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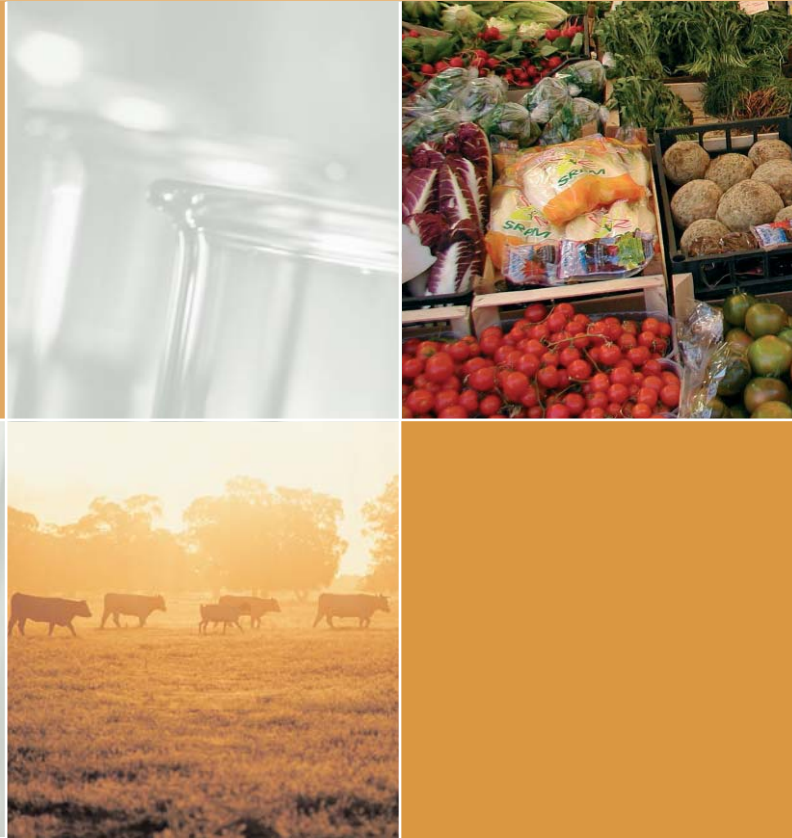
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# Global value chains in the agrifood sector





# **Global Value Chains in the Agrifood Sector**

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# Abstract

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This paper is about agriculture and poverty reduction in the context of globalization. Agricultural growth is central to poverty reduction in rural areas, and one opportunity for such growth lies in increasing exports of agricultural products from poor countries to global markets.

Global agricultural markets have become increasingly complex because of concentration at all points in the value chain and the increasing scope and complexity of food standards, particularly those relating to food safety. Therefore, realizing the potential benefits of agricultural export growth for poverty reduction requires careful analysis of trends in global markets and the policies that will unlock the potential for growth and poverty reduction.

Trends in global agribusiness and their consequences for strategies to eradicate poverty through increasing export growth are analysed in this paper using the GVC perspective. This perspective analyses inter-firm linkages in global agribusiness, placing agricultural production and processing in developing countries in the context of the dynamics of the broader global agribusiness and agrifood systems.

The value chain perspective has highlighted issues of codification of knowledge in value chains, supplier competence, strategies to reduce the costs of governance, power asymmetries, and concentration. These issues are decisively affected by the two major trends in agribusiness value chains, the increasing importance of standards and increasing concentration, subjects of this paper.



# Contents

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1. Agribusiness and poverty .....	1
Promotion of horticulture products .....	4
Three new challenges .....	4
2. GVC analysis applied to agribusiness .....	7
Why governance arises: non-standard products .....	9
Risk reduction .....	10
Conditions for governance: sanctions .....	10
Forms of governance .....	11
The costs of governance .....	12
3. Standards .....	15
Trends in agribusiness standards .....	15
Standards from a GVC perspective .....	25
4. Concentration in agribusiness value chains .....	31
Concentration along the value chain .....	31
A value-chain analysis of the impact of concentration .....	36
5. Strategies for decreasing powerlessness in global markets .....	41
Strategies for offsetting the effects of market power .....	41
Value chains, technical assistance and upgrading .....	43
6. Making a difference: policy options for agribusiness and poverty reduction .....	47
Ensuring continued market access and supporting improved competitiveness .....	47
Adding value and increasing returns .....	49
Enhancing the poverty-reduction impact of export agribusiness .....	51
References .....	53



# Abbreviations

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BSE	bovine spongiform encephalopathy
CAC	Codex Alimentarius Committee
EUREP	European Retailer Produce Working Group
EU	European Union
FDA	Food and Drug Administration (of the United States government)
GAP	Good Agricultural Practice
GMO	genetically modified organisms
GVC	global value chain
HACCP	hazard analysis critical control point
IFOAM	International Federation of Organic Agriculture Movements
ISO	International Organization for Standardization
MDGs	millennium development goals
MRL	maximum residue levels
PVP	plant variety protection
SQF	safe quality food
SPS	sanitary and phytosanitary standards
UPOV	The International Union for the Protection of New Varieties of Plants
WTO	World Trade Organization

# 1 ■ Agribusiness and poverty

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The growth of agriculture in developing countries is critical for the growth of the poorest countries and for poverty eradication, particularly in Africa. Increasing production and export of agricultural products can be an effective way of reducing rural poverty in developing countries. The case for promoting agricultural exports is strong.

- For a number of the poorest countries, particularly in Africa, the potential for export growth from the mining, manufacturing and services sectors is poor. Therefore, agriculture is the best hope for kick-starting growth. According to a document from the UK government's Department for International Development (DFID): "Agriculture remains the most likely source of significant economic growth in many developing countries. Historical experience suggests that agricultural growth and increases in agricultural productivity may be a prerequisite to broader-based sustained economic growth and development" (DFID, 2002: p. 9).
- Agricultural growth provides a direct link to the poor. Between 40 and 60 per cent of the world's poor live in rural areas (World Development Report 2000, cited in Wilson, 2002).
- It is well established that agricultural growth is more effective for poverty eradication than the growth of mining, manufacturing or services, particularly in countries that are not characterized by high levels of income inequality.<sup>1</sup>

However, not all sectors of agriculture provide the same opportunities for export-led growth. Over the past quarter-century, there has been a significant transformation of global trade in agricultural products, as shown in table 1.

In the period 1980/1981-2000/2001, there was a substantial shift away from traditional tropical products (coffee, cocoa, tea, sugar, spices and nuts) and towards non-traditional agricultural exports, particularly horticulture (fruit, vegetables and flowers) and "fish", which includes seafood more generally. At the beginning of the period, traditional tropical products accounted for around 39 per cent of all food exports from

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<sup>1</sup>For a review of some econometric studies in this area, see Eastwood and Lipton (2000: pp. 36-38).

developing countries. Twenty years later, this had fallen to around 19 per cent. Conversely, the share of horticultural products in developing countries' food exports rose from around 15 to 22 per cent. The growth of fish (seafood) exports was even greater: from around 7 to 19 per cent of total food exports.

The consequences of this shift are also seen at the level of individual products. Products that were expanding rapidly in world markets provided greater opportunities for increasing export volumes and stable prices. The rapid expansion of global demand for and trade in horticultural and seafood products created attractive export opportunities, while the relative decline of traditional tropical products, combined with the entry of new sources of supply for some products, most notably coffee, created problems.

The extent of the difference can be seen starkly through a comparison of the value of two products imported into the European Union (EU) from Africa over a 15-year period, as shown in figure 1. The bottom line in the figure shows the value of fresh coffee imports into the EU from Africa from 1988/1990 to 2001/2003, expressed as a three-year moving average of an index figure set to 100 for the first period, 1988/1990. From

**Table 1. The changing structure of agricultural trade  
(percentage of export value)**

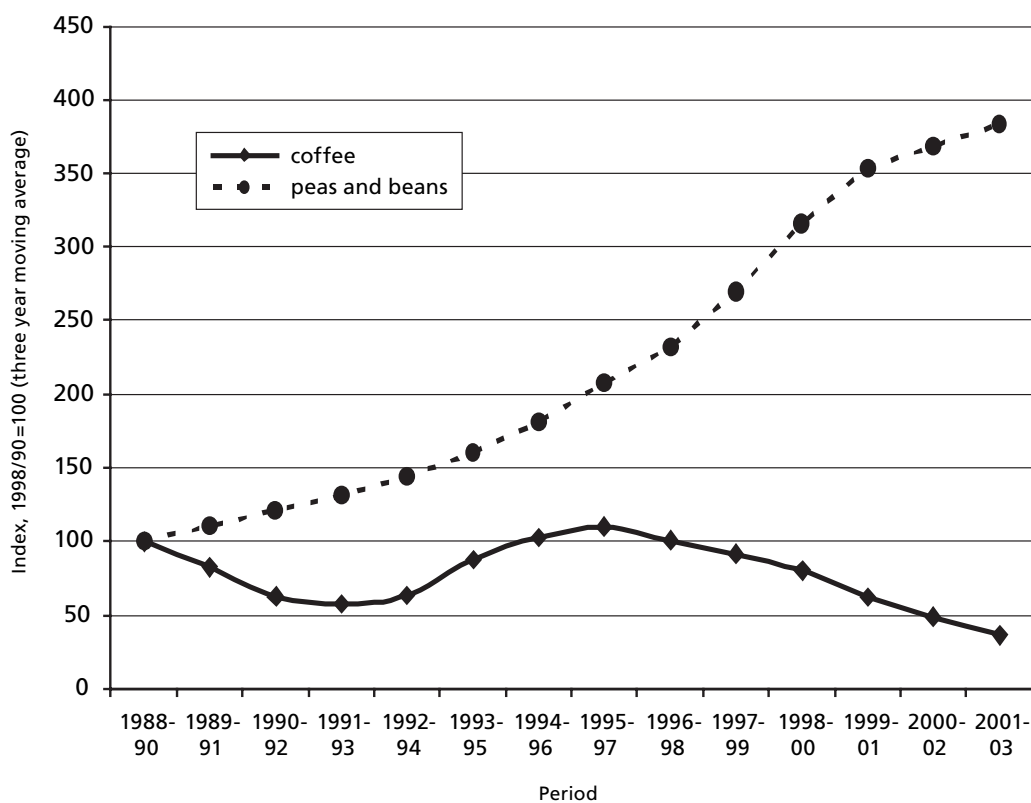
	<i>Total for developing countries</i>		<i>Total for industrialized countries</i>		<i>World exports</i>	
	<i>1980/81</i>	<i>2001/01</i>	<i>1980/81</i>	<i>2001/01</i>	<i>1980/81</i>	<i>2001/01</i>
<i>Traditional tropical products</i>						
Coffee, cocoa and tea	18.3	8.5	2.5	3.6	8.5	5.4
Natural fibres	8.0	3.3	4.5	2.6	5.9	2.8
Sugar and confectionery	10.5	4.3	3.9	2.3	6.4	3.1
Nuts and spices	2.4	2.8	0.7	0.8	1.3	1.5
Subtotal	39.2	18.9	11.6	9.3	22.0	12.7
<i>Temperate products</i>						
Meats, fresh and processed	7.2	6.0	14.8	15.4	11.9	12.0
Dairy 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
Oilseeds and edible oil	4.6	5.5	4.8	4.4	4.7	4.8
Animal feed	7.5	8.5	7.7	5.3	7.7	6.4
Subtotal	28.8	28.1	56.9	44.2	46.3	38.3
<i>Fish and horticulture</i>						
Fish, fresh and processed	6.9	19.4	5.5	8.0	6.0	12.2
Fruits, vegetables, flowers	14.7	21.5	13.1	17.3	13.7	18.9
Subtotal	21.6	40.9	18.6	25.3	19.7	31.1
<i>Other products</i>						
Tobacco and cigarettes	2.6	3.3	3.0	4.8	2.8	4.2
Beverages	1.1	3.6	6.9	11.5	4.7	8.6
Other prod./processed food	6.7	5.2	3.0	5.0	4.4	5.1
Subtotal	10.4	12.1	12.8	21.2	11.9	17.9
<i>Total</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>	<i>100</i>

Source: Jaffee (2005).

the late 1980s to the early 1990s, the value of coffee imports into the EU from Africa fell by about 50 per cent. This fall in value arose from a small fall in import volumes and a substantial fall (40 per cent) in the import price, expressed in Ecus (European Currency Units) per ton. Up to the mid-1990s, continuing declines in volume were offset by a rise in price to some 20 per cent above the 1988/1990 level. However, this recovery was short-lived. From the mid-1990s onwards, there was a steady decline in both import volumes and the unit price. By 2001/2003, both value and volume had fallen to approximately 60 per cent of their 1988/1990 level, with the result that the import value had fallen to about 40 per cent of its level at the end of the 1980s.

As well as favourable price and quantity trends, horticulture offers other advantages for poverty reduction strategies. Firstly, it is labour-intensive. It generates relatively high levels of employment and relatively high incomes per hectare of land in use. Drawing on studies from six countries, Weinberger et al. conclude that “The production of horticultural products offers opportunities for poverty alleviation, because it is usually more labour intensive than the production of staple crops. Often horticultural production requires twice as much, sometimes up to four times as much labour than the production of cereal crops” (Weinberger and Lumpkin, 2005: pp. 10-11). The same authors cite data for five countries showing net farm incomes substantially higher in horticultural smallholder farms than for non-horticultural smallholder farms. Secondly, horticultural

**Figure 1. The regional innovation system: a schematic illustration**



Source: Eurostat, 1998, Intra- and extra-EU Trade (annual data—Combined Nomenclature, CD-Rom) 1989-1997, Luxembourg: Office of the European Communities Eurostat, 2004, Intra- and extra-EU Trade (annual data—Combined Nomenclature, CD-Rom) 1997-2003, Luxembourg: Office of the European Communities.

products are attractive to small farmers because there are few economies of scale in their production. Small farmers, in fact, may have a competitive advantage because of their ability to call upon family labour. Some types of horticultural production can be successful on plots of a fraction of an acre, or grown with other crops.

## Promotion of horticulture products

Given these trends, it is not surprising that a lot of effort has been devoted to promoting the production and export of non-traditional agricultural products, with particular emphasis being given to horticulture. Initiatives can be found in many countries around the world, targeting both fresh produce and production for processing. Many of these initiatives have also targeted small producers. It is frequently argued that the full benefits in terms of poverty reduction of agricultural growth depend upon the growth of small and medium-sized farms. This has been argued by DFID (2002: p. 11), where it is stated that in countries where small and medium-sized farms have driven agricultural growth the reduction in poverty has been greater than in countries where agricultural growth has delivered the bulk of additional income to larger concerns, as the owners of the latter tend to spend their additional income on imported or capital-intensive goods and services. This justifies prioritizing small and medium enterprises (SMEs) by implying that large farm growth leaves large farmers with “the bulk of increased farm income”. If poverty reduction depends upon poor producers being able to gain access to the value chains involved in the production, processing and distribution of these products, to what extent is this access threatened by current trends in agribusiness?

## Three new challenges

Meeting the market requirements for agribusiness products has become more challenging in recent years for three reasons:

- Global agricultural trade in general has been characterized by the increasing importance of standards. Satisfying the food safety requirements of importing countries has become more complex as both the range of items covered by mandatory standards and the stringency of standards increase. At the same time, demonstrating compliance with standards has become more complicated because of a shift from product standards, largely enforced through testing at borders (of exporting and importing countries), towards controls over the way that products are grown, harvested, processed and transported. At the same time, public, mandatory standards have increasingly been complemented by collective private standards such as EurepGAP and Safe Quality Food (SQF);
- Some of the most dynamic sectors in agricultural trade have to satisfy the requirements of demanding global buyers. These requirements may include large-volume supply, speed and reliability of delivery, customization of products through processing and packaging and guarantees about product safety. The importance of these

requirements has increased with the overall tendency towards concentration at multiple points in agribusiness value chains;

- There are opportunities for product differentiation strategies in sectors such as tea and coffee. In the words of a World Bank report on coffee, they are part of a strategy to move “outside of the commodity box” (Lewin, Giovannucci and Varangis, 2004) as a means of adding value to agricultural commodities and offsetting declines in prices. Typically, strategies for adding value to such products involve certification (for example, organic produce) or closer links with traders, processors or retailers. The process of adding value requires that the identity and distinctiveness of the product is established at the point of origin and maintained as it moves along the value chain. In other words, adding value to traditional agricultural export commodities often involves the same types of challenges as seen in the production and trade of non-traditional agricultural exports.

Meeting these challenges means organizing agribusiness value chains so that they are able to deliver what is required by global buyers and food safety regimes. The organizational trend is frequently referred to as “vertical coordination”. Cook and Chaddad (2000: p. 213) argue that “agribusiness researchers generally agree that the growing number of complex contractual arrangements replacing spot markets is a defining characteristic of the agro-industrialization phenomenon”, while van Roekel et al. (2002: p. 2) suggest that “integrated supply chains are one of the most powerful competitive tools in today’s globalizing business economy”.

The application of GVC analysis to agribusiness allows the causes and consequences of vertical coordination to be explored further. Firstly, it analyses the role of lead firms in value chains in the competitive positioning of the chain and in the governance of inter-firm relationships along the chain. Secondly, it theorizes the determinants of different forms of vertical coordination. Thirdly, it provides insights into the consequences of value-chain dynamics for productive structures in developing countries and the distribution of incomes between enterprises at different points in the chain.



## 2. GVC analysis applied to agribusiness

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GVC analysis (and its predecessor, global commodity chain analysis) was first developed to analyse trends in global manufacturing, and in particular the increasing role of retailers and brand-name companies in creating global production, distribution and marketing networks. While much of the literature on globalization in 1970s and 1980s emphasized the role of transnational manufacturing corporations as the main agents of globalization, Gereffi's pioneering work in this area (Gereffi, 1994) recognized the increasing influence of retailers and branded marketers. Later, Gereffi termed these firms "manufacturers without factories" (Gereffi, 1999: p. 46). This term highlighted the fact that these companies played an important role in product design, supplier selection and value chain coordination even though they did not engage directly manufacturing production themselves. Nike would be a good example of such a firm. It designs and markets footwear and clothing, but it does not own any footwear or clothing factories. It works with suppliers across various countries to deliver a rapidly changing range of products to shops and retailers spread across the world. Its core competences are design and branding, not manufacturing. Logistics and supply chain management have been core competences, but these are increasingly outsourced to first-tier suppliers.<sup>2</sup>

The global agrifood business is increasingly dominated by value chain relationships in which lead firms exercise vertical coordination. In many parts of the food business, lead firms have taken on the characteristics associated with modern manufacturing: including driving product differentiation and innovation, a shift from quality control, based on inspection and testing towards quality assurance based upon risk management and process controls (the hazard analysis critical control point, HACCP, concept, now widely used in agribusiness, was first developed in the aerospace industry) and just-in-time delivery.

Studies of agribusiness refer to these types of linkages as "vertical coordination" (van Roekel et al., 2002), "vertical coordination" (Young and Hobbs, 2002) or "supply chains" (World Bank, 2003: p. 5) to distinguish them from arm's-length market relationships or the vertically-integrated enterprise. Nevertheless, there is a startling variety of forms of such linkages in agribusiness value chains, including outgrower schemes, contract farming, category management<sup>3</sup> by supermarket suppliers, marketing contracts, etc.

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<sup>2</sup>For more information about Nike, see Donaghu and Barff (1990) and Goldman and Papson (1998).

<sup>3</sup>For a short description of category management, see Dolan and Humphrey (2004: pp. 503-4).



The GVC perspective (a comprehensive statement of its analytical framework can be found in Gereffi, Humphrey and Sturgeon, 2005) attempts to provide a parsimonious explanatory framework for the development of vertical coordination and the different forms it takes. The metaphor of the “chain” highlights the fact that most goods and services are produced by a sequence of activities which are carried out by multiple enterprises. These activities can be coordinated through markets, but the literature on vertical coordination recognizes that the tacit coordination of markets is being replaced increasingly by “explicit coordination”<sup>4</sup>—coordination through direct exchanges of information between firms. This coordination is usually referred to as “value chain governance”.<sup>5</sup>

In his pioneering article, Gereffi (1994) began by distinguishing between producer-driven and buyer-driven chains. The buyer-driven category highlighted the role of retailers and branded marketers in the apparel industry; these were contrasted with producer-driven chains organized by transnational manufacturing corporations. An early attempt to apply value chain ideas to agriculture (Dolan, Humphrey and Harris-Pascal, 1999), which analysed the role of supermarkets in structuring horticultural production in Kenya and Zimbabwe, also used the “buyer-driven” terminology. UK supermarkets (the buyers) were clearly driving the business.

More recent work on GVCs has played down this terminology for three reasons. First, “buyers” in the sense of retailers and branded marketers are not the only firms that buy products in this way. Increasingly, transnational manufacturing companies play the same role as they outsource manufacturing processes. Similarly, work on agricultural commodities (see, in particular, Gibbon and Ponte, 2005) has emphasized the roles played by both international traders and commodity processors in organizing trade in commodities. Second, Gereffi himself has emphasized that the buyers within buyer-driven chains were not all the same. Buyers in different market segments had different requirements and organized chains differently. It makes sense to distinguish different types of buyers and their requirements rather than refer to chains generically as “buyer-driven”. Third, not all chains had clear “drivers”. Some chains were based on arms-length market relations, while others showed powerful firms at multiple points in the chains. As a result, the focus shifted from “driven-ness” to the determinants of inter-firm relationships, or governance, at different points in chains.

GVC analysis then poses four questions about this governance:

- Why does governance arise?
- Under what conditions is governance possible?

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<sup>4</sup>Helper (1993: pp. 144-45), in a discussion of “voice” in supplier-assembler relationships in the auto industry uses the term “administrative coordination” to refer to the same idea of extensive communication between enterprises.

<sup>5</sup>“Governance” is a widely-used term. In this paper, “value chain governance” is used to refer to inter-firm relationships, in a manner similar to the use of “economic governance” by theorists of transaction costs economics, such as Williamson (1979). This inter-firm governance takes place within a broader institutional context of the “rules of the game” for economic transactions, and in the case of agribusiness, particularly by the standards infrastructure. This is referred to as “institutional governance” in this paper.

- What different forms does governance take?
- How do firms try to reduce the cost of governance?

## Why governance arises: non-standard products

The first question is why value chain governance arises at all. Under what circumstances do enterprises find it profitable to go to the expense and inconvenience of working directly with suppliers? Value chain analysis points to two main determinants. The first is the purchase of non-standard products. Arm's-length market relationships are very effective at supplying standard products. The three factors that increase the demand for non-standard products are:

- Radical changes in market requirements or technology that outstrip the existing supply base;
- The prevalence of product differentiation as a source of competitive advantage and the extent to which that this depends upon non-standard inputs from suppliers,<sup>6</sup>
- The importance of buyer service requirements, particularly with respect to just-in-time delivery and quality systems.

Customization generally works in the upstream direction: it is buyers that require specialized inputs from suppliers. The case of supermarket demands being translated into customized products and processes has been documented extensively, and one such description is provided in box 1. This can be called "upstream" customization.<sup>7</sup> However, there are also cases of downstream customization driving vertical coordination.

One highly visible example of downstream customization is franchizing in the catering industry. Firms such as McDonald's specify very exactly how catering outlets should be managed. Less obviously, there are examples of vertical coordination driven by suppliers, particularly when they are introducing technological change. In the United States of America, the development by feed companies of new feed regimes that increased productivity in the broiler sector was managed through production and marketing contracts between farmers and the feed companies. Production shifted away from decentralized, small-scale rearing of chickens towards contract broiler producers (Martinez, 1999: pp. 2-8). Landes documents a similar recent trend in poultry production in parts of India, where lead firms supply contract producers with day-old chicks, feed and veterinary services, as then market the output (2003: pp. 10-12).

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<sup>6</sup>There are two extreme situations with regard to the impact of buyers' product differentiation on suppliers. At one extreme, product differentiation may be based almost entirely on different ways of combining standard inputs. At the other extreme, product differentiation may require customized products and processes extending some way back along the value chain. For example, introducing a meat product with lower fat might involve working with animal breeders as well as feed companies and production units.

<sup>7</sup>The analogy is with a river: upstream is closer to the river's source. Upstream in the value chain is moving towards initial processes, while downstream is moving closer to end-users.

### **Box 1. Production customization and value chain coordination: UK supermarkets**

UK supermarkets base their competitive strategies on increasing the range, quality and seasonal availability of produce and securing continuous, year-round availability. They offer an increasing range of chopped, packed and mixed products, catering to a cash-rich but time-poor clientele that can pay high prices for fresh, healthy food but whose busy schedules leave them little time to prepare it. The wholesale market distribution channels gave the supermarkets little influence on the type and quality of produce supplied. The pursuit of product differentiation, quality, freshness, traceability and safety required changes in growing, harvesting and post-harvest processing. Increased communication was needed along the value chain. In the 1990s, the supermarkets restructured the industry, replacing the arm's-length market relationships of the wholesale chain with more durable relationships, reinforced by auditing and inspection of importers, exporters and farms, and the use of detailed, written procedures for growing (including the use of pesticides and chemicals), harvesting, processing and transport. Supermarkets increasingly specified how products should be grown and harvested, and the conditions under which they were transported and stored. They worked with both importers and African exporters on product innovation.

*Source:* Based on Dolan and Humphrey (2000; 2004).

## **Risk reduction**

The second reason for increasing governance is to reduce risk. Performance risks, relating to factors such as quality, response time and reliability of delivery, become more important as firms engage in non-price competition. In agribusiness there are also risks relating to conformance to quality, product safety, labour standards and environmental standards. The potential damage from failures in these areas may include the direct costs of empty shelves or factories without raw materials to process, loss of customer confidence and broader reputational damage relating to failures in food safety or labour standards.

## **Conditions for governance: sanctions**

Value chain governance can be thought of as the definition and enforcement of instructions relating to what products are to be produced (product design), how they are to be produced (process controls) and when (timing).<sup>8</sup> Under what conditions is it possible to exert such governance? First, there are economies of scale in defining and communicating instructions. It is an activity that is easier for larger firms. Second, instructions need to be enforced by the threat of sanctions. Again, there may be economies of scale in developing systems for monitoring supplier performance and

<sup>8</sup>Setting and enforcement of these instructions need not be carried out by the same firm. The idea of value chain governance as specifying parameters to be followed by firms along the chain is developed in Humphrey and Schmitz (2004).

imposing sanctions, but more important is the ability of buyers to impose sanctions on suppliers. One important negative sanction is denial of access to the market. This is particularly effective when markets are characterized by oligopoly, which is now increasingly the case at multiple points in agribusiness value chains. The most important positive sanction is the ability to pay higher than average prices to suppliers. Again, this is easiest for firms operating in oligopolistic markets. Value chain governance is closely associated with firm size and industry concentration.

## Forms of governance

The third question concerns the different forms that governance can take. It is commonplace to distinguish three forms of economic governance—markets, networks and hierarchy. The GVC approach identifies three different forms of network coordination: relational linkages (strategic partnerships), captive linkages in which subordinate suppliers are dependent upon large buyers, and modular linkages in which customization of products and services is achieved without the need for transaction-specific investments.

The analysis relies on three explanatory variables: the complexity of the information that needs to be transferred between value chain actors in order for the transaction to be successfully completed; the extent to which this information can be codified and therefore transferred efficiently and without investment in transaction-specific relationships; and the level of supplier competence in relation to the requirements placed upon them.

Standard products that require no complex information exchanges can be transacted through arm's-length market transactions. Where non-standard products are bought and sold, the type of value chain linkage depends upon supplier competence and the extent to which information can be codified. The consequences of supplier competence are obvious. If the buyer has doubts about the competence of suppliers, it must subject them to more rigorous monitoring and control, which can be costly. This control is most effectively exercised over captive suppliers. In agribusiness value chains, outgrower schemes are the best example of captive suppliers. When suppliers are competent to meet the challenges posed by the value chain, the relationships between buyers and suppliers depend upon the extent to which knowledge can be codified. Non-codified, or tacit, knowledge requires complex interactions. Such interactions often arise when both suppliers and buyers have specialist competences that the other does not possess. Relational value chain linkages often take the form of strategic alliances. On the other hand, when information can be codified and communicated easily, it becomes possible to supply customized products without complex interactions. While each product is specific to the customer, the instructions on how to make it are relatively easy to transfer and the buyer could switch relatively easily between one supplier and another (hence the idea of modular linkage—suppliers can be plugged into and taken out of value chains with ease). In agribusiness value chains, category management is an example of a modular linkage.

This analysis immediately gives a dynamic perspective to value chain governance. The three explanatory variables are subject to change.

- The changing nature of the requirements of value chains (for example, product differentiation or compliance with the changing regulatory environment) changes the extent and complexity of information transfer.
- At the same time, changing requirements also will change the level of codification of information. New requirements (for example, compliance with legislation on maximum residue levels) will initially lead to non-codified information flows between actors. At some later stage, this information may be codified. More generally, value chains may experience cycles of codification and de codification as a result of the tension between the cost reducing advantages of “order” and the dynamic advantages of “innovation” (as described by David, 1995: pp. 18-19).
- Supplier competence is also dynamic because it is always defined in relation to the requirements of the value chain. It can be learned or acquired, but it can also be undone through changing requirements or introduction of new suppliers into value chains. If the gap has to be closed quickly, buyers will need to invest in a few selected suppliers and help them to upgrade.

## The costs of governance

The final question addressed by value chain analysis is the costs of governance. Many analyses of vertical coordination emphasize its benefits but do not recognize sufficiently the costs of coordination—both the direct costs of managing inter-firm relationships and the loss of flexibility in sourcing. The real challenge for enterprises is not to increase coordination, which is only a means to an end, but to achieve the advantages of coordination at the least possible cost. Whatever the choices, there are trade-offs. First, low-cost locations are harder to manage and require more investment to bring up to international requirements. This is why captive networks develop. However, captive networks are expensive to manage. Second, attempts to simplify value chain linkages have to confront the pressures in favour of product differentiation, innovation, time pressure, etc, which make interactions along the chain more complex. The challenge for lead firms in GVCs is to manage these different objectives, while at the same time keeping check on the costs of coordination and control.

Value chain analysis also highlights some of the consequences of governance in GVCs. Two, in particular, are important. The first concerns the division of labour in value chains. The “market” model of production is one in which firms design, make and sell products. They interpret and respond to market demand. In value chain linkages, suppliers may have a much narrower role. They may not design products or processes—these are determined by the buyer. They may not source their own inputs. Again, these may be provided by the buyer. This makes it easier to enter value chains because the range of competences required from suppliers is reduced. It could also be argued that this reduces opportunities for adding value, but an alternative way of viewing this is that firms have to become specialists, becoming very competent in a narrow range of functions, and adding value to those functions, rather than take on broader ranges of tasks.

The second consequence of governance is the impact of coordination power. Governance in value chains is associated with coordination power (the ability to provide and enforce instructions) and market power. Lead firms in value chains are able to make key decisions about inclusion and exclusion of particular suppliers, the distribution of particular activities between different actors in the chain and even the structure of production (for example, whether small firms are incorporated into value chains or not).

More generally, value chains incorporate differences in market power. Differing levels of concentration at different points in the value chain mean that buyers and sellers are frequently of different sizes and have differing options. The consequences of asymmetries of market power in value chains have been highlighted by Milberg (2003). He argues that profits, and hence resources for innovation and growth, gravitate to points of concentration on the value chain. If one of the characteristics of global production is increasing concentration downstream (at points near to the consumer end of the chain in developed countries) and fragmentation and competition upstream, partly as a result of the continued entrance of new producers into GVCs, then profits will systematically be concentrated in developed countries. The consequences of different levels of concentration at different points in the value chain are reflected not only in mark-ups and profits, but also in exposure to risk. The consequences of uncertainty and adaptation to unforeseen circumstances can also be distributed unevenly across value chains.<sup>9</sup>

This presentation of the value chain perspective has highlighted issues of codification of knowledge in value chains, supplier competence, strategies to reduce the costs of governance, power asymmetries, and concentration. These issues are decisively affected by the two major trends in agribusiness value chains, the increasing importance of standards and increasing concentration. These are the subjects of the next two sections.

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<sup>9</sup>To give one simple example, contractual agreements can distribute the costs of performance failures in different ways. If, for example, supermarkets impose penalties on suppliers when customers return a product irrespective of the cause of the customer's dissatisfaction, market power is being used to allocate costs of failure to particular agents in the value chain.



# 3. Standards

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The standards environment has been transformed in recent years. Twenty years ago, the term “standard” would have conjured up a “technical specification or operating characteristics of tangible, physical commodities of varying degrees of complexity” (David, 1995: p. 16). Standards today encompass much more than technical product standards:

“Standards are agreed criteria, or as Hawkins states ‘external points of reference’, by which a product or service’s performance, its technical and physical characteristics, and/or the process and conditions under which it has been produced or delivered can be assessed” (Nadvi and Wältring, 2004: p. 56).

The current standards environment includes not only standards that relate to the testable physical characteristics of products, but also those relating to production, handling and processing designed to ensure that products meet certain desired physical characteristics, particularly product safety. In addition, such “process standards” can be ends in themselves. Labour and environmental standards are two examples of process standards where the value of the goal to be achieved lies not in the product and its characteristics, but in the process itself. These differences in standards and examples of them are presented in table 2.

## Trends in agribusiness standards

The standards environment for agribusiness has exhibited four main trends that are important for the structuring of value chains. These are: the increasing stringency of public, mandatory standards relating to food safety; the shift from product standards to process standards; the increasing scope of standards; and the increasing importance of collective private standards.

### *Increasing stringency of food-safety standards*

In the EU, food-safety standards have increased in scope and stringency. One driver of this process has been increasing consumer fears about food safety following well-publicized food scares. A non-exhaustive list of food scares is shown in table 3.



**Table 2. The nature and purpose of standards**

<i>Goal of standard</i>	<i>Means of control</i>	<i>Example</i>
1. To ensure that products conform to specified physical characteristics.	Inspection and testing of products.	Incoming frontier inspections of food for pesticide or antibiotic residues, microbiological contamination, general cleanliness, adequate packaging, etc.
2. To ensure that products conform to specified physical characteristics.	Specification of process standards at various stages in production, transport and processing. Enforcement through inspection of facilities and certification.	Inspection of seafood-processing plants by US and EU inspectors to ensure that they conform to HACCP requirements, with the goal of ensuring food safety. <sup>a</sup>
3. To ensure that processes conform to specified characteristics in order to achieve goals defined in terms of the process or its impact.	Specification of process standards at various stages in production, transport and processing. Certification.	EurepGAP environmental standards, which set out procedures for monitoring the environmental impact of food production.

Source: Author.

<sup>a</sup>Among the many documents explaining HACCP principles, see the FAO training manual on food hygiene and HACCP which is available on the Internet (FAO, 1998).

**Table 3. Examples of major food safety “events” in industrialized countries**

<i>Year</i>	<i>Event</i>	<i>Country</i>
1987/1988	Beef hormone scare	Italy/EU
1988	Poultry salmonella outbreak/scandal	UK
1989	Growth regulator (alar) scare for apples	United States
1993	E. coli outbreak in fast-food hamburgers	United States
1996	BSE links to human brain disease	UK
1996/1997	Microbiological contamination, berries	United States, Canada
1995-1997	Avian flu spreads to humans	Hong Kong Special Administrative Region, Taiwan Province of China
1999	Dioxins in animal feed	Belgium
2000	Large-scale food poisoning, dairy	Japan
2001	Contaminated olive oil	Spain

Source: Jaffee (2005: p. 16).

Increasing awareness of the health risks has led to a tightening-up of standards. In the EU, controls on pesticide residues have been tightened up, as have those relating to colouring and purity in foods. Similar tightening of controls has been seen in other countries:

“A parallel tightening of pesticide-related regulations has occurred in the United States. At the same time, regulatory standards have been put in place for a range of comparatively new food-safety concerns and hazards—among them heavy metals, selected mycotoxins, allergens, potential BSE-related hazards associated with animal by-products, and genetically modified organisms (GMOs)” (Jaffee, 2005: p. 21).

In the agribusiness sector, standards have been tightened in other areas. Certain veterinary drugs have been banned in meat and seafood, and tolerances of others have been reduced. Shipments of seafood, in particular, have been rejected regularly by the governments of Western Europe, North America and Japan because of the presence of residues of veterinary drugs, as well as microbiological contamination such as salmonella and *vibrio cholera* (Manarungsan, Naewbanij and Rerngjakrabhet, 2004: pp. 14-19). Product standards may also be imposed by buyers. An example of a food product standard relating to safety is the specification of microbial standards by processors of blueberries in Michigan, as described by Bain et al. (2005: pp. 78-79). This is particularly important for processors making uncooked products, such as fruit yoghurts and ice cream. The dairy processors require suppliers to send samples of fruit to independent laboratories for testing.

### *The shift from product to process standards*

Inspections of produce, particularly at points of export and import, remain an important part of the food safety system. Nevertheless, even rigorous testing programmes can fail to discover threats to human safety from foods. The limitations of inspection are summarized by Unnevehr:

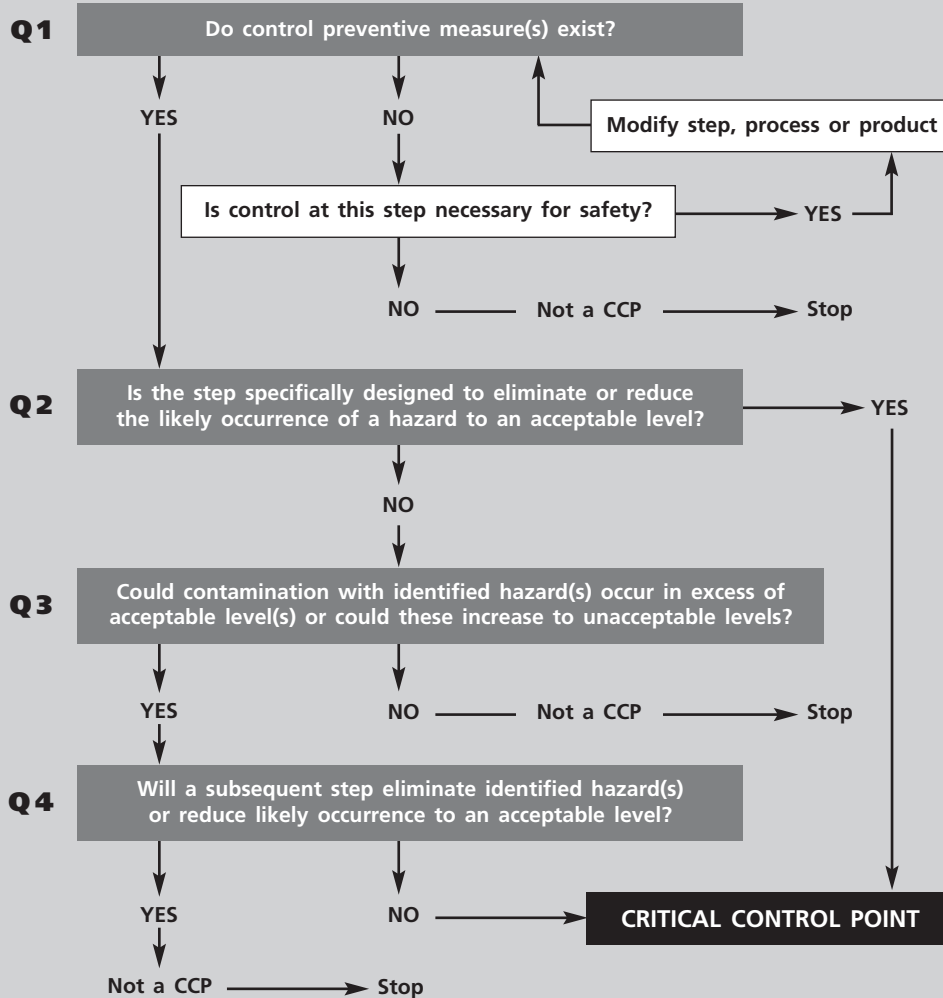
“There is growing adoption in the food industry of management practices that focus on prevention and control of food safety hazards (Martin and Anderson, 2000). Many hazards are expensive to test for and may enter food products at several points in the production process. Therefore, documented production practices, that are verified to prevent and control hazards, are becoming accepted as the most cost-effective means of reducing food safety hazards. While testing and verification are essential for establishing good process controls, testing can never be practical as the only means of monitoring safety” (Unnevehr, 2000: p. 235).

This transition from product controls to process controls is seen in many areas. One notable example is the adoption by many countries of HACCP in food processing. From the mid-1990s, regulations in the United States made HACCP mandatory in plants processing meat, poultry, fish and fruit juices. Canada has required HACCP in the fish-processing sector and the EU has requirements for HACCP for suppliers of dairy, meat, and fish products (Jaffee, 2005: p. 19).

The introduction of systems such as HACCP requires new systems to be established and verified, which imposes additional costs.<sup>10</sup> Nevertheless, it should be noted that these control systems provide better management systems for enterprises and also “route maps” towards achieving compliance. Whereas product standards merely define particular outcomes to be achieved, process standards indicate particular procedures that need to be put in place. An example of the role of process standards as “route maps” towards achieving food safety is given in box 2.

<sup>10</sup>For an analysis of the costs of introducing HACCP in the seafood industry, see Cato (1998).

### Box 2. Decision tree for critical control points (CCPs)



Source: FAO (1998). More specifically, <http://www.fao.org/docrep/W8088E/w8088e01.jpg>

HACCP is only one aspect of a trend towards the broad application of systemic approaches to food safety that emphasize risk identification and management right along food value chains (the “farm-to-fork”, or “plough-to-plate” approach). Roberts and Unnevehr (2003: p. 31) provide an example of this approach to food safety as applied by the US authorities to the control of salmonella in eggs, as shown in box 3. Reducing the risk of salmonella poisoning among consumers is based on risk assessment, interventions at multiple points in the value chain, inspections and safety programmes. This example also highlights the ways in which private businesses, business associations and the state have to work together to provide solutions to food-safety problems.

The importance of multi-agency approaches to food-safety problems in the export sector is shown by the example cited in box 4. In this case, one small (but serious) food-safety problem that could only be attributed to a very small part of the industry

**Box 3. Multi-agency, multi-site food safety intervention**

"The risk assessment of *Salmonella enteritidis* (SE) carried out by the FDA and the USDA's Food Safety and Inspection Service and Animal and Plant Health Inspection Service examined the interdependence among control options at different stages of processing and handling. It provided the basis for an action plan (President's Council on Food Safety, 1999). The risk-assessment model indicated that multiple interventions would achieve more reductions in SE illness than would a single point of intervention.

The action plan identifies a set of activities at each stage of the production chain. Producers and packer/processors can choose between two strategies designed to give equivalent performance in terms of reduction in SE at the egg production and packer/processor stages. The first strategy focuses on farm-level testing and egg diversion; the second strategy directs more resources to the packer/processor level and includes a lethal treatment, or 'kill step' (and HACCP plan) at this stage. Both strategies include regulatory presence on the farm (e.g. control of chicks from SE flocks) and at the packer/processor (e.g. washing, mandated prerequisite programmes of sanitary controls). In addition to these interventions, the action plan sets refrigeration standards for the distribution and retail stages to ensure that reductions in SE are preserved at later stages in the food supply chain."

Source: Roberts and Unnevehr (2003: p. 31).

threatened to undermine consumer confidence in export markets, damaging all exporters. The response was led by a public-private body, the Peruvian Commission for Export Promotion, reinforced by government norms and implemented by the private sector. The risk with such approaches, however, is that only larger enterprises are able to respond adequately to the new norms, with the result that the new food-safety culture marginalizes small producers. This was the outcome of the widely cited response of the Guatemalan government and private growers to the alleged problem of cyclospora contamination in raspberries sold in the United States market. Strict process controls in the industry, introduced through collaboration between the Guatemalan Berry Commission and the government provided a solution acceptable to the United States, but also ended up reducing the number of exporters from 85 to 3 (Calvin, 2003: p. 82).

The shift towards a process-control approach to food safety is clearly expressed in the law establishing the European Food Safety Authority. The key principles guiding the EU's approach to food safety, as expressed in this law, are summarized in box 5. Food safety is viewed as a product of the value chain as a whole, "from primary production to supply to the consumer", and as a consequence risks have to be managed at all points and traceability guaranteed so that a particular product's chain history can be reconstructed. As important, the EU's approach places the burden of "primary legal responsibility for ensuring food safety" on to food-business operators. In many respects, this model of food safety and food-operator responsibility builds upon the principles of the Food Safety Act introduced by the UK government in 1990, which required retailers to demonstrate that they have shown "due diligence" in the manufacture, transportation, storage and preparation of food (Marsden and Wrigley, 1996).

#### **Box 4. Peruvian asparagus exports: success through standards**

The Peruvian asparagus industry has been an export success in recent years. In 2002, export revenue for this product accounted for almost one-quarter of the value of Peru's agricultural exports. This was threatened in 1997 when health authorities in Spain attributed two cases of botulism to canned asparagus imported from Peru. Notwithstanding assurances from the Peruvian government and companies, sales slumped in Europe.

In response, action was taken at multiple levels. The Peruvian Commission for Export Promotion (PROMPEX) promoted the introduction of the Codex code of practice on food hygiene in the industry. As a result, the industry soon saw improved production and processing methods, as well as better product quality and safety. In 2001, the government published national fresh asparagus norms which provided a quality and performance baseline for the industry that allowed many firms and farms to generate the skills and experience needed to be certified under stringent international standards. Many large exporters have reached the level where they can now be certified under the even stricter EurepGAP protocol.

*Source:* Summarized from Jaffee (2005: p. 56).

#### **Box 5. The process approach to food safety in EU food-safety legislation**

Regulation (EC) No. 178/2002, which came into effect in January 2005 (CEC, 2002), sets out the following approach to food safety in its preamble:

- Systems must be in place to identify and respond to safety problems (paragraph 10);
- Consideration is required of "all aspects of the food production chain as a continuum from and including primary production and production of animal feed up to and including sale or supply of food to the consumer because each element may have a potential impact on food safety" (paragraph 12);
- Reduction, elimination or avoidance of risks to health requires risk assessment, risk management and risk communication (paragraph 17);
- "It is necessary to ensure that a food or feed business including an importer can identify at least the business from which the food, feed, animal or substance that may be incorporated into a food or feed has been supplied, to ensure that on investigation, traceability can be assured at all stages" (paragraph 29);
- "A food business operator is best placed to devise a safe system for supplying food and ensuring that the food it supplies is safe; thus, it should have primary legal responsibility for ensuring food safety" (paragraph 30);
- "Food and feed imported into the Community for placing on the market within the Community shall comply with the relevant requirements of food law or conditions recognized by the Community to be at least equivalent thereto or, where a specific agreement exists between the Community and the exporting country, with the requirements therein" (Article 11, single paragraph);
- "The traceability of food, feed, food-producing animals, and any other substance intended to be, or expected to be, incorporated into a food or feed shall be established at all stages of production, processing and distribution. To this end, food and feed business operators shall have in place systems and procedures which allow for this information to be made available to the competent authorities on demand" (article 18, paragraphs 1 and 2).

*Source:* Author's summary of CEC 2002.

A corollary of this approach to safety is the need for traceability. If problems are detected in the food chain, food-business operators need to be able to supply information about from where the product was sourced and where it was sold (except in the case of sale to the final consumers). As recent food scares have shown, contamination detected in one product may arise from inputs used in many more and traceability systems allow these other products to be traced and withdrawn from sale, as well as making it possible to identify the source of the problem. EU traceability requirements only extend as far as the importer, who must be able to identify the exporter supplying the product, but not beyond this point, except in the case of particular products, such as meat.

### *Collective private standards*

A third distinct feature of the standards environment is the increasing importance of private standards. These form part of a trend towards an enhanced role for private sector and civil society organizations in the regulatory process which has been termed the “privatization of governance” (Higgins and Lawrence, 2005: p. 5). The term “private standard” has been used to refer to particular labels used by private companies to differentiate their products and to indicate superior quality features. The “Nature’s Choice” label developed by the UK supermarket, Tesco, is a good example of such a label. Tesco positions the label as guaranteeing superior safety, quality and environmental standards through the monitoring and certification of suppliers.<sup>11</sup>

Less visible, but more important, are the collective private standards developed by groups of firms and business associations. In the food industry, these standards include the EurepGAP standard, developed by EUREP (an association of European fresh produce importers and retailers), the UK British Retail Consortium standard for food processing and the Franco-German International Food Standard.<sup>12</sup> These vary in the food products they cover, in the points in the value chain on which they focus and the extent to which they rely on certification and third-party verification.

The case of EurepGAP illustrates the dynamics of collective private standards. The standard sets out procedures for (principally) pesticide and chemical use and application, environmental impact and sustainability of farming systems and labour standards. The standard depends upon paper-based systems for monitoring both processes and product flows, and maintaining traceability from the shelf back to the field requires changes in the way products are harvested, labelled, handled and recorded as they move along the value chain. Enforcement of the standard is achieved through audit and inspection and record-keeping.

The certification system is based on both the accreditation of certification bodies by EUREP and the recognition by EUREP of equivalent standards. Various countries have

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<sup>11</sup>See <http://www.tesco.com/everylittlehelps/environmentdetail.htm#sp>

<sup>12</sup>For more information on EurepGAP, see EUREP (2001), Dankers (2005: pp. 19-20) and the Eurep website, [www.Eurep.org](http://www.Eurep.org). Information on the British Retail Consortium global standard for food can be found at <http://www.brc.org.uk/standards/index.htm>. On the International Food Standard, see <http://www.food-care.info/>.

tried to develop equivalent standards recognized by EUREP so that they can meet its requirements while at the same time adapting some of the elements of the standard to the conditions of national agricultural systems. According to Busch and Bain, this will “reduce the cost of monitoring and certification, by harmonizing dozens of national food-safety systems long before legislators can do so under the rubric of the Codex Alimentarius or WTO” (cited in Bain et al., 2005: p. 76).

### *Coverage of standards*

The discussion of private standards highlights a fourth feature of the evolving standards environment for global food trade: the increasing range of issues that are addressed by standards. EurepGAP’s main objectives are undoubtedly the safety of fresh fruit and vegetables and ensuring that the value chain can comply with regulations on pesticide residue levels. Similarly, EurepGAP’s requirements for analysis of soil and water quality and its emphasis on farmer hygiene are related to issues of heavy metals and microbiological contamination. Such standards outsource the responsibility placed upon retailers to ensure that food is safe by developing a third-party certification scheme that transfers the responsibility to suppliers.

Nevertheless, EurepGAP also focuses on environmental and social standards. It addresses issues of sustainability and working conditions. Similar concerns are expressed in Tesco’s Nature’s Choice label, as shown in box 6. The principles are addressed more to broader environmental issues than to food safety, although the brand is also promoted as a source of superior quality food.

#### **Box 6. “The seven pillars of Nature’s Choice”**

- Rational use of plant protection products.
- Rational use of fertilisers and manures.
- Pollution prevention.
- Protection of human health.
- Use of energy, water and other natural resources.
- Recycling and re-use of material.
- Wildlife and landscape conservation and enhancement.

Source: <http://www.tesco.com/everylittlehelps/environmentdetail.htm#sp>

This broadening of the scope of standards is aimed at differentiating products and adding value to them in the eyes of consumers. It is also a response to external pressures placed on retailers, particularly by pressure groups. The emphasis on labour standards in EurepGAP, for example, could be seen as a defensive measure designed to reduce the chances of damage to companies’ reputations from exposés of poor labour conditions of the type that have been so problematic for companies in the garment and footwear sectors.

The consequence of the rapid development of public and private standards is that producers in developing countries face more standards, more stringent standards and multiple standards developed by different agencies addressing the same issue. This has created a large international business in training and certification for standards. The extent of this business and the standards that can be applied to the food industry are evident from the list of certification possibilities offered by a single company based in Switzerland, ProCert, as shown in box 7.

**Box 7. Certification offered by Swiss company, ProCert**

<i>Standard</i>	<i>Title</i>	<i>Accreditation</i>
ISO 9001:2000	Quality management system	SCES 044
ISO 14001:1996	Environmental management system	SCES 039
BRC Global Standard-Food	Food-safety management system	SCES 038
IFS (International Food Standard)		
DS 3027	Food-safety management system	SCES 038
ELOT 1416	Food-safety management system	SCES 044
EurepGAP	Euro Retail Produce Working Group for Good Agricultural Practice	SCES 044
Bio (Swiss and EU) Programmes	Biological Products according to the Swiss and EU-Bio-Regulation	SCES 038
IGP (Swiss) Brand Programmes (Swiss)	Indication géographique protégée (IGP)—Viande des grisons, Saucisson vaudois, Saucisson aux choux vaudoise	SCES 038
Feed Safety (Swiss)	IIP-SUISSE, UrDinkel, Culinarium Feed Safety Management system	SCES 038
Naturane (Spain)	Integrated production	SCES 038
Fontestad (Spain)	Integrated production for citrus fruits	SCES 038
Natursense (Spain)	Integrated production for citrus fruits	SCES 038

Source: [http://www.procert.ch/zertifizierungen/zertifizierungen\\_e.php](http://www.procert.ch/zertifizierungen/zertifizierungen_e.php)

### *Meeting the challenges of standards*

Achieving compliance with standards is problematic. Firstly, certification by international standards agencies can be costly for developing-country producers. For this reason, development agencies have been supporting the development of local certification capabilities in developing countries. One example of a successful initiative to secure local certification capability for EurepGAP (in the first instance, with plans for organic certification to follow) is presented in box 8. Industry sources in Kenya acknowledge not only the lower level of fees charged for EurepGAP certification by a new local company, Africert, but also the reductions in the fees of international certifiers following



the entry of Africert into the local certification market. Similarly, Barrett et al. (2002: p. 310) state that in some Latin American countries the fees charged by BioLatina (a locally based certification agency) for organic certification were significantly lower than those charged by international certifiers.

A second challenge relates to providing the type of support for achieving certification that is appropriate for small producers. Many of the larger consultancies are more focused on the requirements of large enterprises than on those of small enterprises or small farmers. The levels of expertise that they assume and the type of training they offer is often unsuitable. This problem is often encountered in the provision of consultancy services for SMEs in manufacturing.<sup>13</sup> This problem is not, however, limited to large, private-sector consultancies. One analysis of EurepGAP training provided by Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) for farmers in Ghana

#### **Box 8. Promotion of local certification capability in Africa**

Certificates have long since become indispensable marketing instruments, whether they are visible to the consumer, such as the Flower Label, or required on principle by western retail chains for imported fruit and vegetables. Nairobi-based AfriCert, the first certification company in eastern Africa, has now gained accreditation according to the international ISO 65 standard. AfriCert's seal of approval confirms that producers subscribe to good agricultural practices, namely resource conservation, safe use of pesticides, good post-harvest protection, hygiene, and occupational health and safety. Previously, exclusively European companies offered certification—a costly process that only major growers could afford.

"The advantages especially for small and medium-sized fruit and vegetable growers are obvious," says GTZ expert Doris Günther, who developed AfriCert on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ). 'Rather than spending a lot of time and money on European companies coming here to assess and certify them, the growers are now able to receive the same service at much lower cost from a local company.' Without the EurepGAP certificate, which powerful retailers in Europe began to demand from their suppliers three years ago, growers are unable to export their goods to European supermarkets.

GTZ was responsible for training AfriCert agents, as there is nothing more worthless than a quality mark that is not subject to effective monitoring itself—audits, inspections and systematic quality documentation. "We developed a quality manual for AfriCert, which was required in order for the company to receive ISO 65 accreditation from the German Accreditation System for Testing," explains Günther.

AfriCert now offers growers in Kenya and the region affordable certification in line with internationally recognized standards. "The company has enabled us to close a considerable gap in the value chain of agricultural products," says Günther. As a possible next step, Günther sees AfriCert issuing certification also for organic products. That would be sure to give developments here an additional impetus,' she states.

Source: <http://www.gtz.de/en/>

<sup>13</sup>See Quadros (2002) for a discussion of the problems encountered by small enterprises in the Brazilian auto components industry when seeking consultancy support for QS9000 certification.

suggests that it was successful for larger farmers, but that the drop-out rates for small farmers were high and the requirements placed on them onerous (Kuehn and Braun, 2004: p. 2).

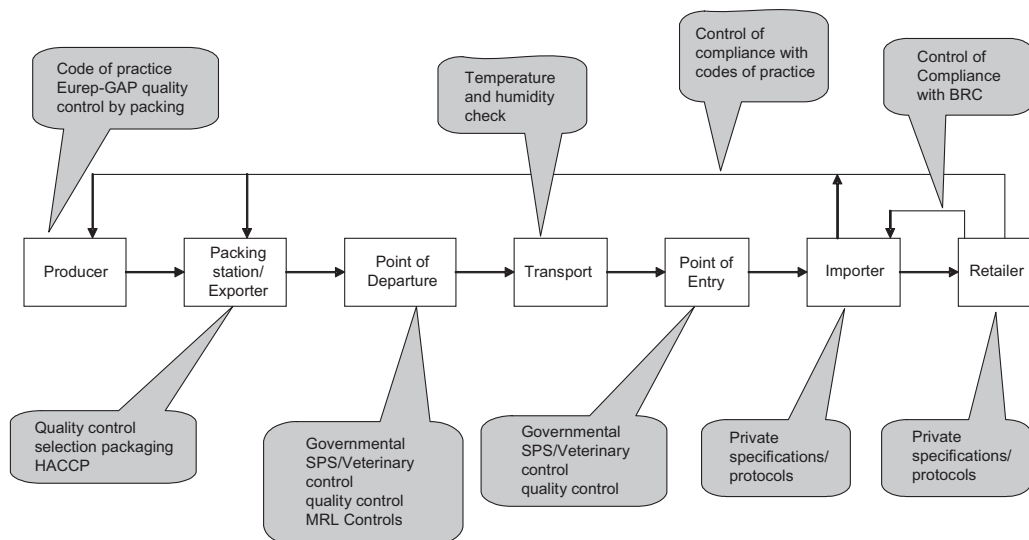
The third challenge facing small farmers relates not to the costs of obtaining and knowledge about standards and certification itself, but rather to the costs of adjusting production systems to the new requirements. These costs include new capital equipment (for example, chemical stores for compliance with EurepGAP), record-keeping, and making changes to production systems so that they comply with the new standards.

## Standards from a GVC perspective

The development of public and private standards involves interventions at multiple points along the value chain. An illustration of the multiple points and multiple standards that are applied for fresh fruit and vegetables and for fish is shown in figure 2. There are controls by different agents carried out in different ways at different points along the value chain in response to the requirements of private sector companies, coalitions of private-sector standards setters and public agencies.

Standards in agribusiness value chains operate, by definition, at multiple points. They are created, adopted, applied and verified by different actors (enterprises and institutions) at different points in the value chain, as illustrated in figure 3. In the case of the first example, MRLs, the standard itself was created by the EU, which established

**Figure 2. Food safety and quality control in the fruit, vegetable and fish supply chains**



Source: Willems et al. (2005: p. 23).

limits for pesticide residues. The EU enforces this standard through inspection of produce at the border and within countries (as the standard also applies for domestically produced produce). For the second example, the standard was created by a private organization, EUREP, and adopted by its members. It is a process standard, enforced by certification of farmers.

Any farmer can attempt to obtain certification, but it is only required for farmers supplying EUREP members.<sup>14</sup> The organic standard was initially developed by organic agriculture movements in various countries, which are now grouped under the umbrella organization, the International Federation of Organic Agriculture Movement (IFOAM). This organization works closely with governments, which have also legislated to regulate the use of the term “organic” on food packaging. In this case, the momentum for the development of the organic standard came not from large retailers, but from farmers. Retailers have followed the consumer trend towards the values associated with organic produce by increasing their offerings of such products. As with EurepGAP, the organic standard is based on certification by third-party certification bodies recognized by accredited national bodies.<sup>15</sup>

Standards have an impact on value chains in two particularly direct ways: on the extent and codification of information required to sustain transactions and in their impact on supplier competence. The impact of standards upon information flows in value chains, and hence on value chain governance, takes two distinct forms. Firstly, standards increase information requirements. If a standard involves processes and certification, the information requirements may be limited to documentation of compliance with the standard, resulting in virtually no effect on value-chain governance. However, while process standards tend to prescribe how particular outcomes should be achieved and provide systems for verifying that processes are in place to achieve them, product standards usually identify a required outcome. Thus, for example, EU legislation on MRLs merely specifies that pesticide residues should be below the specified levels, without any indication of how this outcome should be achieved. In this case, the EU food-business operators’ initial information requirement extends either to information about the levels of pesticides in produce being moved along the value chain (product control), or to information about agricultural practices on farms from which the produce is sourced (process control). In the short term, this could mean greatly increased levels of information flowing along the value chain as buyers attempt to monitor and control production practices at points removed from their own operations. Alternatively, buyers may restrict their purchasing to a small number of suppliers whose competence is well established.

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<sup>14</sup>At some point, it is possible that non-member retailers and importers will take EurepGAP certification as a proxy for supplier competence, thereby expanding its coverage.

<sup>15</sup>In fact, the situation is a little more complex than this. According to Dankers and Liu (2003: p. 15), “The International Organic Accreditation Service (IOAS) accredits certification bodies that have organic certification programmes that comply with IBS [the IFOAM Basic Standards] and the IFOAM Accreditation Criteria for certification bodies. Because IBS is a generic standard, IOAS requires that certification bodies elaborate some standards in more detail. In 1999, the IFOAM Accredited Certification Bodies (ACB) signed a multilateral agreement to facilitate acceptance of products that were certified by an ACB.”

**Figure 3. Different types of standards**

<b>Standard Characteristic</b>	<b>1. MRLs</b>	<b>2. EurepGAP</b>	<b>3. Organic</b>
Created by	EU, with reference to <i>Codex Alimentarius</i>	EUREP Working group on Good Agricultural Practice	Initially by organic movement and later institutionalized by IFOAM, which sets guidelines for organic standards. Organic labelling regulated by national governments
Adopted by	EU, mandatory for produce sold within EU.	Companies that are members of EUREP	Farmers, food distributors and retailers
Form of monitoring of compliance	Inspection	Certification and possibly random checks	Certification and possibly random checks
Point at which monitored	At border and also in-country	Farm	Farm and input suppliers
Who monitors	Government agencies	Accredited third-party certification bodies	Accredited third-party certification bodies

Source: Author

As standards become more stringent, it makes sense for the buyers to reduce their risks and costs of monitoring by introducing process standards aimed at achieving the product standards. This is what EurepGAP does. The information requirement is then reduced to knowing whether or not the supplier is certified (assuming that the standard and the certification scheme backing it up are credible). This is an example of codification of information simplifying information requirements within value chains. The same patterns of codification are seen in areas such as animal welfare. In response to pressures from consumers and NGOs for better treatment of animals, it makes sense to introduce a standard. This provides retailers with a reasonable claim to be taking adequate precautions to ensure the welfare of animals from which produce sold in their stores is taken. From the point of view of buyers, certification also has the added benefit of transferring the cost of compliance from the buyer to the supplier. It is often the case that certification schemes reduce information requirements at the interface between retailers and their immediate suppliers, but create new information requirements and enforcement challenges further back along the chain.

The second major impact of standards on value chains concerns the issue of supplier competence as an important factor in determining value-chain governance. New standards requirements frequently change the level of competence required from suppliers. Suppliers that were competent enough to meet the previous requirements may suddenly find themselves not competent enough to meet the new rules. Again, the case of EU MRLs provides a good illustration. Farmers accustomed to using particular types and levels of pesticides find themselves needing to substitute some

pesticides for others and to introduce integrated crop management and integrated pest management in order to reduce overall pesticide usage. In the short term, at least, they may become “incompetent”.

There are two possible responses to this situation. The first is for the suppliers to be supported by other firms from within the value chain. This is most likely to happen when the new “supplier incompetence” is widespread, with the result that there are (or are expected to be) shortages of produce meeting the new standard. The second response is for buyers to switch to suppliers that can meet the challenge. This is the response that tends to marginalize small farmers.

Marginalization also occurs when the monitoring costs associated with using small farmers are increased as a result of the introduction of new standards. The introduction of process standards such as EurepGAP tends to shift the costs of compliance

#### **Box 9. EU buyer preferences and concentration**

Most of the interviewees indicated that products from their preferred importers and producers are, in almost all cases, of high quality and are safe for consumption. The major retailers also require their producers to comply with their private codes of practice or EurepGAP. Some importers and retailers pinpoint that the quality and safety of products of certain producers from developing countries are better than those of products from some producers in Southern Europe.

Most of the interviewees argued that food safety and quality problems occur especially with imports from producers who have no long-term relationships with the importers and retailers or from small-scale producers. According to them, the reasons for this are:

- Lack of knowledge regarding quality and safety requirements. Many producers, especially small-scale producers, have no access to information and, therefore, are not well informed about requirements such as calibre, sugar content and homogeneity of shape of the products; use of certain pesticides and levels of residues; post-harvest handling; and packaging. Products that do not meet the quality requirements are sold for a lower price or are destroyed. Importers do not reject the whole shipment with these problems but select the produce that have the appropriate requirements and re-package the products;
- Lack of training. Many producers or workers at the plantations have not received training to cultivate and handle the products properly. As a result, they do not use the right fertilizers or pesticides, and the products may be harvested too early and/or handled roughly;
- Lack of capital to invest in technology. A significant part of exported tropical fruits are still produced by large numbers of small-scale producers who have limited access to capital to invest in production techniques, cooling, transportation facilities, and communication equipment;
- Short-term trade strategy. The interviewees argued that they often deal with producers who have a short-term trade strategy so are not willing to invest for the long term.

*Source:* Willems (2005: pp. 30-31)

and monitoring towards exporters and producers. If new process standards create difficult challenges for farmers, implying that exporters have to increase their level of monitoring, this may lead to the exclusion of small farmers from value chains. This effect is not the result of the initial costs of compliance (the direct costs of certification, the introduction of new systems and capital investments), but rather the costs of increased monitoring.

The introduction of more stringent standards and the extension of the scope of standards, combined with the assignment of legal responsibility to food-business operators by EU legislation, have created defensiveness among these operators. This might be termed “a climate of anxiety” around reputational damage and legal liabilities. In this context, extreme caution and defensiveness become the norm, and the consequence of this is to work with fewer and larger suppliers, whose competences are clearly established. It is this logic that leads to the exclusion of both small suppliers and small producers from agribusiness value chains, as highlighted in box 9.

The precise impact of standards varies from sector to sector. In the fresh-food sectors of agribusiness, where coordination is a major challenge, the impact on coordination costs is a major issue. In other sectors, such as in the processing sector, the impact of standards is felt more strongly in the area of costs. There are economies of scale in adherence to HACCP, for example, for processing plants, and there are various studies of the costs of standards and the impact of these standards on smaller processors. A study of the costs of HACCP in meat-processing plants in the United States found that the costs in the smallest 20 per cent of plants were four to seven times higher than in the largest 20 per cent of plants. This study concludes that, “For smaller plants that produce commodity products that compete with commodity products from the giant plants, (the cost differential) means an erosion of profitability and a necessity to either exit the industry or shift to other products” (Ollinger, Moore and Chandran, 2004: p. 18).

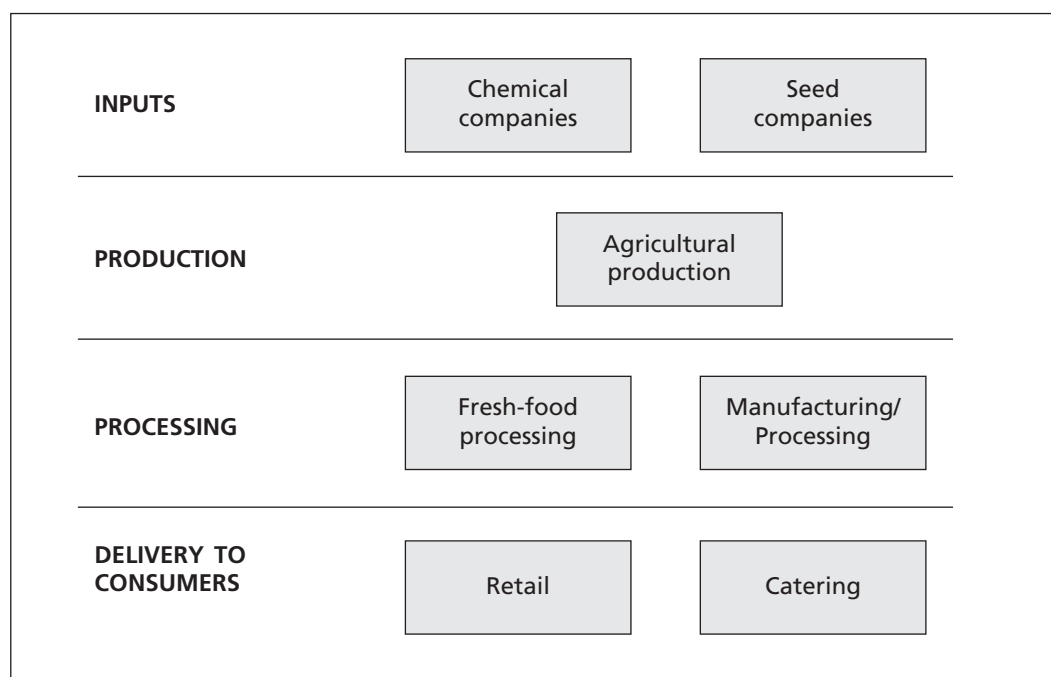


# 4. Concentration in agribusiness value chains

## Concentration along the value chain

In recent years, concentration at all stages has been a characteristic of agribusiness value chains. A simplified functional representation of agribusiness value chains is shown in figure 4.

Figure 4. Simplified agribusiness value-chain diagram



Source: Author

### *Input supplier concentration*

Increasing concentration in both the agrochemical and seed sectors has been extensively documented. In the case of the agrochemical sector, Lang notes that in the late 1980s the top 20 companies accounted for 90 per cent of global sales. By 2002, this number



had fallen to seven (Lang, 2003: p. 560).<sup>16</sup> Some of the same companies also have major interests in the seed sector: one of the notable features of the development of the seed sector in the past 20 years has been the entry of agrochemical and life-science companies. Srinivasan identifies three distinct phases in the concentration of the seed sector. The success of hybrid crops in the 1960s and 1970s led to increasing interest from chemical and food companies. In the 1980s, seed companies became the object of attention of agrotechnology companies developing genetically modified products, as they were potentially the distribution channels for new products: “This brought companies like Du Pont, ICI, Elf-Aquitaine, Monsanto, Rohm and Haas, and Unilever into the seed business. These companies sought to exploit the complementarities between seed and other inputs (e.g., through seeds tolerant to specific herbicides) brought about by the advent of biotechnology” (Srinivasan, 2003: p. 521). In the 1990s, life-science companies such as Monsanto and Novartis became more prominent in the sector, combining interests in seeds with agrochemicals, and pharmaceuticals.

Srinivasan also highlights the fact that this concentration is closely linked to intellectual property rights and, in particular, to plant variety protection (PVP).<sup>17</sup> An examination of holdings of PVP certificates in countries that are members of the International Union for the Protection of New Varieties of Plants (UPOV) shows that “a very large proportion of grants is held by a limited number of large transnational seed companies” (Srinivasan, 2003: p. 527), and at the country level there are high levels of concentration. The dominant companies in the seed sector have acquired a large part of these certificates through mergers and acquisitions, and this activity is related to strategies for control over intellectual property.

### *Production concentration*

Concentration in agricultural production has not been as well documented as it has at other stages in agribusiness value chains. One clear tendency is for concentration at the processing stage (see below) to promote increasing scale in production units. For example, Martinez shows that the scale of pig (hog) production in the United States rose in the 1990s, largely in response to increasing vertical coordination between production units and processing plants. Operations with an inventory of more than 1,000 hogs raised their share of the total number of operations from 37 per cent in 1987 to 47 per cent in 1992 and 71 per cent in 1997 (Martinez, 1999: p. 9).

Five factors are likely to drive concentration in production:

- Concentration among buyers in the value chain (input supplies, processing, retailing, etc) is likely to lead to concentration in production where economies of scale can be obtained. Buyers will seek out low-cost producers, favouring those with large-scale operations;

<sup>16</sup>The seven firms were Sygenta, Aventis, Monsanto, BASF, Dow, Bayer and DuPont.

<sup>17</sup>The issues of plant variety protection rights in agricultural are discussed in the report of the Commission on Intellectual Property Rights (2002: pp. 59-66).

- To the extent that there are economies of scale in coordination, increased vertical coordination (partly but not exclusively as a result of the changing standards environment) will favour concentration in production;
- Maintaining agricultural incomes in the face of increasing global supply requires product innovation. If the benefits of this innovation are to be appropriated by producers, then they must initiate the innovation. Innovation capabilities tend to reside in larger producers or in producer associations;
- Producers may consolidate in producer or marketing associations in order to gain market power as a response to concentration among suppliers or buyers. In some countries, this may be a strategy for agricultural promotion and development, using product-marketing organizations as a countervailing power in global markets. The case of the Kiwifruit Marketing Board and its subsequent development of the Zespri brand would be an example;<sup>18</sup>
- Given the increasingly globalized nature of markets and the importance of year-round supply to major export markets, international collaboration between producers emerges as a potential strategy for increasing producer power in the face of buyer concentration. Zespri, for example, sources kiwi fruit from Italy, France, the United States, Chile and Japan, as well as New Zealand (Zespri, Annual Report 2004-2005). The possibilities of such collaborations and their potential pitfalls are discussed by Donoso et al. (2004).

### *Processing*

The processing industry covers a broad range of activities. At one extreme, there are processors of fresh produce. This is a rapidly growing part of global agribusiness, as seen in the expansion of global trade in horticultural products. Keeping products fresh (maintaining the cool chain) and transferring them quickly from farm to shelf adds value. Value is also added through packaging, preparation and innovation. The large-scale packaging and preparation of fresh meat also falls into this category.

Increasing levels of concentration in the processing of fresh horticultural produce, and its impact on agricultural production, has been documented by Dolan and Humphrey (2000; 2004). In the case of fresh vegetables, in particular, increased processing has favoured larger exporters who are able to provide the necessary levels of technical expertise and investment. As with the case of concentration of input suppliers, fresh-produce exporters also shape agricultural production by their sourcing decisions.

At the other extreme, agricultural processing can involve the transformation of agricultural raw materials into a variety of processed products. Once again, concentration is most evident and best documented in the United States. Data for processing plants for

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<sup>18</sup>The value-chain perspective on this and its potential for offsetting declining prices for agricultural products is discussed by Fitter and Kaplinsky (2001: p. 71).

pork, beef and chicken (broilers) shows increasing levels of concentration from the mid-1980s through to the late-1990s (table 4). The four-firm concentration ratio for beef packers increased from 72 per cent to 81 per cent between 1990 and 2001. The four-firm concentration ratio for pork packers increased from 37 per cent in 1987 to 59 per cent by 2001, while the ratio for broilers concentration increased from 35 per cent in 1986 to 50 per cent in 2000.

**Table 4. Increasing concentration in meat-processing industry in the United States: four-firm concentration ratios (Percentage)**

	1986-1987	1990	1994-1995	1998	2000-2001
Pork packers	37	40	—	—	59
Beef		72	76	79	81
Broilers	35	44	46	49	50

Source: Hendrickson and Heffernan (2005).

The consequences of concentration for meat production have been well documented for the case of pork (hogs). Production coordinated through production contracts or direct ownership of production units by processors (vertical integration) increased from 11 per cent in 1993 to 59 per cent in 1999 (Lawrence, Rhodes, Grimes and Hayenga, 1997: p. 24; Martinez, 1999: pp. 10-11). In some cases, coordination is limited to agreements about timing, pricing and quantities, while in others the buyer provides detailed specifications of production processes and is involved in “the management of farm production and the provision of important inputs” (Martinez, 1999: p. 13).

Concentration is clearly evident in the processing sectors of other commodities. For example, in the case of globally traded products such as coffee and cocoa, concentration at the processing stage has certainly occurred. Fitter and Kaplinsky (2001: pp. 26-27) highlight both concentration among traders of coffee beans during the 1990s and market concentration in the European roasting sector. Similarly, Fold (2002: pp. 235-236) documents concentration among cocoa grinders and chocolate manufacturers in the United States and Europe. Meanwhile, in both sectors, farm production appears to be increasingly fragmented and small scale.

### *Consumer outlet concentration*

Concentration is also occurring at the point of sale to consumers. This is seen clearly in the cases of the fast-food industry and in supermarket retailing. In the course of the 1970s, McDonald’s reduced the number of its domestic ground-beef suppliers in the United States from 175 to just 5. This decision had a profound effect on the structure of the beef-processing industry in the United States and was one of the central drivers of concentration (Schlosser, 2001: pp. 136-137). McDonald’s example was followed by other fast-food companies, and these firms could leverage the newly concentrated beef-production system that McDonald’s had helped to create. A similar process has occurred among potato suppliers in the United States, also documented by Schlosser. Such effects

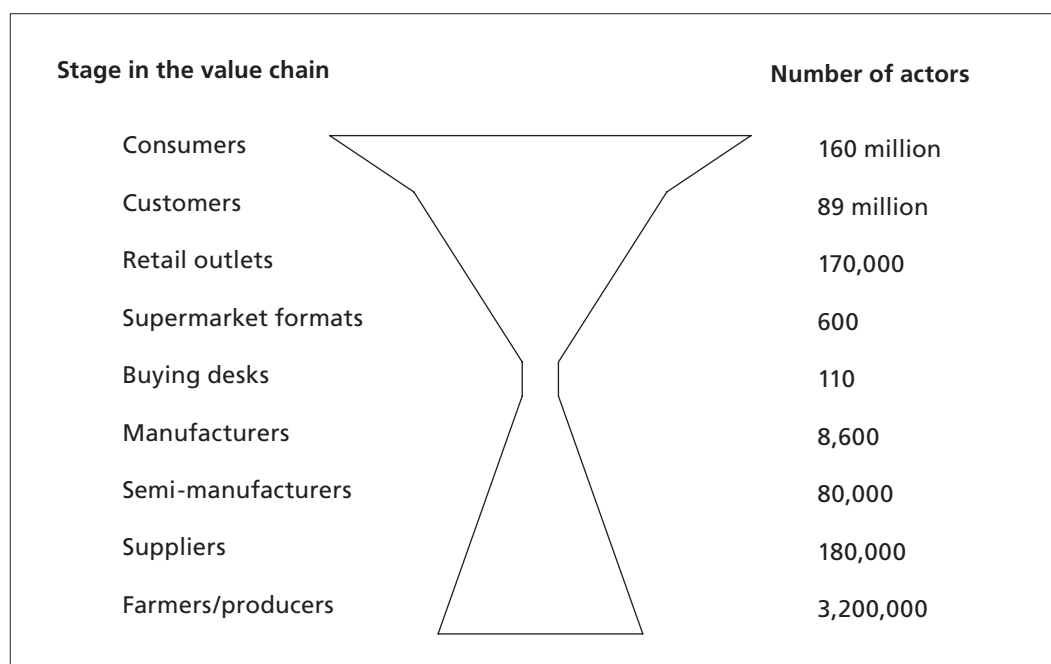
have been internationalized as fast-food chains have spread. The consequences for potato production in Argentina of the sourcing strategies of fast-food companies are discussed by Mateos and Capezio (2001).

Food and grocery retailing has been consolidating rapidly in both Europe and North America. The five largest food chains in Europe (the whole continent) increased their share of total retail food turnover from 13 per cent in 1990 to 26 per cent in 2000 (Jacobsen, 2002: p. 7). Data from PlanetRetail shows that Europe's top 30 grocery businesses increased their share of the European market from 52 per cent in 1992 to 69 per cent in 2001 (PlanetRetail/M+M, 2002). This increasing share is driven by both concentration in individual markets and the increasing internationalization of the largest European retailers. In the United States, concentration also advanced rapidly in the 1990s. The top five food retailers increased their share of the United States market from 27 per cent in 1992 to 43 per cent in 2000 (Wrigley, 2002: p. 63).

Concentration at the retail level is not only about size. It also changes value-chain relationships. Large buyers have transformed themselves from resellers of products made by others into firms that go out to find suppliers for the products they want to sell their customers. Increasingly, they play a role in product development, branding, supplier selection and distribution. It is what supermarkets buy, how they organize their supply chains and how they define and respond to consumer trends that give them competitive advantage.

The critical position of retailers within agribusiness value chains is highlighted in figure 5, which indicates levels of concentration at different points in the food value chain

**Figure 5. The supply-chain funnel in Europe**



Source: Grievink (2002).

in Europe. While the precise levels of concentration are open to discussion, the overall hourglass shape is beyond dispute.

## A value-chain analysis of the impact of concentration

Concentration matters for two reasons. First, concentration at one point in a value chain often leads to concentration at other levels. Second, concentration at particular points in the value chain creates oligopolies and inequalities in market power. This then tends to reduce the profits made by firms at other stages in the value chain.

### *Why does concentration at one point in the value chain drive concentration at other points?*

Concentration appears to have a ripple effect on GVCs. The emergence of large firms at one point in the chain quite often creates further concentration at other points. It was argued earlier in this paper that the emergence of large firms created the possibility of governance because these firms have the resources and market power needed to exercise the governance function. However, this need not drive concentration. When is value-chain governance associated with concentration?

The factors favouring concentration are seen clearly in the case of the impact on suppliers of development of large plants by food processors. These large plants are developed in order to obtain economies of scale in processing. Suppliers to these large plants become larger because of three factors:

- The economies of scale that favour large processing plants may also operate upstream in the value chain. Large processing plants are not only able to absorb the output of large suppliers, but are also able to force increasing scale among suppliers;
- The key to the efficiency of large plants is continuous processing, which, in turn, requires continuous and large-scale supply. It is more efficient to coordinate deliveries by a limited number of large suppliers than to work with a large number of small suppliers. Therefore, rising supplier scale is clearly evident in sectors characterized by concentration at the processing stage (as discussed above in connection with producer concentration);
- The achievement of consistent quality and process efficiency of large plants is also aided by consistent input quality. Once again, working with a small number of large suppliers is more likely to achieve consistent quality at reduced costs than working with a large number of small suppliers.

The second and third points relate not to the economies of scale in production, but economies of scale in coordination. These economies are seen more generally, as is evident in horticulture. There are relatively few economies of scale in the production of horticultural products, particularly vegetables, and yet there is evidence of concentra-

tion in the value chain—among importers (a very strong tendency in the UK market), among exporters and in production, as documented by Dolan and Humphrey (2000) for the UK market. This concentration can be driven by the need for greater control over inputs and production processes (for cost, quality, delivery and safety) and by the tendency towards greater customization of products. Each of these leads to a greater requirement for coordination, with economies of scale to be obtained.

As has been documented extensively for the hog sector in the United States, working with larger suppliers with long-term contracts provided greater opportunities for securing higher quality stock, which in turn enabled higher quality products to be produced (Lawrence et al., 1997). Similar practices are evident in other parts of agribusiness. The impact on agricultural production systems of large input suppliers in developing countries, such as the Charoen Pokphand Group (CP) group in South-East and East Asia, shows processes very similar to those described by Martinez. As documented by Goss et al. (2000), this company has interests in a broad range of food and non-food products, including rice, poultry, canned fruit, vegetables and seafood. The authors focus, in particular, on shrimp farming, documenting increasing vertical integration within the sector (with the company owning shrimp farms, feed mills, hatcheries and processors). Decisions by such companies about whether to secure their supply of shrimps through contracted farmers, auctions or own-farm production have a decisive influence on the structure of food production and the opportunities available to small farmers. Nevertheless, increased upstream concentration is not an inevitable outcome of downstream concentration. As has been argued earlier, buyers will not coordinate closely with suppliers unless there are good reasons to do so, and they will not drive concentration unless there are clear advantages. The cases of cocoa and coffee illustrate how concentration at one point in the chain is compatible with continuing fragmentation at other points. Concentration among traders, processors and manufacturers of consumer products in the cocoa and coffee sectors has been documented extensively (Fold, 2002; Fitter and Kaplinsky, 2001). Production remains fragmented, with small farmers still heavily involved in the sector. In this sector, issues of continuity of supply have been resolved without resort to explicit coordination, and there are opportunities for storage that offset supply risk. Fold suggests that the quality issue is being resolved in part by technological change which is loosening the relationship between the quality of the raw material and the quality of the final product (Fold, 2002: p. 233).

### *Concentration and market power*

Concentration at particular points in value chains may lead to increased market power for some enterprises, benefiting these firms at the expense of others in the value chain. One of the clearest examples of this effect has been in retail concentration. The growing power of supermarkets has challenged even larger manufacturing companies. A report on retail concentration in the EU highlighted its impact on relationships between retailers and processors/manufacturers of food products:

“With the substantial consolidation of retail and procurement markets at both the national and aggregate EU level, the nature of the supply chain has changed

considerably. Where manufacturers may traditionally have driven distribution by developing brands and then used a network of wholesalers and retailers to sell and distribute goods to consumers, it is now retailers who mostly drive the supply chain... The upshot of this revolution has been that producer market power has largely given way to retailer buyer power, where retailers hold the whip hand over producers." (Dobson, Waterson and Davies, 2003: p. 121)

Smaller food manufacturers increasingly find that supermarkets act as gatekeepers, often insisting that food manufacturers make supermarket own-label products. Even the largest branded manufacturers have had to come to terms with giant retailers. For example, Unilever is one of the world's largest producers of food and personal-care products, with a turnover of more than €50 billion in 2001. Despite its size, just four supermarket customers—Wal-Mart, Carrefour, Ahold and Tesco—accounted for 13 per cent of all its sales (van der Laan, 2003).<sup>19</sup> Pressure on small suppliers is even greater. Indications of the impact of supermarket concentration on supplier prices are presented in box 10.

#### **Box 10. The impact of supermarket concentration on suppliers in the UK**

Hard evidence of the impact of retail concentration on agricultural producers in developing countries is not easy to find, even though there is a wealth of case study and anecdotal material. Such evidence does exist for British suppliers in the UK market. First, Dobson quotes evidence on buyer practices that indicates clear power inequalities and sustained pressure on suppliers:

- "Through aggressive bargaining strategies, including the use of de-listing tactics, and the increasing use of auctions for awarding contracts, retailers have been able to drive down the prices and margins that producers receive. Allied to these moves has been the increasing use of vertical restraints placed on producers. These buyer-induced restraints generally take one of two main forms: either aimed at further rent extraction or limiting producers' freedom or incentives to supply elsewhere.
- The first form includes listing charges, shelf-space fees ("slotting allowances"), promotion support payments and retroactive discounts on goods already sold. The second form includes exclusive supply obligations and other non-compete contract clauses as well as most-favoured-customer type contracts. As the report by the Competition Commission illustrates, these practices are widespread in the UK" (Dobson, 2002: 17).
- Second, there is clear evidence that retailers with higher market shares are able to obtain lower prices from suppliers than retailers with low market shares. The UK Competition Commission report on supermarkets, published in 2000, produced data which showed that retailers with a market share of less than 5 per cent tended to pay around 4 per cent more than the average supplier price, while retailers with more than 15 per cent market share paid between 2 per cent and 4 per cent less than the average price (cited by Vorley, 2003: p. 25).

<sup>19</sup>Of course, this trend has not been confined to the food sector. Concentration has affected many different areas of retailing. The proposed merger of Proctor and Gamble with Gillette, announced in January 2005 seems to be motivated more by the power of large retailers than by competition with Unilever.

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This provides direct evidence of a link between the prices paid to suppliers and the size of the supermarket and also refers to specific practices adopted by supermarkets that indicate the presence of market power and the way that it is used to impose onerous contractual relationships on suppliers.





# 5. Strategies for decreasing powerlessness in global markets

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The previous two sections have highlighted the difficulties facing developing-country producers and exporters in the current global agribusiness markets. Trends in standards and concentration create new challenges. However, there is scope for improving access and returns to global markets. This section focuses on two specific issues: offsetting the market power of large buyers and the extent to which value-chain linkages can be used to upgrade developing-country producers and exporters.

## Strategies for offsetting the effects of market power

The market power of key actors in agribusiness value chains comes from high levels of concentration at certain points in the chain and from the ability of actors to brand products. If left unchallenged, the consequence of these tendencies would be less incomes going to less-concentrated parts of the value chain. In a number of southern-hemisphere countries generally considered to be strong competitors in global fruit markets (Chile, New Zealand, South Africa), the export sector is relatively concentrated. In the cases of New Zealand and South Africa, export concentration is a legacy of state marketing boards. In Chile, the state has cooperated with the private sector to promote industry associations and to channel support for the export sectors through them (Perez-Aleman, 2000). The importance of such organizations lies not only in their impact upon markets—for example, scheduling fruit exports so that prices are not depressed as a result of peaks in shipments—but just as importantly in their ability to promote “high road” development strategies based upon innovation, value-chain coordination and improved standards.

Nevertheless, two important limitations on the role of these organizations should be noted. Firstly, they appear to be more prevalent in the fruit sector than in the vegetables sector. This may be because fruit is a more standardized product, which has tended to display less vertical coordination than vegetables. Vertical coordination undermines (horizontal) intra-country producer and exporter organizations. Secondly, export associations may be able to increase export revenues, but producers, particularly small producers, may not benefit. Export associations may benefit only the largest firms. This is the argument put forward by Murray (1997) with respect to Chile.

The second strategy for counteracting the market power of buyers in GVCs concerns “branding from below”. The overall trend towards product differentiation and increasingly complex value-chain linkages has been driven in large part by trends in retailing. Nevertheless, retailers are not the only actors in this field. Product differentiation can also be a strategy of producers and intermediaries (producer associations, traders, NGOs, etc.). In particular, product differentiation strategies have been used by these actors in response to declining prices for agricultural commodities and increasing competition from new entrants to global food markets. They are part of a strategy to move “outside of the commodity box” (Lewin et al., 2004). Some examples of product differentiation are shown in table 5.

The full potential of such product differentiation is hard to establish. In the case of the coffee sector, the overall penetration of what has been labelled “sustainable coffees”, which includes certified organic, Fairtrade, and eco-friendly coffees (Lewin et al., 2004: pp. 118-119) is not large in absolute terms. The market share of sustainable coffees in Europe in 2001 averaged 1.6 per cent (Lewin et al., 2004: p. 120). However, it has also been suggested that upwards of 600,000 producers in 24 countries have been certified for Fairtrade, and the overall market for sustainable coffees has been growing rapidly. Similarly, the European market for organic and Fairtrade bananas remains small, but it is growing quickly. One study suggests that sales of organic

**Table 5. Product differentiation through credence claims**

Coverage of claim	Example of claim
1. Enterprise branding	One example of a developing-country brand is Thandi, which has been developed in South Africa for wine and fruit: “Thandi’s aim is to empower previously disadvantaged farming communities. With support and mentorship from leading players in the fruit and wine industries, these communities export top-class produce to countries all over the world” ( <a href="http://www.thandi.com">http://www.thandi.com</a> ).
2. Region branding	Claims about product characteristics, quality or production processes can also be made at the regional level. Some claims are made about product quality based upon local conditions or production systems. One example would be the branding of Jamaican Blue Mountain coffee. Other claims are based on certification of enterprises within the region. The Kenya Flower Council’s code of conduct addresses issues such as labour conditions, pesticide use and water use. It is designed both to deflect widespread criticism of the impact of the flower industry on labour and the environment in Kenya, and also to differentiate Kenyan flowers from those of other countries.
3. Geographical indicators	Geographical indicators (GIs) are part of the WTO agreement. According to Kumar (2003: 2) GIs “identify a good as originating in the territory of a member, where a given quality, reputation, or other characteristic of the good is essentially attributable to its geographical origin. It is a form of intellectual property, like copyrights and patents, which bears intangible properties related to pieces of information that can be incorporated in tangible products. GIs can potentially aid human-development objectives by allowing communities to exploit premiums through ‘right of exclusion’ (empowerment). The logical next step extends empowerment to being a means of translating exclusive rights into economic rents (productivity).”
4. Broad certification schemes	Certification schemes for such characteristics as Fairtrade and organic also help developing-country producers. They identify superior product characteristics that are independent of any particular buyer.

Source: Author.

bananas in global markets grew by more than 300 per cent in volume terms between 1998 and 2002. Over the same period, imports of Fairtrade bananas into Europe doubled (Dankers and Liu, 2003: pp. 33-34).

In value-chain terms, the importance of this type of “differentiation from below” lies in the control of the differentiating factor. The added value of the differentiating factor is not defined by the retailer, but by the certification scheme. If such differentiation gains attraction with consumers, retailers are constrained to source products from suppliers that are able to make the claim at the heart of the differentiating factor (organic, Fairtrade, place of origin, etc). In some cases, such as organic produce, this is not a major constraint. In others, such as Fairtrade, it may oblige supermarkets to source from small farmers, although there are some initiatives to extend the Fairtrade label to large producers.<sup>20</sup>

## Value chains, technical assistance and upgrading

The key questions for development strategy are the extent to which knowledge flows within value chains, particularly from large buyers to small suppliers, provide a basis for upgrading. In other words, to what extent do knowledge flows along value chains support upgrading, and what complementary flows are required to sustain upgrading?

GVC linkages offer the prospect of private-sector knowledge transfers that should provide up-to-date and relevant information for producers, processors and exporters in developing countries. This knowledge transfer is not automatic. One study of local tomato producers in Zambia highlighted differences in commitments to supply upgrading by different types of buyers. “None of the supermarkets investigated provided any technical assistance to their suppliers. The supermarkets only provided information on crops the supermarkets wanted to buy and the grades and standards the farmers have to achieve.” (Emongor, Louw, Kirsten and Madevu, 2004: p. 34). Technical assistance, when provided, came from NGOs. But the same study did find considerable technical assistance provided by milk-processing companies to local dairy farmers: “Dairy farmers are receiving technical assistance from processors such as Parmalat and Finta. These processors collect milk in bulk from collection centres. They have also provided equipment to the milk cooperatives to test for the quality of milk at the point of purchase” (Emongor et al., 2004: p. 35). The same study also found that milk producers benefited from projects financed by USAID, which set up cooperatives and provided equipment and training, particularly in peri-urban areas. In other words, technical assistance came from multiple sources, from inside and outside the value chain.

There are good reasons for this difference in the provision of technical assistance between retailers and processors. The typical large-scale retailer is responsible for sourcing hundreds, often thousands, of different product lines and lacks specialist knowledge of products. Rather than provide “solutions” (instructions and information

<sup>20</sup>UK supermarkets are now selling flowers sourced from large-scale flower producers in Kenya under the Fairtrade label.

on what needs to be done and how to do it), it provides “problems” (specifications about the types of products it wants). Even when large retailers are involved in innovation, they are focused on the final product, not the production process. They rely on specialist producers and suppliers.

Processors, on the other hand, are usually technical specialists, focusing on well-defined areas, such as specific livestock or dairy or particular types of fruit. Their understanding of the technical and economic impacts of the different characteristics of the products that they process provides them with a knowledge base that can be used for improving productivity, particularly with captive suppliers. The challenge for development interventions is to mobilize this knowledge in the service of small farmer improvement, given that the search for improved quality and reliability of supply tends to lead to value-chain concentration.

Input suppliers, who are another source of value-chain knowledge and technical assistance, also hold such detailed knowledge of the sector. However, input suppliers frequently supply technical assistance to farmers because there are direct benefits to them: it is part of sales promotion. As a result, upgrading tends to be biased towards the products and farming strategies promoted by these input suppliers (Morgan and Murdoch, 2000). For example, agrochemical producers may be reluctant to be the sponsors of integrated crop and pest management if this leads to declining sales (Julian, Sullivan and Sánchez, 2000: p. 1179). It follows that these value-chain knowledge flows are more effective when incremental changes in farming systems are required.

Support for upgrading may come from a variety of sources from outside the value chain. These include extension services, international NGOs, development agencies and multilateral bodies. An analysis of the potential for organic production in Latin America highlighted numerous examples of support for small farmers in the transition to organic agriculture, which came from all of the sources just mentioned. In addition, promoters of private standards also have an interest in encouraging take-up by producers. One example would be the role of the developer of a label for organic shrimp production, the German company Naturland. It has worked on a project in Ecuador jointly with multiple stakeholders (public, private and NGO). This type of multi-actor coalition for upgrading may become increasingly common. Buyers are far from being the only agents of knowledge dissemination.

### *Preconditions for provision of technical support from buyers*

The limits to technical assistance from buyers to suppliers arise from the principle of economizing on coordination costs. Provision of technical support to producers is only likely to occur in the following circumstances:

- There is scarcity of supply, and technical assistance helps to lock in suppliers to a particular buyer. Technical assistance guarantees continuity of supply;

- Alternative sources of supply are restricted by land scarcity. It has been suggested that one of the reasons for continued sourcing from family farms in Eastern Europe is the lack of land freely available for large-scale farming (Swinen, 2004);
- Alternative sources of supply are restricted by transport costs. This is one of the reasons for processor investment in suppliers in the Zambian case. It would have been expensive to rely on imported milk for the dairy-processing sector;
- Particular localities have significant advantages over competitors. Availability at particular times of year and advantages in relation to transport costs can make some locations indispensable to importers seeking a competitive, year-round supply. Therefore, they will invest in capabilities in these areas if this is necessary;
- Firms trade on their image as socially responsible, or supporters of small-scale farming. More than a direct business interest may motivate support for small farmers.

It follows from this that the direct business case for investments by major retailers in supply-chain capabilities in developing countries is very limited. Knowledge flows may have to be promoted through pressures for firms to adopt a development stance in their business. The involvement of large retailers in supplier upgrading in developing countries is more likely to be the result of policies related to corporate social responsibility, such as the UK government's Ethical Trade Initiative than because of supply-chain considerations.



# 6 ■ Making a difference: policy options for agribusiness and poverty reduction

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A value-chain analysis of the impacts of global concentration and the evolving global-standards environment highlights a number of challenges and opportunities for multiple actors involved in value-chain development. The policy issues for developing-country governments and other agencies concerned with export agribusiness can be grouped into three broad areas:

- Ensuring the continued access of agribusiness producers to global markets and supporting the competitiveness of the sector;
- Increasing revenues from agribusiness, particularly through adding value to exports;
- Enhancing the poverty alleviation impact of export agribusiness.

These policy questions have been addressed by many studies. At this point, the focus is on the additional insights provided by value-chain analysis, while recognizing the continuing validity of other related approaches to sectoral development, including cluster analysis, sub-sector analysis, etc.

## **Ensuring continued market access and supporting improved competitiveness**

The increasing importance of “buyer service requirements” in agribusiness trade, particularly buyer confidence in food safety, quality and speed and reliability of delivery, has direct implications for government provision of infrastructure in three areas.

Successful agribusiness exporting calls for logistics-capability development (particularly physical and informational infrastructure) that will support coordination between enterprises and the rapid shipment of products. The physical infrastructure is particularly visible at points of export (airports, seaports, etc.). The speed of product transport and the increasing importance of value-chain coordination also put a premium upon effective communication. This requires investment in the information and communication technology (ICT) infrastructure. Such investments need not be sophisticated. Research on e-commerce in horticulture (Humphrey, Mansell, Paré and Schmitz, 2003) suggests that the ICT requirement is not for high-bandwidth applications capable of processing



transactions online in real time. Rather, the main requirement is for relatively simple, cheap, and reliable ICT infrastructures that allow suppliers to coordinate their activities with buyers.

Clearly, the standards infrastructure is particularly important for success in global agribusiness markets. In this respect, there are three main areas, which require the attention of governments. Firstly, the inspection and testing infrastructure in many countries needs to be developed further, as outlined in many reports (see, for example, World Bank, 2003). As the number of substances that need to be controlled increases, and as the reference level for these products decreases, so new demands are placed upon the physical testing infrastructure. This infrastructure provides a dual function: it provides assurances to producers about the quality of inputs they use and the safety of the products they sell, while at the same time providing assurances to buyers through regular inspections of producers and products.

Secondly, given the increasing importance of collective private standards, governments need to support the development of local consultancy and certification companies that will provide services at a reasonable cost. This is an area where international organizations, like UNIDO, with experience of supporting compliance with standards in manufacturing, have also an important role to play. The role of development agencies in promoting a local certification capability in Kenya for EurepGAP was highlighted in box 8. The cost-effectiveness of local certification may also be increased through the development of national equivalent standards, such as KenyaGAP. However, it should be noted that governments have a difficult choice to make, particularly when they seek to develop standards for good agricultural practice that will also apply to products sold in the domestic market. Should they apply the same standard in the domestic market as is required for key export markets? This could disadvantage small producers in the domestic market. However, developing a different domestic market standard creates the problem of proliferation of standards for companies that wish to produce for both markets. One compromise is to create national standards that are a subset of international standards so that they can act as a stepping-stone for companies: meeting the domestic standard becomes a partial fulfilment of the export-market standard.

A value-chain analysis highlights the range of options available for the enforcement of standards. On the one hand, governments can enforce standards through inspection, testing, certification of producers, etc. This role is particularly important when the export sector is fragmented, or when the outputs of the export sector are relatively standardized and sourced through arm's-length market relationships. In contrast, when products are highly customized and relationships between buyers and sellers are information-intensive, then much of the task of ensuring buyer confidence is achieved through the buyer-seller relationship. The requirements for public enforcement of standards vary according to the nature of the value chain.

Thirdly, given the importance of business service requirements in agribusiness, it is apparent that the agricultural sector is increasingly taking on many of the characteristics

of manufacturing. The support services needed are closer to the business-development services model than to the agricultural-extension model. Experience from SME development programmes should be applied more systematically to the agribusiness sector.

The policy issues outlined so far have focused on the policies to be adopted by governments and by development agencies aimed at supporting agribusiness producers and exporters. The analysis of standards has also pointed to the importance of business associations, in collaboration with governments, in establishing sector-wide practices and ensuring the overall reputation of the export sector. Governments have an important role to play in fostering collaboration between export enterprises, as was highlighted in the case of Chile.

Overall, the value-chain analysis has highlighted the increasing challenges facing developing-country farmers' enterprises involved in agribusiness. Markets are becoming more complex, more demanding and more differentiated. In this context, policy interventions to support farmers and exporters must be grounded in realistic appraisals of the needs of the market, the capacities of the export sector and competitors in global markets. In other words, for the sustainability issue to be examined in a value chain context, the standard competitive analysis tools—examination of competitiveness in relation to market demands and potential competing countries, SWOT analysis, etc.—are indispensable. Such tools are not specific to a value-chain approach.<sup>21</sup> A value-chain approach highlights specific aspects of markets that need to be taken into account by competitiveness analysis, particularly changing buyer requirements.

While value-chain analysis has to be complemented by well-established tools for analysing competitiveness, it is also true that well-established market analysis (supply and demand for products in particular markets) should be complemented by more differentiated analysis of buyers' needs and analyses of how marketing channels are organized. It follows that the components of trade capacity-building programmes aimed at promoting developing-country capacity to trade (as opposed to capacity for understanding and negotiating trade-policy issues) should include capacity for value-chain analysis of markets and development potential.

## **Adding value and increasing returns**

Increasing revenue streams from agribusiness should be a second objective of policy. This challenge is one which has confronted policymakers not only in agriculture, but in export manufacturing as well.

Value-chain analysis suggests a number of strategies for adding value. In particular, it emphasizes the opportunities for adding value through increasing "buyer service" elements of the total product package delivered to buyers. Particularly in fresh-produce value chains, value can be added through reliability of delivery, speed of delivery and

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<sup>21</sup>SWOT stands for Strengths, Weaknesses, Opportunities and Threats

product innovation. In other words, adding value need not involve physical transformation of the product. Global buyers such as supermarkets and large processors are not solely buying a physical product. They are buying a product that is bundled with a set of value-adding services. Furthermore, retailers are generally looking to divest themselves of value-chain coordination and development work. If capable suppliers can take on more responsibility for product development, quality assurance, etc., then buyers are often open to considering proposals. In fact, the general tendency is for more activities to be passed down along the chain towards developing countries, and only those enterprises that can respond to this challenge will remain in export-oriented value chains.

This implies that upgrading is not an optional extra. It is a requirement for continued access to evolving global markets. Value-chain analysis highlights supplier competence as a critical factor in both supplier selection and reducing the costs of coordination. This upgrading may occur at the farm level or at the export-processing level. Focused support services for farmers and processors remains essential for sustaining competitiveness. One model of providing business-oriented extension services is EMBRAPA in Brazil, which has provided effective support for the fruit-export sector in the North-East region of the country. In an industry in which buyers define new challenges and expect suppliers to need them, support for innovation and problem solving at the local level is essential.

Some of the knowledge resources for upgrading may flow along the value chain itself, as discussed in section 6. These flows will be limited, but are more likely to come from fresh-produce importers and food processors than from retailers. The scope for processor-supplier partnerships in agribusiness of the type promoted by UNIDO and other agencies in manufacturing, particularly with processors, needs to be investigated. Schemes for linking business-development services to supply networks could be developed in the agribusiness sector.

Large corporations are not the only source of knowledge and expertise for value-chain upgrading. Research on the organic sector in Latin America (IFAD, 2003) highlighted the important role played by international agencies such as IFAD, local and international NGOs and traders in providing support for small farmers in the transition to organic production. Particularly with respect to strategies for “branding from below”, product differentiation and the development of alternative marketing channels, development policy must recognize the wide range of potential agents whose efforts and support can be mobilized.

Some upgrading opportunities do require major investments that may be beyond local resources or capabilities. Early entrants into global horticulture markets, such as Kenya, have seen the emergence of locally based firms that have accompanied the transformation of the horticultural trade, growing from small enterprises into large ones. These “domestic flagships” are capable of upgrading the performance of the export sector, although their continued competitiveness may be dependent on narrowing their supply bases and working with own-farm and large-farm production. Analyses of manufacturing have termed this type of transition “industry co-evolution” (Sturgeon and Lester,

2002). Buyers and suppliers evolve together. Similarly, early entrants into export markets and large domestic markets (for example, the very large meat processors in Brazil, Sadia and Perdigao) are able to compete successfully in global markets. For late entrants, and particularly for countries with relatively small domestic markets, the entry barriers are already high. The learning path available to early entrants has been closed off. Success in global markets requires sophisticated capabilities. In this case, the involvement of foreign investors is essential.

The analysis of concentration in GVCs suggests that returns to exports do not depend solely on upgrading. Given the increasing concentration of global markets and the importance of relatively few buyers, concentration and cooperation among suppliers also has a bearing on prices. Countries that have developed efficient marketing organizations or have promoted effective private-sector institutions may well be more effective participants in global markets.

## **Enhancing the poverty-reduction impact of export agribusiness**

At the beginning of this paper, it was argued that export agribusiness, and in particular non-traditional agricultural exports, had been identified as having an important part to play in poverty-eradication strategies because of their ability to make a difference to the incomes of poor people in rural areas. It was also suggested that some framings of pro-poor policies for agriculture have equated pro-poor agricultural growth with improvements in the ability of small farmers to access export markets.

The GVC analysis of export agribusiness highlights the challenges for small farmers in global markets. Linking farmers to global markets has usually involved the bulking of produce, often through local markets for commodities and state marketing boards. The increasing complexity of the standards environment, which creates new risks for buyers, and increasing requirements for traceability undermine these channels. They do not provide the coordination and control needed by global buyers. Furthermore, there are economies of scale in coordination and control, which work against small farmers.

In this context, the top priority for policy must be to be realistic, particularly with respect to the opportunities open to small farmers. The poverty reduction goal should not lead to policy interventions that lack sustainable business logic. There are some niches for small farmers in global markets, and initiatives such as Fairtrade and local branding have increased farm incomes, or at least offset some of the damage caused by declining global prices for commodities such as tea and coffee. Similarly, small farmers have been successful in producing organic produce for global markets.

Nevertheless, major trends in global agribusiness appear to undermine the competitiveness of small farmers and to present challenges that they are ill placed to meet. In light of this, more consideration needs to be given to alternative routes to poverty eradication in rural areas. These might include the targeting of alternative export markets,

particularly the markets of the Middle East, Eastern Europe and East Asia. Also, more attention needs to be given to the potential of domestic and regional markets in developing countries. This potential has been somewhat overshadowed by the priority given to export markets, and in particular developed-country markets. Thirdly, the assumption of small farms being a more effective route to poverty eradication in rural areas than large-scale farming needs to be re-examined, particularly with respect to horticultural production. One study of export horticulture in Kenya has indicated that large-scale and small-scale export production are equally poverty-reducing (McCulloch and Ota, 2002). This type of analysis needs to be extended to see if the conclusions are valid for other sectors and other countries.

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