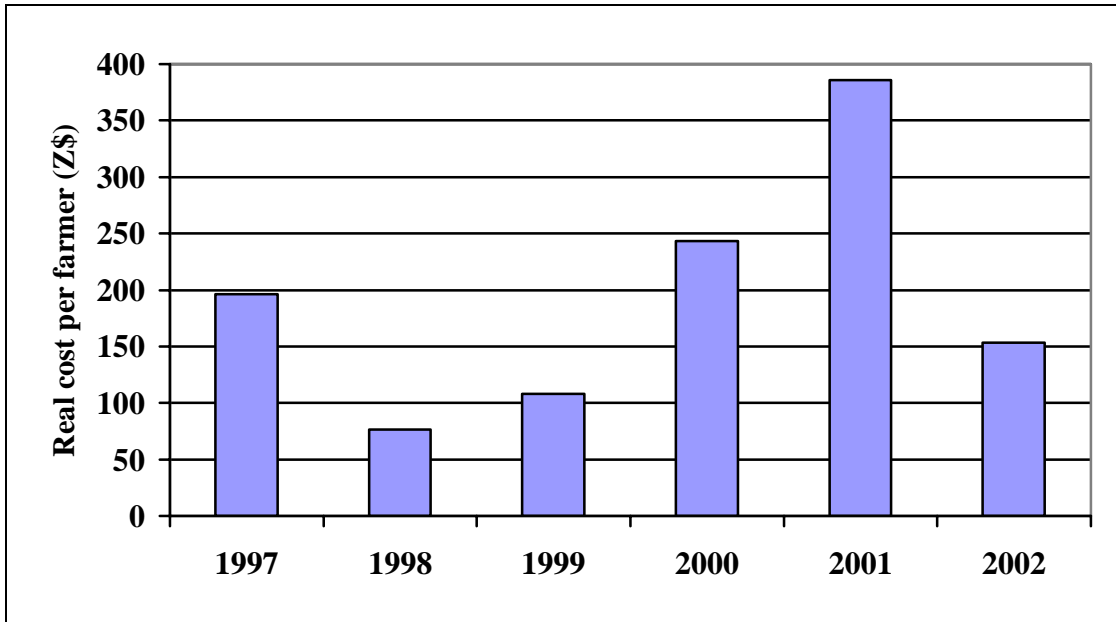


Source: European Commission

**Figure 13.** Number of alerts and information notices issued for intra and inter-EU imports by country income group 2004:



**Figure 14.** Hierarchy of capacity and functions to access and exploit opportunities in high-value markets for agricultural and food products



Source: Henson and Masakure 2005

**Figure 15.** Real cost (1997 prices) of Agrisystems' supply-chain operation 1997-2002

## **Box 1 British Retail Consortium Global Standard**

The first private food safety standard to be developed entirely through the collective action of private firms was the British Retail Consortium (BRC) Technical Standard. The BRC is an industry organization representing the interests of major retail operators in the UK. Since 1998, the BRC has coordinated the harmonization and consolidation of the business-to-business standards implemented by its members, as well as a number of third party food safety standards. The BRC Technical Standards has been revised on an ongoing basis and, reflecting the global nature of supply chains to UK food retailers, is now international in focus. Currently, all but one of the major food retailers in the UK, collectively accounting for around 58 percent of retail food sales, accepts third party certification to the BRC Global Standard in lieu of their proprietary business-to-business standard when sourcing private label products. Adoption of the BRC Global Standards has also expanded rapidly with the number of certified processing facilities increasing from less than 500 in the UK in 1999 to 5,500 in 64 countries in 2005. As the international adoption of the BRC Global Standard has increased, the geographical distribution of approved third party certifiers has also expanded into Latin America, Asia and Africa.

Source: Henson 2006a

## Box 2 EUREPGAP standard

Reflecting the importance of imports in the supply of fresh produce to UK supermarkets, and thus the need to extend beyond established private food safety standards that were national in focus, the leading UK food retailers have driven efforts to establish a European code on good agricultural practice (GAP). In 1997, the Euro-Retailer Produce Working Group (EUREP) was established and by 1999 a trans-national private protocol for the application of GAP by fresh produce suppliers had been agreed. This has subsequently been revised on a number of occasions, such that EUREPGAP remains an evolving standard for the application of GAP.

The EUREPGAP standard includes requirements in relation to site management, varieties and rootstocks, soil management, fertilizer usage, irrigation, crop protection and waste and pollution management. The EUREPGAP protocol also includes stipulations with regard to worker health and welfare and wildlife conservation. At present over 250 control points have been identified, of which over 50 percent define criteria for the correct use of chemicals during crop production and post-harvest treatment. Inspection and certification of production facilities to EUREPGAP is undertaken by independent EUREP-approved third party agencies.

Currently, 30 major food retailers in 12 European participate in EUREP, controlling an estimated 85 percent of fresh produce retail sales in 2004.<sup>151</sup> In practice, however, EUREPGAP has only been widely implemented by food retailers in the UK and the Netherlands, while some dominant firms that have participated in the promulgation of the standard have retained their own business-to-business standards. The rapid growth of EUREPGAP has stimulated the development of private and/or public codes of good agricultural practice that have subsequently been recognized as equivalent in a number of countries (for example ChileGAP, Naturane [Spain], New Zealand Fresh Produce Approved Supplier Program and Mexico Supreme Quality GAP) and/or are in the process of being recognised as equivalent (for example SwissGAP, KenyaGAP, ChinaGAP and JGAP [Japan]). Thus, a process of harmonization and mutual recognition has occurred in response to the growing dominance of EUREPGAP in supply chains for fresh produce, arguably at a much faster rate that would occur with regulatory requirements.

Source: Henson 2006a

### Box 3 Evolution of fresh vegetables exports from Kenya

Kenya's fresh produce trade dates to the mid-to-late 1950s, when small quantities of temperate vegetables and tropical fruits were supplied in the European winter 'off-season' to up-market department stores in London. This off-season trade continued and was later joined by year-round-supplies of high-quality green beans and a broad array of vegetables that comprised part of the traditional diets of the UK immigrant population from South Asia. Most of the product was air-freighted in bulk packages through wholesale markets or to distributor/caterers.

For many years, the industry functioned with very simple supply chains, involving little investment in infrastructure, product development or management systems. Around 12 medium-sized firms alongside large numbers of small, part-time operators handled the exports, frequently trading with relatives or similarly small-scale companies in Europe. Fresh produce was purchased from large numbers of small and larger growers. Produce was generally collected in cardboard boxes from farms or along roadsides, from where it was brought to a central warehouse, sifted through and re-graded if necessary, cooled a little and trucked to the airport for shipment in the evening. Some limited inspection of produce was undertaken by Ministry of Agriculture officials at the airport. With relatively few exceptions this was more or less the 'model' of the industry from the 1960s through to the mid-to-late 1980s. The industry remained competitive in some markets and for some products, but not for others. While experiencing some growth in the 1970s, the Kenyan fresh produce export trade more or less stagnated in the 1980s.

Since the early 1990s, however, the industry has been reshaped and transformed, both in response to and in anticipation of commercial, regulatory and private governance changes within its core external markets. Commercial pressures came in the form of saturated markets for certain products and increased competition from various suppliers which had improved their supply capabilities and had less expensive sea or air-freight costs than did Kenya. Commercial changes within Europe also required a shift in the Kenyan approach. In many countries, large supermarket chains were in ascendancy while wholesale markets were declining in importance or taking on more specialized roles. Consolidation was also occurring among importers, packers and distributors. Hence, the growing segments of the fresh produce market were being managed by fewer players. On the regulatory front, there was a steady wave of activity geared toward strengthening and harmonizing EU regulations and monitoring systems for food safety, quality conformity and plant health. Interspersed in this wave of regulatory activity were progressively refined private sector standards governing food safety, plant health, etc.

Several of the leading Kenyan exporters appreciated the emerging trends environment and began to re-orient their operations. With the encouragement of several UK supermarkets they began to experiment with new crops. New consumer packaging was introduced and different combinations of vegetables were included. An increasing proportion of product was directed to selected supermarket chains. The latter began to send 'audit' teams to Kenya to check hygiene and other conditions on farms and in pack-houses. Improvements and investments were recommended, and in some cases required. With renewed confidence in the future of the industry, several exporters made considerable investments in new or up-graded pack-houses and related food safety management systems for the packing of ready-to-eat, semi-prepared products. Kenya thus moved beyond being a commodity supplier, with mixed salads, stir-fry mixes, vegetable kebabs and other value-added products now accounting for more than 40% of what has been a burgeoning trade over the past decade. Between 1991 and 2003, Kenya's fresh vegetable exports increased from \$23 million to \$140 million.

The design and implementation of such food safety and quality assurance systems is expensive. The design process itself requires months of senior management time plus input from an array of consultants. One large company has estimated that the combined annual food safety management costs for its premium and high care lines of business is about \$300,000, or 3 percent of its annual turnover of just under \$10 million. This includes the pertinent technical staff cleaning chemicals, the operation of a water filtration system, and health testing of staff.

Systems for crop procurement have also been transformed with many of the leading companies investing in their own farms and/or inducing major changes in the production practices of out-growers. There has been an array of joint public/private sector initiatives to train growers in all aspects of 'good agricultural practice'. The investments made in modern, world-class vegetable farms have been considerable. To acquire and fully develop a 100 hectare horticultural farm would cost \$1.0 –1.35 million, including the cost of the land, irrigation facilities, field equipment

buildings, cold stores and necessary fencing and road improvements. Several of the larger exporters have developed two or more such farms.

Rising private sector and public standards have posed challenges to the Kenyan fresh produce industry, yet at the same time they have also thrown a 'life line' to the industry. Due to its location and relatively high air-freight costs, the Kenyan fresh produce sector cannot compete with many other players on a unit-cost basis. Margins have been squeezed in the market for mainstream and 'commodity' vegetables. With rising labor costs in Europe, the Kenyan industry has positioned itself as a manufacturer of prepared salads, the processing functions for which are labor-intensive. Thus far, this market segment has grown fastest in the UK, although there is increased buyer interest and consumer demand on the European continent as well. This suggests that well-organized industries in low-income countries can indeed use stricter standards as a catalyst for change, and profit in the process.

Reflecting these costs, not all of the industry has transformed itself in this way. There remain around 25 smaller exporters who lack the financial resources to invest in modern pack-houses and continue to supply loose produce to commission agents and others in European wholesale markets and the Middle East. These compete against the increasing number of developing country exporters in these markets.

Source: Jaffee 2003; Jaffee and Henson 2004

## Box 4 Development of asparagus exports from Peru

The Peruvian asparagus industry is a successful example of where industry leaders and government specialists realized that it was in the best interest of the industry, as well as the country as a whole, to adopt national standards in line with international norms, and have greatly benefited as a result. Over the past decade, Peru has quickly risen to become one of the world's largest exporters of asparagus. In 2002, earnings from asparagus reached \$187 million, representing nearly 25 percent of Peru's total agricultural exports. Peru is able to produce quality asparagus year-round, yet due to high transportation costs its exporters are unable to match prices with inexpensive asparagus from some other countries. Nonetheless, they have continued to increase exports and gain market share by applying standards to generate consistently higher quality and internationally-certified products. By producing to international standards, Peruvian asparagus exporters have increased production and worker efficiency and generated client loyalty, while drastically reducing the risk of trade disruptions due to quality, food safety or plant disease issues.

Peru has been able to gain access to industrialized country markets for its asparagus because the industry and government have worked together to market and maintain quality national products through the adoption of national standards in accordance with international norms. In 1997, Spanish sanitary authorities claimed that two cases of botulism were caused by consumption of canned Peruvian asparagus, Peru's largest market for this product. Despite Peruvian government and private sector assurances to the contrary, press coverage of the botulism scare left an unfavorable impression among consumers in European markets, causing sales to slump. This incident helped motivate the industry and government to cooperate and take action, and reinforced the fact that one careless exporter could indeed disrupt markets, such that everyone involved in the asparagus export chain needed to work together.

Beginning in 1998, government officials with the Peruvian Commission for Export Promotion (PROMPEX) convinced the asparagus industry to first implement the Codex code of practice on food hygiene, not because it was the easiest but because it was the most necessary. PROMPEX specialists worked closely with industry leaders and production managers to assure the proper implementation of good hygiene standards. As a result of better hygiene practices, the industry saw improved production methods, worker efficiency and product quality. This first successful experience with an industry standard, together with commitments of government support and the increasing demands from clients for certified products, gave the industry confidence to work with PROMPEX to develop and implement national standards.

Thus, when the national fresh asparagus norms were published in early 2001, because the industry was already familiar with the concept of national standards, producers quickly complied with little argument. These national norms established a quality and performance baseline for the industry that allowed many to generate the skills and experience needed to voluntarily certify under other more stringent international standards. These included HACCP, traceability systems and GAP certification. Many large exporters have reached the level where they are now able to be certified to EUREPGAP.

The increasing demand for quality Peruvian asparagus has led to investments to expand cultivation and improve infrastructure, thus increasing local incomes and decreasing unemployment in some of Peru's poorest regions. Asparagus production has created more local employment because it is a more labor-intensive vegetable than other traditional crops, and because processing facilities must be near the production fields. More employment has also been created in new secondary industries producing frozen and canned asparagus that have developed to make use of the large amount of second grade produce that does not meet the national standard for fresh export

Looking ahead, as international regulations for food safety are becoming more stringent, the Peruvian asparagus industry has been quicker to adapt to new requirements, such as EUREPGAP for the EU and anti-bioterrorism measures for the US than other industries. This reflects its prior experience of standardization and the availability of a better trained work force. This is reinforced by the combination of government and private sector leadership and cooperation, and the development and application of national and international standards.

Source: O'Brien 2004

## Box 5 Evolution of pineapple exports from Ghana

Ghana started to export pineapple in the 1970s, taking advantage of low air freight costs over competitors, most notably Côte d'Ivoire and Costa Rica, although commercial production did not commence until the 1980s. By 2004, exports of pineapple were valued at US\$22.1 million and accounted for over 75 percent of fruit exports (figure 12).

In 1995, the industry organisation Sea Freight Pineapple Exporters of Ghana (SPEG) was created to coordinate access to regular sea freight through the main port of Tema in a bid to enhance competitiveness with Côte d'Ivoire. Although there has been some investment in cold storage facilities, the supply chain for most fruits remains rudimentary. Frequently, produce is assembled and packed for export in the field and transportation to the port of exit, whether by air or sea, is in open trucks. Export facilities at both the air and sea port lack facilities designed to handle fresh fruit and lack chilled storage facilities, although construction of a dedicated fresh produce export facility is underway at the seaport.

Most pineapple is grown in the south east of Ghana within two to three hours of Accra. Production is dominated by a small number of integrated producer-exporters, with a large number of small-scale producers accounting for 30-40 percent of production.<sup>152</sup> However, many exporters, including those that are also engaged in production, source from small-scale producers under contract; indeed, Ghana is often highlighted as a country where small-scale producers have played a significant role in the export supply chain for pineapple, in contrast to the overwhelming dominance of plantation production in Côte d'Ivoire and Costa Rica.

In 2004, there were 65 pineapple exporters, of which 12 had exports exceeding 1,000 tonnes. Most exporters are Ghanaian-owned small and medium-sized enterprises (SMEs). One of the leading exporters, however, is Farmapine, a marketing and processing firm that is jointly owned by five small-scale producer cooperatives and two exporters. There is limited foreign investment in the sector, although Compagnie Fruitière, a French pineapple exporter in which Dole has a 40 percent shareholding, has recently established an integrated production-export operation in Ghana. Although there are informal exporters of pineapple, these are less common than for other commodities; indeed the average number of years the interviewees in the current study had been engaged in pineapple exports was eight.

Ghana targets a low price-low quality niche in the European pineapple market, predominantly the UK, Germany, Italy, Switzerland and Belgium<sup>153</sup>. Although it is the third largest exporter to the EU, it is not a major competitor to the market leaders, Côte d'Ivoire and Costa Rica. Further, the prices received by Ghanaian exporters are in decline due to the inconsistency of quality and supply and shifts in market demand; while Costa Rica has spearheaded the supply of a sweeter variety of pineapple (MD2) that corresponds more closely with consumer tastes, most production in Ghana remains the Smooth Cayenne variety.

Some attempts have been made to export processed pineapple products as a means to add value and overcome low market prices. Thus, firms are engaged in the production of fresh cut pineapple (Blue Skies, Tongu Farms and First Catering) and fruit salad (Blue Skies) and juicing (Blue Skies, Milani and Athena), although most juice is aimed at local markets. Exports of both peeled and cut pineapple, in particular, have exhibited good export performance (figure 12). In addition, one exporter has penetrated markets for organic pineapples in Europe based on small-scale production of a traditional local variety (Sugar Loaf).

Source: Henson, Anim-Somuah and Asuming-Brempong 2006

## Box 6 EUREPGAP certification in the Ghanaian fruit and vegetable sector

Currently, around 100 exporters have achieved EUREPGAP certification, for their own production facilities and/or their out-growers, in the later case through group certification. To date, certification has largely occurred in pineapple production, although efforts are being made for other export crops, for example chillies and bananas. Exporters that have achieved EUREPGAP certification have generally made investments in the upgrading of production facilities and implementing new agronomic and managerial practices. The associated non-recurring costs include the installation of chemical stores, toilets, changing and washing facilities, upgrading of pack-houses, testing equipment, litter and chemical disposal, etc. Estimates of these costs range from \$450 to \$510 in the case of out-growers supplying exporters with 15 to 20 acres, to \$75,000 to \$100,000 in the case of integrated producer-exporters with 1,000 to 1,800 acres.

The non-recurring costs of compliance with EUREPGAP represent a significant up-front investment and undoubtedly have been an absolute constraint on compliance within a significant sub-sector of the industry, for example that generally supplies lower-value and less exacting markets for fresh produce such as wholesale markets in continental Europe. However, as a proportion of the value of sales these costs are actually quite small, although there was evidence of significant variation by farm size. Among small out-growers, that only have to make investments at the production level, non-recurring costs typically represent less than two percent of sales. In the case of integrated producer-exporters, however, there are very significant economies of scale; non-recurring costs among smaller producer-exporters are typically six to 11 percent of sales, while among medium and large-scale producer-exporters they are consistently less than four percent of sales.

The significant economies of scale for integrated producer-exporters associated with the non-recurring costs of compliance with EUREPGAP have had a significant impact on the structure of the leading exporter sector in Ghana. Some medium-sized producer-exporters have struggled to meet the up-front investments required, and indeed have found it difficult to finance these investments internally or through external credit. In turn, this has driven the consolidation of the sector such that there is growing dominance of a small number of leading large-scale integrated producer-exporters, many of which also source from out-growers.

The recurring costs of compliance with EUREPGAP consist of annual certification fees, operation of record-keeping systems, on-going staff and/or out-grower training, soil, produce and blood testing for pesticide residues, calibration of chemical sprayers, etc. In most cases these costs appear to be relatively small, generally representing less than one percent of the value of annual sales, and with little evidence of significant economies of scale. At the same time, however, margins in exports of fruit and vegetables to the lower price markets that many Ghanaian exporters target are modest and even these limited recurring costs can compromise competitiveness.

Alongside the recurring costs of maintaining EUREPGAP certification, the impact on production costs needs to be considered. For many exporters, production costs have diminished, sometimes significantly, as a direct result of implementing EUREPGAP. These reductions in production costs emanate predominantly from the better use of pesticides and other chemical inputs, but also more general improvements in agronomic practices, better monitoring of crops, record-keeping, on-going assessment of performance, etc. Further, these reductions in production cost have generally been accompanied by improvements in product quality as a direct result of enhanced monitoring through the production cycle, which in some cases has been rewarded with higher market prices. This suggests that, on balance, producers have actually seen a net reduction in their on-going costs as a result of implementing EUREPGAP, or perhaps more generally the better practices associated with GAP.

Source: Henson, Anim-Somuah and Asuming-Brempong 2006

## **Box 7 Evolution of controls on small-scale outgrowers of fresh vegetables – the case of Hortico Agrisystems**

Hortico Fresh Produce Ltd is one of the largest fresh produce exporters in Zimbabwe, with a main focus on high-value fresh vegetables that are supplied to supermarkets in the UK, Netherlands and South Africa. During the period 1996 to 1997, Hortico Produce encountered difficulties sourcing produce from large-scale commercial farmers. Broadly, it could not compete with the prevailing price of tobacco and began to explore the possibility of contracting small-scale producers. In January 1997, it initiated a three-year program with support from an existing USAID revolving fund that was managed by the Horticultural Promotion Council (HPC), which aimed to establish linkages between small producers and exporters). Since its inception, Hortico Agrisystems' small-scale procurement system has grown rapidly and by 2002 included around 3,800 producers. Small-scale producers have since become of great strategic importance within Hortico's supply base, in particular for fine beans and baby corn. For some other products, in particular mangetout, large-scale commercial farmers remained the predominant source of supply until 2002, after which the process of land reform in Zimbabwe resulted in the contraction of the large-scale commercial farm sector.

Hortico Agrisystems has established standards and procedures for its contract growers that aim to meet the food safety and quality standards of its supermarket customers. The challenge has been to establish a system of supervision and control that provides the necessary levels of enforcement and traceability and which manages the associated risks, while limiting the associated costs. Further, this system has to be responsive to rapid changes in customer requirements.

Producers wishing to grow for Agrisystems are screened to ensure that they have the required resources (mainly land, labour and water), abilities and commitment to supply under the strict production standards that are specified by Agrisystems. These production standards reflect Agrisystems' translation of the food safety and quality requirements of its supermarket customers, in the context of local conditions and the capacities of its small-scale producers, into practical procedures that producers can follow. Producers are then grouped into centres that are managed by a field supervisor and staffed by a clerk, field sprayer and grader. The centre is responsible for all activities associated with the producers under their jurisdiction and allow for effective monitoring of producer performance.

Over time, Agrisystems has negotiated with its customers regarding specific requirements in order to apply production practices that ensure compliance in the most effective and cost-efficient manner. Training and on-going advice is then provided to producers on production practices, control of pests etc. These include, for example, weeding, fertiliser application, trellising of crops, harvest and crop handling procedures etc. The aim of Agrisystems is to foster GAP so as to minimise potential problems and, at the same time, foster confidence among its supermarket customers in the ability of its small-scale producers to meet their strict food safety and quality standards.

The performance of producers is monitored continuously on the basis of deliveries of produce that comply with the required production and end-product quality standards. During the production cycle centre staff visit producers to ensure the specified procedures are being complied with and to provide advice on any remedial action, for example application of fertilizers, pest control etc. At the same time, contracted producers are subject to a strict system of enforcement. Anyone caught cheating or failing to comply with the required production procedures is given a maximum of two warnings, following which they are deregistered. Perhaps reflecting the effectiveness of such sanctions, the rate of deregistration since the small-scale contract scheme came into operation has been consistently less than one percent.

The organisation of producers into collection centres allows for self-enforcement of Agrisystems' procedures by the contracted producers themselves. At least one centre has been closed because of persistent non-compliance, highlighting the common interest of producers in their centre achieving a high level of performance. This takes the form of peer pressure and, in extreme case, the 'disciplining' of under-performing producers by their fellow farmers. Agrisystems also makes use of producer competitions as a mechanism to provide positive incentives for high levels of performance. Contracted producers with exceptional performance relative to their peers are rewarded, for example, with free inputs and/or caps and tee shirts.

Finally, to ensure compliance with the strict limits on residues of pesticides and worker safety applied by their supermarket customers, Agrisystems has chosen to prohibit the application of pesticides by producers themselves. Instead crops are inspected by the field supervisor on a regular basis and pesticides applied as and when required by a trained and equipped field sprayer employed at each centre. The cost of the pesticide is provided on credit in a similar manner to other inputs. Small-scale producers are inspected on a regular basis to identify the pesticides they have on their property and soil sample tests are taken as part of a program of surveillance to demonstrate 'due diligence' to their supermarket customers.

Although it is evident that Hortico derives considerable benefits from sourcing through small-scale producers, Agrisystems has struggled to manage costs while maintaining the required level of supply chain management in order to comply with the food safety and quality standards of its supermarket customers. Over the period 1998 to 2001, as Agrisystems' supply base expanded and the food safety and quality standards became stricter, it was forced to increase the level of oversight by employing more staff at its collection centres. At this time, the controls put in place were mainly focused on inspection of producers and checks at collection centres, with more rigorous enforcement of penalties for non-compliance. As a result, the ratio between the number of producers and collection centre staff declined and the cost per producer of managing the supply chain increased (Figure 15), jeopardising Hortico's competitiveness relative to, not only other Zimbabwean exporters, but also those in Kenya, Morocco, Senegal, Gambia and other exporting countries. These measures also caused resentment among the supply base of small-scale producers.

In response to these increases in costs, Agrisystems developed a multi-tiered system of management and enforcement that provided the required degree of compliance with lower levels of oversight through a blend of facilitation, incentives and penalties. Thus, the costs of operating the supply chain declined significantly from 2001 to 2002, reflecting an increase in the producer to collection centre staff ratio. Further, the establishment of a significant core of established producers that had adapted to the procedures required by Agrisystems and where a relationship of trust and mutual dependency had been established enabled collection centre staff to concentrate on new recruits. Simultaneously, Agrisystems negotiated with its supermarket requirements regarding specific elements of their food safety and quality standards in order to find ways of complying at minimum cost. Examples included the specific seed varieties, fertilisers and/or pesticides that were specified and the ways in which due diligence was ensured through systems of traceability, record keeping etc.

Agrisystems has also been engaged in a long-term process of learning and negotiation with both its supermarket customers and small-scale producers in order to achieve compliance with strict food safety and quality standards that are subject to seemingly continual change. Through the adjustment of its own production standards and the mechanism of supply chain controls that are employed, Agrisystems has been able to establish long-term and rigorous relations with its supply base of almost 4,000 producers. This is indicated, for example, by the very low rate of 'side-selling' by contracted producers to other exporters, that rarely exceeds 0.5 percent. The sustainability of these relations reflects the mutual dependency that has developed between Agrisystems' and its producers. While the contracted producers are dependent on Agrisystems to obtain a viable return from a product for which there is little or no local market, at the same time Agrisystems' ability to fulfil customer orders at any point in time is reliant on the integrity and efficacy of a relatively small group of producers.

Source: Masakure and Henson 2005; Henson, Masakure and Boselie 2005

## Box 8 Performance of small-scale producers supplying Hortico Agrisystems

As described in Box 7, Hortico Agrisystems, a Leading fresh vegetable exporter in Zimbabwe, has established an out-grower scheme through which the majority of its supply is derived. Until 2002, Agrisystems also procured from large-scale farmers under contract and its own production facility. While Agrisystems has been committed to its small-scale out-growers from the outset, they have needed to achieve comparable levels of quality as larger-scale producers in order to justify their continued involvement. In practice, this has rarely been a problem

For certain crops there is a steep learning curve for small-scale producers associated with the strict procedures that are applied in order to comply with the food safety and quality standards laid down by Hortico's supermarket customers. This creates significant challenges in managing new producers and integrating them into the supply chain. For example, the proportion of mangetout production delivered to Agrisystems in 2000 that was of export quality ranged from only 8.7 percent in the case of farmers in collection centres that had been established for only one year, to 19.2 percent for farmers in collection centres that had been in operation for four years. With baby corn, however, there is less evidence of a learning curve beyond the first year of supplying Agrisystems; indeed in 2000 the proportion of export-grade produce was actually lower for collection centres that had been established for three or four years than those that had been operating for only two years. In this latter case, Agrisystems has had to implement controls in order to manage the trade-off between the learning process involved with new producers and the greater care that producers typically take when first starting to grow export crops in order to establish themselves as trusted producers within Agrisystems' supply chain.

Despite the significant learning curve associated with Agrisystems' exacting requirements, small-scale producers consistently perform as well as large producers, if not better. Thus, the proportion of production that meets the export quality standard is comparable across small and large-scale producers for mangetout and fine beans. In the case of baby corn, small-scale producers significantly out-perform large-scale producers in some years. Further, a supply-base of numerous small-scale producers that are geographically dispersed acts as an effective mechanism to reduce the risk of widespread crop failures due to disease and (to a lesser extent) weather, thus safeguarding Hortico's ability to fulfil customer orders.

Source: Masakure and Henson 2005; Henson, Masakure and Boselie 2005

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<sup>1</sup> Jaffee and Henson 2004

<sup>2</sup> Shepherd 1996; WHO 2006

<sup>3</sup> Aksoy 2005

<sup>4</sup> Aksoy 2005

<sup>5</sup> Jaffee and Diop 2005

<sup>6</sup> Jaffee and Diop 2005

<sup>7</sup> FAO 2004

<sup>8</sup> Delgado and others 2003

<sup>9</sup> Roheim 2005

<sup>10</sup> Aksoy 2005

<sup>11</sup> Kinsey 2003

<sup>12</sup> Henson and Caswell 1999; Jaffee and Henson 2004

<sup>13</sup> Bech 1992

<sup>14</sup> ITC 2001; UNCTAD 2003; FAO 2004; IFOAM 2006; Krier 2006

<sup>15</sup> IFOAM(2006

<sup>16</sup> FAO 2004

<sup>17</sup> Joshi and others 2003; Pingali and Khwaja 2004; Pingali 2004; Rao and others 2004

<sup>18</sup> Regmi and Dyck 2001

<sup>19</sup> International Trade Strategies 2004

<sup>20</sup> Regmi and others 2001

<sup>21</sup> See for example Guo and others 2000

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- <sup>22</sup> Bhagwati 1958; Schiff 1994; Schiff 2005; Mayer 2003; Imran and Duncan 1988; Akiyama and Larson 1994
- <sup>23</sup> Cline 1982; Cline 1984
- <sup>24</sup> FAO 2004
- <sup>25</sup> Akiyama and Larson 1994; FAO 2004
- <sup>26</sup> FAO 2004
- <sup>27</sup> FAO 2004
- <sup>28</sup> Reardon and Barrett 2000; Spiegel 2006
- <sup>29</sup> Pingali and others 2005; Spiegel 2006; Best, Ferris and Schiavone 2005
- <sup>30</sup> Pingali and Rosegrant 1995
- <sup>31</sup> Reardon and Barrett 2000
- <sup>32</sup> Reardon and Timmer 2005
- <sup>33</sup> King and Venturini 2005
- <sup>34</sup> Gerefi 1994; Gerefi 1995; Dolan, Humphrey and Harris-Pascal 1999
- <sup>35</sup>; Dolan, Humphrey and Harris-Pascal 1999; Dolan and Humphrey 2000
- <sup>36</sup> See for example Busch 2000; Reardon and others 2003; Fold and Pritchard 2005; Busch and Bain 2004; World Bank 2005
- <sup>37</sup> Henson and Reardon 2005; OECD 2004; Nadvi and Waltring 2003
- <sup>38</sup> Reardon and Barrett 2000; Cook and Chaddad 2000; Viciani, Stamboulis and Zezza 2001; Regmi and Gehlhar 2005
- <sup>39</sup> Gereffi 1999; Gereffi, Humphrey and Sturgeon 2003; Humphrey and Schmitz 2003
- <sup>40</sup> Pingali and others 2005
- <sup>41</sup> Contrast the views of Reardon and others 2003 and Traill 2006
- <sup>42</sup> Henson 2006a; Dobson 2003
- <sup>43</sup> Reardon and Berdegue 2002; Reardon and others 2003; Reardon, Berdegue and Timmer 2005
- <sup>44</sup> Reardon and others 2003
- <sup>45</sup> Reardon and others 2003
- <sup>46</sup> Regmi and Gehlhar 2005
- <sup>47</sup> Vorley and Fox 2004; Spiegel 2006
- <sup>48</sup> Lang 2003
- <sup>49</sup> Kaplinsky 2000; Rabellotti and Schmitz 2000; Humphrey and Schmitz 2000
- <sup>50</sup> Spiegel 2006
- <sup>51</sup> Spiegel 2006; Reardon and Timmer 2005
- <sup>52</sup> Reardon and Timmer 2005
- <sup>53</sup> Reardon and others 2003
- <sup>54</sup> Henson and Reardon 2005; Henson 2006a
- <sup>55</sup> Raikes, Jensen and Ponte 2000; Busch and Bain 2004
- <sup>56</sup> Allaire and Boyer 1995; Busch and Bain 2004; Ponte and Gibbon 2005; Henson 2006a; Busch and Bingen 2006
- <sup>57</sup> Busch 2000; Henson and Reardon 2005
- <sup>58</sup> Jaffee and Henson 2004
- <sup>59</sup> Henson and Traill 2003; Antle 1995
- <sup>60</sup> Henson and Reardon 2005
- <sup>61</sup> Jaffee and Henson 2004
- <sup>62</sup> Caswell, Bredahl and Hooker 1998; Ponte 2006
- <sup>63</sup> Jaffee and Henson 2004; Henson 2006a
- <sup>64</sup> Buzby, Frenzen and Rasco 2001; Henson and Northen 1998
- <sup>65</sup> Sparling and Caswell 2006
- <sup>66</sup> Jaffee and Henson 2004; World Bank 2005
- <sup>67</sup> For example, related to the competitive strategies of major supermarket, food service and food processing businesses based around 'own' or private brands that tie a firm's reputation and performance to the safety and quality attributes of its products (Berges-Sennou, Berges-Sennou, Bontems and Réquillart 2004).
- <sup>68</sup> Henson 2006a
- <sup>69</sup> Segersen 1999; Henson and Caswell 1999
- <sup>70</sup> Jaffee and Henson 2004
- <sup>71</sup> Fulponi 2005
- <sup>72</sup> Reardon and Berdegue 2002

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- <sup>73</sup> Henson 2006a
- <sup>74</sup> Caswell, Bredahl and Hooker 1998
- <sup>75</sup> Henson and Reardon 2005
- <sup>76</sup> Henson 2006a
- <sup>77</sup> Caswell, Bredahl and Hooker 1998
- <sup>78</sup> Henson and Northen 1998
- <sup>79</sup> NRC 1995
- <sup>80</sup> Henson and Northen 1998
- <sup>81</sup> Henson, Anim-Somuah and Asuming-Brempong 2006
- <sup>82</sup> See for example FAO 2004
- <sup>83</sup> Note that Ecuador and Costa Rica are major banana exporters
- <sup>84</sup> FAO 2004
- <sup>85</sup> FAO 2004
- <sup>86</sup> On coffee see Ponte 2001; Ponte 2002
- <sup>87</sup> Technoserve 2004
- <sup>88</sup> Technoserve 2004
- <sup>89</sup> FAO 2005b; FAO 2006
- <sup>90</sup> Diop and Jaffee 2005
- <sup>91</sup> Jaffee 2003
- <sup>92</sup> Jaffee 2003
- <sup>93</sup> Jaffee 2003
- <sup>94</sup> Jaffee 2003
- <sup>95</sup> Jaffee and Henson 2004; World Bank 2005; Henson and Jaffee Forthcoming
- <sup>96</sup> Henson and Jaffee 2006
- <sup>97</sup> Jaffee and Henson 2004
- <sup>98</sup> Under the EU's Rapid Alert System, alerts are issued when a food or animal feedstuff presents a risk to human health and is already on the market, requiring immediate action. An information notice is issued when the food or feedstuff has not reached the market, and mainly refer to consignments that have been tested and rejected at the EU external border.
- <sup>99</sup> European Commission 2005
- <sup>100</sup> Although a distinction is not commonly made between internal and external resources, there are numerous references to critical constraints on access to high-value markets, for example Shepherd 2005; FAO 2005a
- <sup>101</sup> Shepherd 2006; FAO 2005b
- <sup>102</sup> World Bank 2005
- <sup>103</sup> Hirschman 1958
- <sup>104</sup> Rao and others 2004
- <sup>105</sup> World Bank 2005; Henson and Reardon 2005
- <sup>106</sup> Jaffee and Henson 2004; Jaffee and Henson 2006; Henson, Anim-Somuah and Asuming-Brempong 2006
- <sup>107</sup> Henson and Jaffee 2006
- <sup>108</sup> FAO 2004
- <sup>109</sup> Humphrey 2004
- <sup>110</sup> Dolan and Humphrey 2001; Reardon and Berdegue 2002
- <sup>111</sup> van Zyl, Millor and Parker 1996; Eastwood, Lipton and Newell 2005
- <sup>112</sup> Henson, Masakure and Boselie 2005; Poulton, Kydd and Dorward 2006
- <sup>113</sup> Henson, Masakure and Boseleie 2005; Reardon and Timmer 2005
- <sup>114</sup> Poulton, Dorward and Kydd 2005; Poulton, Kydd and Dorward 2006; Pingali and Rosegrant 2005
- <sup>115</sup> von Braun, Hotchkiss and Immink 1989; Immink and Alarcon 1993; Barham, Carter and Sigelko 1995; Carter, Barham and Mesba 1996; Dolan, Humphrey and Harris-Pascal 1999; Dolan and Humphrey 2000; Masakure and Henson 2005
- <sup>116</sup> see for example Thrupp, Bergerson and Waters 1995
- <sup>117</sup> Masakure and Henson 2005; Henson, Masakure and Boselie 2005
- <sup>118</sup> Boselie, Henson and Weatherspoon 2003
- <sup>119</sup> Danielou, Labaste and Voissard 2003
- <sup>120</sup> Neven and others 2006; Henson, Masakure and Boselie 2005
- <sup>121</sup> Page and Slater 2003, Jaffee and Henson 2004, Minot and Ngigi 2004; Birthai, Joshi, and Gulati 2005

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- <sup>122</sup> For a discussion of the various options see Shepherd 2006; Page and Slater 2003; Page 2003; Pingali, Khwaja and Meijer 2005; Poulton, Dorward and Kydd 2005
- <sup>123</sup> Sadoulet and de Janvry 1995; Henson and Masakure 2005
- <sup>124</sup> see for example Glover 1994; Little and Watts 1994; Schejtman 1996; Gow and Swinnen 2001
- <sup>125</sup> see for example Key and Runsten 1999
- <sup>126</sup> Stanton 2000; Reardon and Barrett 2000
- <sup>127</sup> Poulton and others 1998; Henson, Masakure and Boseleie 2005; Poulton, Kydd and Dorward 2006
- <sup>128</sup> see for example Cook and Chaddad 2000; Reardon and Barrett 2000
- <sup>129</sup> Shepherd 2006
- <sup>130</sup> Henson, Masakure and Boseleie 2005
- <sup>131</sup> Joshi and others 2003; Weinberger and Genova 2005; McCulloch and Ota 2002; Hall and others 2003; Minten, Randrianarison and Swinnen 2006
- <sup>132</sup> Govereh and Jayne 2003; Minten, Randrianarison and Swinnen 2006
- <sup>133</sup> Clark and others 2003; Weinberger and Genova 2005
- <sup>134</sup> Dolan 2001
- <sup>135</sup> Dolan and Sorby 2004; OXFAM 2004
- <sup>136</sup> Barrientos, Dolan and Tallontire 2003
- <sup>137</sup> Reardon and Barrett 2000
- <sup>138</sup> Reardon and Barrett 2000
- <sup>139</sup> Spiegel 2006
- <sup>140</sup> Kaplinsky 2000; Rabellotti and Schmitz 1999; Knorringa and Schmitz 2000
- <sup>141</sup> Humphrey and Schmitz 2002; Knorringa and Schmitz 2000
- <sup>142</sup> Berry 1997; Bazan and Schmitz 1997; McCormick 1999
- <sup>143</sup> World Bank 2005; Henson and Jaffee 2006
- <sup>144</sup> Ruben, Slingerland and Nijhoff 2006
- <sup>145</sup> Poulton, Kydd and Dorward 2006
- <sup>146</sup> FAO 2005b; Technoserve 2004
- <sup>147</sup> Technoserve 2004
- <sup>148</sup> Lambaste 2005
- <sup>149</sup> Ruben, Slingerland and Nijhoff, 2006
- <sup>150</sup> Jaffee 2003
- <sup>151</sup> Garcia Martinez and Poole 2004
- <sup>152</sup> Voisard and Jaeger 2003
- <sup>153</sup> Danielou and Ravry 2005