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Institutional and organisational change in agri-food systems in developing and transitional countries: identifying opportunities for smallholders.

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1 INTRODUCTION

Agri-food systems in developing and transitional countries are restructuring rapidly. Increasingly supermarkets have emerged in developing countries as important retailers, particularly for the high-value products meeting specific consumer demands related to production process and quality (Orden *et al.*, 2004). In Latin America, supermarkets buy 2.5 times more produce from local farmers than the region exports to the rest of the world (Reardon and Berdegue, 2002). Supermarkets have also become a strong growth retail segment in Asia (Hu *et al.*, 2004; Zhang, 2001) and Africa (Neven and Reardon, 2004; Weatherspoon and Reardon, 2003) and Central and Eastern Europe (Dries *et al.*, 2004). The determinants, dynamics and outcomes of retail restructuring in developing and transitional countries are being discussed in detail in the first issue of the Global Issue Paper series of the Regoverning Markets Project (Vorley and Fox, 2004).

The growing concentration in the processing and retail sectors in domestic markets of developing and transitional countries is causing significant institutional changes that affect smallholder agriculture. Increasingly, domestic markets in liberalised economies have more in common with export markets, with product chains that have become *buyer-driven* (Gerrify, 1994). In these chains, down-stream segments are determining the conditions such as scale and volume of procurement, higher quality and safety standards, packing and packaging requirements and consistency. Buyer-driven chains are more regulated, and characterised by high levels of governance¹ and long-term vertical coordination between producers, supplier-integrators, processors and retailers (Vorley, 2003). As a result farmers require technology, financial capital, human capital and organisation to deal with transaction costs and the new economies of scale. The high capital requirements for entering buyer-driven chains mean that the higher land and labour efficiency of smallholder production is no longer a comparative advantage: increasingly supermarket buyers in both industrialised and developing countries are sourcing from large commercial growers who can meet the changed requirements of buyer-driven chains (Vorley, 2003). Nevertheless there is growing evidence that small producers can participate in supply chains to supermarkets and concentrated processing sectors in a manner that enhances their livelihoods (Boselie *et al.*, 2003). When bearing in mind that 60-75% of the world's poor live in rural areas (IFAD, 2001), depending on agriculture for their livelihoods, it is clear that the domestic competitiveness of small farmers against globally and regionally sourced goods is of crucial importance.

¹ The basic 'rules of the game' that determine behavioural conduct and action – who sets the rules, when and how (based on Vorley, 2003).

This paper aims to understand the strategies by which small-scale producers can respond or anticipate pro-actively to the current institutional and organisational changes in domestic agri-food systems in developing countries. The overarching question is how can institutional and organisational change be fostered to increase the benefits of restructured agri-food systems to small-scale producers and rural entrepreneurs. In this respect we will focus on the respective roles of private and public sectors.

We define institutions as ‘the relations between individuals within the system of market interactions in which the players include producers, consumers and the state’. As well as the players, this definition includes the ‘rules of the game (relations between players)’ (Orden *et al.*, 2004). This definition is based on transaction cost theory of Williamson (1985) and North (1990), which focuses on institutions as efficient solutions to organisational problems in a competitive framework.

2 PROVISIONAL LESSONS FOR SMALLHOLDER INCLUSION

2.1 Changes in domestic food supply chains

Traditionally, small producers in developing countries have operated outside the formal sector, selling largely their surplus produce to local spot markets. However the recent growing concentration in domestic agri-food systems and the reversal of food chains from being supply driven to demand driven, have led to significant institutional and organisational changes that are affecting small-scale producers. This section aims to provide an overview of these institutional and organisational changes.

Rise of standards

Evidence from the earliest historical writings indicate that governing authorities were already concerned at ancient times with codifying rules to protect consumers from dishonest practices in the sale of food. The first general food laws and basic food control systems to monitor compliance were put in place in the second half of the nineteenth century. In the Austro-Hungarian Empire between 1897 and 1911, a collection of standards and product descriptions for a wide variety of foods was developed as the *Codex Alimentarius Austriacus*. Although lacking legal force, it was used as a reference by the courts to determine standards of identity for specific foods. The present-day Codex Alimentarius draws its name from the Austrian code. The Codex Alimentarius Commission was created in 1963 by the Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO) to develop food standards, guidelines and related texts such as codes of practice under the Joint FAO/ WHO Food Standards Programme. The main purposes of this Programme are protecting health of the consumers and ensuring fair trade practices in the food trade, and promoting coordination of all food standards work undertaken by international governmental and non-governmental organisations (www.codexalimentarius.net). The Codex Alimentarius comprises the following: food standards for commodities (237); Codes of hygienic or technological practice (41); Pesticides evaluated (185); Limits for pesticide residues (3 274); Guidelines for contaminants (25); Food additives evaluated (1 005); and Veterinary drugs evaluated (54).

With the relatively recent rise of food exports from developing countries, the safety and phytosanitary standards applied by developed countries to exports from developing countries have increased considerably. In response to the demands of consumers, European retailers and their global suppliers have created and implemented a series of private standards such as EUREPGAP. EUREPGAP is a set of normative documents or a protocol, which farmers around the world can use to demonstrate compliance with Good Agricultural Practices (www.eurep.org).

In addition, there has been a consumer-driven demand for high quality FFV translated into developed country supermarkets quality standards (in terms of appearance, size, shape, etc.) for FFV from developing country producers. Recently there has been attention to the rise of standards in domestic markets in developing countries (Berdegue *et al.*, 2004).

According to Berdegue *et al.* (2004), the speed with which supermarkets develop these quality and safety standards depends on: (1) *demand-side factors* (e.g. public education concerning health aspects of FFV consumption or enactment and enforcement of public health regulations with respect to produce); (2) *market factors* (e.g. availability of laboratories and affordable service fees to test products for contaminations; easier cross-border movement for produce to increase regionalisation of products and further convergence of standards; and expansion and deepening of public-private initiatives); (3) *supply-side factors* (e.g. compliance with quality and safety standards imply investments in training and infrastructure at the farms, packing sheds and distribution centres as well as affordable private labs to audit farms; public extension services that deliver adequate services to upgrade production and post-harvest practices to meet supermarket's needs; small and medium farmers assets are vastly insufficient to meet volume and consistency and year-round availability needs of supermarkets; and payments period of supermarkets is relatively long for small farmers. Especially the supply-side constraints mentioned above, can lead to exclusion of smallholders (Berdegue *et al.*, 2004).

Economies of scale

Besides quality and safety standards also the scale, volumes and consistency of procurement have changed in restructured domestic agri-food markets. To meet the new economies of scale, increased quality and safety standards, and to deal with the transaction costs, supermarket chains have in general shifted from procurement system store-by-store, relying mainly on traditional wholesale markets and brokers, to centralised distribution centres, and use of specialised, dedicated-wholesalers (sometimes part of the chain itself), and increasingly the use of preferred supplier systems (Berdegue *et al.*, 2004).

Coordination and Cooperation

In order to deal with quality and safety parameters as well as with quantity parameters and price premiums in restructured agri-food systems there has been a rise of contractual exchange in the place of spot markets. Contracts exist with a range of modalities: from 'verbal contracts' to contracts with weekly price negotiations and volume agreements per cropping cycle (Boselie, *et al.*, 2003). Basically there exists a continuum of coordination with on one end the spot market and on the other end vertical integration (Orden *et al.*, 2004). Between the two are hybrid forms, which can be divided into specification contracts, relation-based alliances and equity-based alliances with different coordination

characteristics of direction and control with regard to interdependence, information sharing, and duration of the relationship (Peterson *et al.*, 2001).

To meet the products and transaction conditions of retailers and processors, farmers require technology, financial capital, human capital and organisation. The capacity of smallholders to implement these changes is determined in large part by their assets (natural, physical, financial, human and social capitals). The high capital requirements for entering buyer-driven chains mean that the higher land and labour efficiency of smallholder production is no longer a comparative advantage: increasingly supermarket buyers in both industrialised and developing countries are sourcing from large commercial growers who can meet the changed requirements of buyer-driven chains. Due to these changes, smallholder producers are facing declining returns and increased risks for agricultural commodity production. However, although this is leading to a push from smallholder agriculture to wage labour in some cases, there is growing evidence that small producers can participate in supply chains to supermarkets and concentrated processing sectors in a manner that enhances their livelihoods (Boselie *et al.*, 2003). For this participation to occur, there is a need for small producers to organise themselves and cooperate (Vellema and Boselie, 2003). But this alone will not be sufficient. Studies by Berdegue *et al.* (2004) and others indicate that private collaboration is needed to support smallholders to develop strong and efficient organisations and to assist smallholders to make the necessary investments in technology, equipment, and entrepreneurship development.

2.2 Impacts of institutional and organisational change on smallholders: evidence from case studies

In this section we will further deepen the recent developments in agri-food supply chains and their impacts on smallholders on basis of case studies from Europe, Africa and Asia and for various products (including fresh and processed goods). The description and analyses of these cases will lead to a number of hypotheses for testing in future research (Section 3). It is the intention of the authors to challenge and refine some of the leading thoughts on agri-supply chain development.

2.2.1 Introduction of case studies

We selected 4 cases studies to demonstrate the diversity and heterogeneity in organisational and institutional change in agro-food chains and the ways in which smallholders can participate in commercial supply chains. The limited number of the cases does not allow for statistical analysis. The cases aim to show that we should be open to a multitude of options to include smallholder producers in both domestic and international food markets. Figure 1 gives a concise overview of the core elements of the selected cases.

The global rise and dominance of supermarkets has led to a line of thinking that follows the logistical strategies of the purchasing giants. Warehouse operations, transportation management, and supply chain optimisation strategies, tend to lead to the conclusion that we need to follow blueprint designs in finding solutions.

The case of TOPS Thailand confirms this global supermarket trend in which preferred supplier programmes are often a new modality for sourcing fresh food products. At the same time the TOPS experience shows that there is an inherent tension in the organisation between the newly introduced preferred supplier models and the traditional personalised arrangements in trade.

The Dutch horticultural experience with VTN/ The Greenery shows in a similar way that there might occur reversions in organisational modes. In a period of a decade horticultural producers organised themselves vis-à-vis wholesalers and retailers in cooperative auctions. Subsequently these cooperative auctions merged to a few large-scale marketing cooperatives, followed by individual (innovative) producers who started to leave these conglomerates to set up new small-scale producer associations who started to contract with supermarkets directly.

The case of Blue Skies emphasises the need of external assistance to build up the capacity and infrastructure for small producers to be included in the high-value fresh cut fruits salad export business. It proves that smallholder producers in West Africa can convert to and comply with increasingly stringent food quality and safety standards like EurepGap and HACCP.

The case of Nghe An Tate & Lyle describes a green field foreign direct investment project in the Vietnamese sugar sector. An enormous number (over 18,000 households in 2004) have been included as raw material/ sugar cane supplier to the foreign owned factory by the establishment of joint liability groups who received credit schemes and organisational support from national and international farmer banks.

Figure 1 *Main Characteristics of the Selected Case Studies*

	Case 1	Case 2	Case 3	Case 4
	TOPS Supermarkets	VTN/ The Greenery	Blue Skies	Nghe An Tate & Lyle
Country	Thailand	Netherlands	Ghana	Vietnam
Product	Fresh Fruit & Vegetables	Fresh Fruit & Vegetables	Ready-to-eat pre- cut fruit salads	Sugar
Nature of business	Domestic supermarket chain	Domestic sourcing of FFV in the Netherlands	International processed fruit chain	Foreign direct investment in domestic sugar processing
Horizontal cooperation	New grower associations (informal)	Traditional producer cooperatives & new grower associations	Produce Marketing Organisation	Joint liability groups
Vertical coordination	Preferred supplier model Contract-farming by wholesalers	Cooperative auction model Contracting	Contract farming	Contract farming between processor and outgrowers
Barriers for smallholders	1.Lack of social capital 2.Investment capital to create value added activities 3.Food safety & quality standards	1.Economies of scale / transaction costs 2.Investment capital	1.Lack of skilled manpower 2.Poor resources 3.Inadequate management skills	1. Investment capital
Comparative advantages of smallholders	Risk diversion CSR	N.A.	Commitment CSR	Landownership, labour
Strategies for inclusion of smallholders	Public Private Partnerships: (NL programme CLICT; Thai Department of Agriculture Programme)	New producer organisations	Private fruit processor driven development programme: EurepGap - PMO	Joint liability groups with support from farmer banks (both national & international)

2.2.2 Case 1: TOPS Thailand

The first case describes how a leading international supermarket developed a domestic sourcing strategy for fresh produce through the creation of infrastructure (a value added distribution centre) and a preferred supplier programme. Although the programme was not specifically designed for smallholder producers, this category was included through a number of organisational modalities: contract farming and newly rising (informal) grower associations.

Thai consumers are spending an increasing proportion of their income on fresh fruits and vegetables, the percentage of food expenditure having risen from 19% in 1985 to 24% in 1993. Most produce is sold in traditional market outlets, in ambulant street trade and in the so-called 'wet markets'. Overall, 5% of sales are made through supermarkets, although this proportion has already reached 50% in the capital Bangkok. In recent years, international retailers like for example Royal Ahold², Tesco, Makro, Carrefour have established supermarkets especially to serve Thailand's urban conglomerates. In 1996, Royal Ahold established a joint venture with the Thai Central Retail Corporation and started to operate more than 30 TOPS supermarkets (most of which are located in Bangkok and Chiangmai). From the start, TOPS proliferated itself as the supermarket chain for quality fresh food.

In 1998, TOPS began a supply chain project aimed at providing Thai consumers high-quality, safe, fresh produce with reliable availability at affordable prices. To achieve that goal, however, the supply chain faced a number of problems. For example, roughly 250 suppliers were delivering perishables directly to the backdoors of 35 stores at least three times a week. This meant high handling costs, significant post-harvest and shrinkage losses and low service levels (meaning that produce was often out of stock).

TOPS enlisted public-sector assistance and started the project with four objectives: raising the level of service within the perishables supply chain; reducing lead times and post-harvest losses and shrinkage; improving quality and safety of produce by developing preferred supplier relationships and introducing good agricultural practices and a certification scheme; and raising the knowledge and awareness of employees and professionals in the local food industry through on-the-job training (e.g. in HACCP) and a mini-MBA programme.

The TOPS supply chain focused on delegating value-added activities and selecting preferred suppliers. Since at the start of the project none of the fresh-goods suppliers performed the value-added functions required (e.g., sorting, washing, packaging), the

project decided to build a fresh distribution centre that would also perform productive functions like quality control, washing, packaging and processing. This value-added centre was a complete green-field operation located on the edge of Bangkok. The centre served as the locus for the project's work to improve supply chain performance for perishables.

A number of noteworthy results were achieved:

- Establishment of the fresh distribution centre in Bangkok;
- Reduction of the number of suppliers from 250 to 60, with 40 out of the 60 certified by the Department of Agriculture (DoA) and carrying the DoA label in 2001;
- Provision of training to quality control managers at the TOPS distribution centre and in the stores, with the service level increasing to 98%;
- Development of a 'road map' (or in other words, a practical blueprint) to achieve trusted third-party certification for food safety assurance in emerging fresh markets;
- Reduction of the lead-time from farm-to-fork from 68 hours to less than 24 hours;
- Reduction of post-harvest and shrinkage losses; and
- During the chain optimisation process, standardised crates, pallets and crate washing facilities were introduced. Most major players in the Thai retail industry (including leading suppliers) accepted the TOPS standard.

Position of the smallholder.

Smallholders were involved in the TOPS supplier network in two ways: first, via the network of contract farmers and buyers who became preferred suppliers because of their ability to exert backwards control on the supply chain and, second, via a new phenomenon of informal farmers' associations. In these associations, professional growers within a family or village joined forces and exchange experiences and farming knowledge. These groups seemed to meet all the preconditions for developing into full-fledged growers' associations and engaging in long-term direct business relationships with retailers. Although one of the goals of the preferred supplier programme was to reduce the total number of suppliers, it was not specifically targeting smallholder producers as such. On the contrary: those smallholders who could deliver volumes, consistent supplies and quality via contract farming schemes or new associations, were included in the sourcing portfolio of the supermarket. Those producer/ suppliers who could not develop value added activities and meet the above-mentioned supply criteria were excluded from further deliveries.

Cooperation and the development process

Between 1998 and 2002, the emphasis of the supply chain development strategy gradually changed from chain optimisation (reducing post-harvest losses, shrinkage, handling costs)

² Sold to Central Retail Corporation in 2003.

to integral chain care (HACCP, good agricultural practices, certification). Chain partners established cross-border public-private alliances with international research institutes and ministries of agriculture to find ways to increase food safety assurance and improve certification, as well as to strengthen research and education capacity about and within the food chain. The project became affiliated with the Department of Agriculture's certification programme to increase public awareness and gain trust and to build the image of a reliable and responsible retailer. Chain leadership was in the hands of the retailer, the supermarket, which prioritised the interventions and set the pace for the process of change.

Conclusions

The main challenges the project encountered were intercultural barriers. For example, the preferred supplier programme ran up against the traditional Thai system of personal networks in agricultural trade. Buyers and suppliers customarily maintain personal relationships to create stability and continuity in trade, despite the fact that this is not always economically efficient. Consequently there has been some resistance to optimisation of the supplier network. After Royal Ahold withdrew from the joint venture at the end of 2003 and disposed of its TOPS chain to its Thai partner CRC, the TOPS category managers for fresh produce started reverting from the new preferred supplier model to the traditional personalised buyer-seller relationships.

The TOPS case illustrates a number of aspects: a) globalisation and the consolidation of the international supermarket industry brings integrated supply chain principles and concepts to all corners of the globe; the creation of value added centre and new preferred supplier relationships are part of this development; b) although at a disadvantaged position with regard to economies of scale, smallholders can continue to be included in this segment by organising themselves in specialised grower associations and focussing on labour intensive crops and production methods like organic vegetables; c) old habits and structures between buyers and suppliers are resistant to change; newly established preferred supplier models are vulnerable to old personal ties that deal with monitoring and compliance mechanisms in an alternative way.

The critical reader might remark that the supplier reduction from 250 to 60 is a clear indication of an ongoing process of exclusion of certain categories of producer/ suppliers. However, there were various reasons for farmers/ suppliers to exit the relationship with the domestic supermarket chain. A small category moved upwards to the export markets (a few of TOPS suppliers became actually supplier of the Ahold subsidiary in the Netherlands). Another category started supplying competing supermarkets. And another category started supplying the traditional wet-markets or stopped their business.

2.2.3 Case 2: VTN/ The Greenery

The second case study from the Netherlands fruit and vegetable sector demonstrates that supply chain development, cooperation and coordination is not a linear process and that chain alignment and re-alignment can follow upon each other. The case study concerns the development experiences of the cooperative trade organisation (auction) VTN/ Greenery and the rise of new vegetable producer organisations in the Netherlands.

For more than one hundred years, the auction was the dominant instrument for selling Dutch fresh produce like fruits, vegetables and mushrooms (Bijman, 2002). The auction was an efficient way of selling perishable products supplied by a large number of growers and purchased by a large number of wholesalers, retailers and exporters. While it is still the main instrument for selling ornamentals, in fruits and vegetables the auction has lost its dominance in the 1990s. Nowadays, most Dutch fresh produce is sold by way of contract mediation between retail and farmer associations.

Pressure to restructure the auction

In the early 1990s, several large and innovative growers became increasingly dissatisfied with the auction. Large growers felt that the cost allocation system of the auction (paying a percentage of the sales as auction fee) resulted in subsidising small growers. Most dissatisfied, however, were those growers who saw new market opportunities for specialty products. These innovative growers wanted to meet the increasingly heterogeneous consumer demands by producing new crop varieties. While producing such high value added crops was not a problem – often the seed company provided specific cultivation advice – they experienced that the auction system did not support such differentiation. There were three reasons why the auction cooperative had a hard time in coping with these developments:

- 1) Specialty products require a special marketing effort, for which the auction did not have the expertise. Most auctions did not want to start product-specific marketing activities, as it did not fit with the traditional policy of equal treatment of the members and collective product promotion. In the democratic decision-making process the votes of the innovative growers were far too few to be able to force a change of strategy;
- 2) The auction clock may have been a very efficient sales mechanism for generic products; it provided a disincentive for product differentiation. At the auction location, all fruits and vegetables were sorted into quality classes. The lots that were brought before the auction clock represented one quality class, but contained products from different growers (i.e. products were sold in ‘blocks’). This type of bundling affects a grower’s production decisions in several ways. Producing for an anonymous

market gives an incentive to supply generic products. There is no incentive to meet special demands of a particular customer;

- 3) Because being a member of the auction cooperative obliges a grower to supply all its products to the auction, there was (officially) no opportunity to select an alternative sales channel for more innovative products. Still some growers did try out alternative sales channels by directly contracting a small part of their harvest with wholesalers, and found out that they could receive a higher price.

In conclusion, growers with the potential to innovate and develop specialty products had an incentive to leave the auction cooperative and contract with wholesalers directly³.

Wholesalers and retailers were eager to contract with them as they too saw new market opportunities for specialty products. More importantly, retailers wanted to get rid of the auction as the main sales method, as it confronted them with uncertainty and high costs.

From cooperative auction to marketing cooperative

Most fresh produce auctions in the Netherlands have gone through restructuring processes in the 1990s. The number of fruit, vegetable, and mushroom auctions has decreased from 28 in 1990 to 20 in 1995 and 6 in 2001. VTN/ The Greenery is by far the largest marketing cooperative for fresh produce in the Netherlands. With an annual turnover of more than 1.5 billion Euros, it sells about half of all vegetables produced in the Netherlands. It was established in 1996, with the merger of nine auction cooperatives. Since this merger, major changes have taken place in the functional and organisational characteristics of the company. First the importance of the auction clock as a price determination mechanism has greatly decreased; only about one third of all members' products are now sold through the auction clock, the rest is sold through contract mediation. Second, the Greenery has become a major wholesale company; in 1998 it acquired two major groups of fresh produce wholesale companies and it has integrated its sales activities with the purchase activities of the wholesale subsidiaries. Third, it has developed a customer-oriented strategy, as it wants to become the preferred supplier of several large food retailers in Europe. Fourth, it has implemented an organisational division between the cooperative society (VTN) on the one hand, and the cooperative firm (The Greenery) on the other hand. The effect of this separation is that the growers only have indirect influence on the activities of the firm.

The rise of new producer organisations

Growers who wanted to exit the auction cooperative and contract with wholesalers directly were faced with a dilemma. Wholesalers were not interested in dealing with

³ Although we cannot compare the size of Dutch commercial growers with smallholders in the emerging economies the same principal applies that the majority of them is considered to be too small to supply supermarkets or

individual growers (except for very large producer), and growers knew that their bargaining position vis-à-vis the wholesaler was weak when negotiating individually. Selling their products collectively would improve the attractiveness and the bargaining power of the growers. Therefore, producers who left the cooperative auction have established new producer organisations. Some of these organisations also facilitate knowledge exchange among members, set up quality systems, and develop product specific marketing activities. Since the early 1990s a large number of new producer organisations have been established in Dutch food horticulture (in 2001 the Chamber of Commerce registered 74 new organisations).

Conclusions

Though the VTN/ The Greenery case is drawn from the Netherlands it gives a nice historical description of the evolution and devolution of producer relationships that was driven by market demands and opportunities. While initially organising themselves in cooperative auctions to gain bargaining power vis-à-vis traders and retailers, the most innovative producers and those specialising in specialty products left those generic associations for the lack of positive incentives and rewards. Subsequently new producer associations of those entrepreneurs arose to benefit again from the economies of scale, joint learning and bargaining power.

2.2.4 Case 3: Blue Skies Ghana

The third case illustrates how smallholder producers of tropical fruits could be included in an international export chain for fresh-cut fruit salads from Ghana to Europe. Ghana's pineapple industry is made up of 60 registered exporters with nine of them supplying about 72% of the total exports (COLEACP, 1998). The fruits for export come directly from commercial farms, however about 45% of total exports is obtained from smallholders' farms. Most of the commercial farms are themselves grower/ exporter with average farm holdings of 120 hectares. In 2003, there were two pineapple processing plants, Blue Skies with a weekly production of about 60MT serving mainly the UK market, and Tongu Fruits processing about 40MT per week for the Dutch market. Both units produce peeled and sliced product in natural juice in semi-rigid packages. In addition there are two juicing plants, which are currently operating seriously below capacity.

Blue Skies started the production of processed tropical fruits early in 1998. Based on the trend that the consumer wanted still fresher and riper prepared fruit, Blue Skies put the factory where the fruit is. They chose their site in the Eastern Region of Ghana where tropical fruit grows year round. The factory is only 35 kilometres from the airport from

wholesalers individually. Some kind of clustering or organisation is required before becoming an interesting supplier.

where all major airlines operate regular service to Europe. The factory employs 250 local people who assemble, prepare and dispatch the fruit each day to Europe. Food safety, service to the customer, a close relationship with about 30 farmer-suppliers and support of the employees has the highest priority.

Since starting the business Blue Skies has developed close and special links with a broad range of partners whose activities include: delivering assistance to the farmer/ suppliers, in the form of agricultural education and advice – through to developing a sound transport and logistic infrastructure, alongside developing resilient and suitable packaging processes and Quality Management. The contract farmers range in size from smallholder (7 ha) to large-scale (245 ha). Approximately 30% of Blue Skies' suppliers are smallholders. All farmers who supply Blue Skies follow a code of behaviour that observes social responsibility, protection of the environment and Good Agricultural Practice.

The EUREP-GAP Code of Conduct

Blue Sky Products (Gh) Ltd. complied with EUREPGAP in November 2001. Blue Skies has signed up to the protocol in order to maintain its current market share in UK as well as to demonstrate due diligence. Blue Skies operates as a Produce Marketing Organisation (PMO) with different types of farmers per crop. It has a PMO EUREPGAP certificate for pineapple with 18 growers. It spent close to US\$ 82,000 in going through the process (pers. com. Anthony Piles, CEO). Blue Skies, like others involved in development work, wanted to know the developmental impacts of Codes of Practice (in this case the EUREPGAP protocol), including their specific impact on poverty reduction (Gallat, 2001). In particular, they wanted evidence of whether or not codes of practice benefit smallholders, and how smallholders can comply with the European standards. The following is a summary of the impact of EUREPGAP on smallholders, based on this study:

- Smallholders operate as individuals, as out-growers to some exporters or as group associations (mostly for training in agronomic practices and not group marketing). Those who grow the export variety (Smooth Cayenne) and are situated in the pineapple-growing zone, tend to copy what the commercial growers do without understanding the reasons behind their activity. As a result of incorrect use of agro-chemicals and a disregard or ignorance of safety issues to both humans and the environment, the quality of the produce that is obtained from their farms is lower. Consequently it is a major step for them to convert and comply with the strict food safety standards of EurepGap. On-farm training and farmer field schools are an essential ingredient to build up their capacities.
- A larger number of the smallholders are illiterate or only basically literate and numerate. They do not have first-hand information on horticultural practices, lack the

resources to access credit that would enable them expand their farms and therefore cannot take advantage of changes or opportunities in the global market. The exporters who deal with them have very loose arrangements in terms of fruit purchase, pricing and terms of payment. Smallholder individuals therefore struggle to meet the EurepGap requirements of record keeping and creating infrastructures for the storage of agro-chemicals and packing stations with access to drinking water.

- Lack of skilled manpower, poor resources and inadequate management skills at all links of the chain from cultivation to marketing, act as a higher level of restriction in trade, making it more difficult for smaller suppliers in particular to comply with standards in international markets. Other factors inhibiting smallholders include access to pre-cooling, cooled transportation and cold stores.

Intermediate analyses indicate that there were wide variations among the growers in terms of the significance of what they do and own as manifested below:

- Changes in the total cost of production were not statistically significant during the period under investigation. The gains made as a result of savings from the use of agrochemicals was offset by the incremental costs incurred due to investments in infrastructure that was statistically significant. There were other costs that were not considered under this investigation such as the costs of training, analysis (soil, water and blood) and certification audit which were all borne by Blue Skies.
- Growers, especially the smallholders, spent a significant amount of resources in putting up infrastructure in order to meet the requirements of the EUREPGAP protocol. Growers would have been better off with some financial support.
- The EUREPGAP protocol brought about changes in the farm size of the growers who realised that larger farm sizes would bring about economies of scale to businesses that was not initially the case.
- The Produce Marketing Organisation (PMO) scheme enabled most growers (small holders) to achieve the EUREPGAP compliance status despite the large differences among them. The advantages outlined in the benefits were great motivation for the growers without which the system would have certain difficulty in ensuring compliance.
- Benefits – Growers were quite pleased with the whole programme because of the various forms of benefits the EUREPGAP protocol has brought them, guaranteed markets with Blue Skies, training in and the use of agrochemicals (savings) for health and safety, environment and the workers (security).
- Analyses performed on data on rejects for two subsequent periods showed that there was no significant difference in reject rates indicate that the effects of the EUREPGAP on the quality of the fruits had not been realised yet.

Conclusion

Private codes of practice like EurepGap require a lot from smallholders in terms of knowledge, skills, group formation and investment capital. The Blue Skies case shows that if such crucial ingredients are provided properly smallholder producers can be included in the high value processed fruit salads industry. In a joint effort from private industry, international NGO (NRI) and public sector technical assistance of the Plant Protection and Regulatory Services Department a group of pineapple producers was assisted to convert and comply with the new standards.

2.2.5 Case 4: Nghe An Tate & Lyle

There is growing evidence that foreign direct investment (FDI) in the food and agribusiness in countries in economic transition produces benefits that go beyond the boundaries of the individual companies and their shareholders (cf. Gow & Swinnen, 1998a & 1998b). There are spin-off effects of these operations over the entire food chain from upstream primary production to the downstream marketing of produce. For example, foreign processing industries arrange reliable credit sources for farmers, provide stable outlets for their produce by introducing new contracts, new technologies and knowledge transfer, and boost domestic markets with their efficient sustainable production.

This case study illustrates this contribution with case material from the sugar industry in Vietnam that expanded rapidly in a period of strong national economic growth of close to 10 percent on a yearly basis. This correlation between growth of GDP and the increase in demand for high quality sugars must be understood by the fact that sugar consumption is very closely related to income and therefore economic activity. In Vietnam and China, where the economies were in earlier stages of development in the 1990s, consumption was still at the levels recorded in Thailand and Indonesia during the late 1960s.⁴ Since it was only possible to use lower grade handicraft sugars in domestic recipes but not in industrial uses such as soft drinks or baking applications it was very important to expand the industrial capacity.

Foreign investments in the sector started flowing into various regions of the country. One of these examples was Nghe An Tate & Lyle (NAT&L), a foreign joint venture between a local state owned company Nghe An Sugar Company (NASC) and an international consortium Anglo Vietnam Sugar Investments, that was licensed in February 1996 and operates its factory in the North Central Coast region. The NAT&L operation drew special attention because it was one of the most recent green-field operations in the international sugar branch (most of the international investments in sugar processing facilities were

⁴ In Indonesia and India consumption doubled between 1968 and 1991, (to 14.4 and 14.3 kg/person respectively), while in Thailand it almost trebled to 20.9 kg/person.

directed towards existing plants instead of establishing complete new ones) working with thousands of small scale farmers.

Solving unstable raw material supply & credit constraints

One of the major challenges that sugar refineries were facing during the last years of reforms was guaranteeing the continuity of raw material supply. In 1997-98, 35 sugar mills nation wide ran under 50% of production capacity (VET, March 1999). While some sources referred to 'undeveloped sugar planting areas' being the main problem, it seems more likely that corruption and a serious lack of capital were the real reasons for the slow down in production.

Credit constraints:

Most of the growers in the region were basically subsistence farmers and therefore hardly able to invest in a new crop. However credit is an indispensable component of cane growing since it takes about 14 months between planting and harvesting the first crop. The total investment for a new grower (including land preparation, seedlings, fertiliser (NPK& Urea) could be up to 300 US\$ per hectare and 50 US\$ for the subsequent 3 ratoons.

As an initial investment Tate & Lyle covered the expenses for a total of 2,000 hectares: 500 hectares received cash subsidies worth of 65 US\$/hectare and 1,500 hectares got free seeds and fertiliser input supplies worth of about 300 US\$ per hectare in order to demonstrate appropriate agricultural practices. Also the local government invested money in the promotion of cane growing; they provided a subsidy of 28 US\$/ hectare to those who wanted to engage in cane cultivation. Furthermore the government gave the growers a land tax exemption.

In addition to these subsidies a special credit programme was set up by Rabobank Foundation (from the Netherlands), the Vietnam Bank for Agriculture and Rural Development (VBA) and Vietnam Bank for the Poor (VBP). The project focused on the disbursement of working capital in the form of small term loans. The distribution of credit and advice on financial management and training in several subjects were integrated. Since the credit distribution to finance small loans to a large number of clients was very expensive it was decided to form member groups on a co-operative basis (each consisting of about 50 members).

To reduce handling costs a starting capital (loan) was disbursed from VBA/ VBP district office to the joint liability groups (JLGs). Thereafter the group became responsible for the financing process to the members. In these JLGs there was a joint liability between the members. They together were responsible for the development of the group and the debts

of the group; liabilities to VBA/ VBP as well as to other related parties and organisations. The mandatory savings of the members and the equity of the group manifested this liability. The formed groups consisted of members that had monthly meetings and a board consisting of a Chairman, Treasurer and Secretary. Programme officials assisted the groups to elect the Board, set out the policies and regulations for the groups operations and identify the functions and responsibilities for each level in the group. Furthermore, the loans or starting capitals from VBA/ VBP's district branches to the groups were repaid over four years in instalments: first year: 0%; second year: 10%; third year: 20%; fourth year: 30%; fifth year: 40%.

The groups were obliged to deposit their funding surplus into the current accounts at VBA/ VBP's district office. The balances in the current accounts should be in accordance with the liquidity settlements, namely 10% of the total balance sheets. In the initial stages the liquidity of the group was equal to the total amount of initial and compulsory savings. When this amount reached the 10% mentioned above, the surplus could be used for lending to the members. If a JLG had an amount of loans in liquidity settlement, the group was not allowed to withdraw from its current account for lending. As soon as overdue loans for a group amounted to approximately 10% of the total amount of outstanding loans, the groups must suspend its lending activities immediately and recover the loans.

In August 1999 joint liability groups representing 8,674 growers cultivating 5,702 ha had taken loans up to a total amount of nearly 1.57 million US\$. In the beginning of 2004 the total number of growers had increased to more than 18,000 growers.

Conclusions

The case study shows a number of things: a) foreign direct investment in the sugar processing industry of Vietnam expanded rapidly as a response to a strong domestic demand for soft drinks, confectionary and ice-cream products; b) instead of being a threat this influx of FDI provided opportunities for smallholder producers after they were organised into joint liability groups; c) an essential ingredient for the successful organisation and integration of the smallholders was based on an extensive credit programme that was offered as a total package of training and funds.

2.3 Overcoming barriers for small producers to enter buyer-driven chains

Converting traditional production systems to comply with the broad array of requirements from supermarkets and processing industries requires a combination of technological and organisational adjustments. For most small producers in developing countries, the concept of more formal 'contracts' or at least a commitment to supply an agreed quantity of a product at an agreed time, that meets pre-specified quality requirements, is novel (Boselie,

et al., 2003). This is particularly an issue where producers are geographically scattered and have little access to market information.

Transaction costs

Where significant changes to production practices, and/ or development of infrastructure are required, the *costs of achieving these standards*, which is borne even before supply, can be prohibitive for small producers with small amounts of land and limited or no access to credit. In the case of Blue Skies it was the UK processor who provided the investment capital to assist the producers to convert and comply with EurepGap and HACCP⁵. Where producers are widely scattered, *transport costs* to centralised collection facilities can be considerable, particularly where supermarkets or processors require chilled distribution. Due to a lack of value added activities like pre-cooling and cooled transportation, TOPS started a preferred supplier programme and built a distribution centre to introduce those facilities. Once fully operational these tasks were gradually transferred to the preferred suppliers themselves. Furthermore the *coordination costs* of supply chains that involve numerous small producers can be prohibitive, particularly where monitoring and/ or traceability requirements are in place. The Dutch cooperative auction system is an example where the bundling of fresh produce supplies have improved the efficiency of the supply chain and at the same time strengthened the bargaining position of the individual farmers.

Risks

Furthermore, the risks to small producers of producing to strict quality requirements can be considerable. Dorward *et al.* (2004) distinguish four types of risks that may inhibit productive investments necessary to promote economic growth and wealth creation in poor rural areas: risks of natural shocks, price risks, economic coordination risks⁶ and risks of opportunism⁷. Dorward *et al.* (2004) argue that economic coordination risks and associated risks of opportunism are particularly problematic in poor rural areas, with very low levels of economic activity, poor transport and thin markets. In contrast to well-developed economies with rich competitive markets where players can generally be confident that the market will provide coordination, poor rural areas with thin markets require particular attention to problems of coordination failure and prices risks, and at least the development of non-market coordination mechanisms to reduce these risks. Those Thai wholesale traders who were able to control the supply chain backwards e.g.

⁵ The Hazard Analysis Critical Control Points, HACCP, is a food safety standard based on a systematic and structured process approach of all steps in the entire production and handling process.

⁶ Economic coordination risk: risk that neither any other actor will make necessary complementary actions.

⁷ Risks of opportunism: risk that an actor who could make complementary actions has an effective monopoly and is able to capture an undue share of the revenue in the supply chain

through contract farming schemes were able to classify themselves as preferred suppliers for TOPS.

Human capital - Need for capacity building

The case of Blue Skies demonstrates that capacity building and training were key-elements to bring smallholder producers to the right level for a consistent supply of quality products. Mostly private money and private consultancy support was mobilised by the processor. TOPS managed to create a public-private partnership with the Thai Department of Agriculture with the main goal to train farmers in good agricultural practices and help them comply with the DoA food safety standard.

Financial capital

In the case of Blue Skies the capital requirement was covered by the UK processor. Although the financial capital needs were originally one of the core themes of the cooperative auction movement, nowadays the access to formal credit institutions like the cooperative farmers bank, Rabobank, has filled in this gap. In the case of Nghe An Tate & Lyle, an essential ingredient for the successful organisation and integration of the smallholders was based on an extensive credit programme that was offered as a total package of training and funds

2.4 Comparative advantages of small producers

Despite the challenges associated with buyer-driven chains, our cases show that parts of the small producers continue to be involved in these chains. In the case of TOPS this reflects the comparative advantage that the better small producers have over large commercial growers in some cases when organised into specialised associations for certain crops, but also the effort by TOPS and its suppliers to implement strategies that facilitate the continued involvement of small producers. This included the close cooperation between TOPS and Syngenta (an international life science company) to provide suppliers with outgrower schemes with high quality seeds, improved crop protection methods and agricultural extension services.

To a large extent the comparative advantage of small producers relate to the production characteristics of the crops concerned, production technologies and associated labour requirements. Experience from Hortico in Zimbabwe shows that small producers supplying a vegetable exporter managed to achieve lower rejection rates for certain non-traditional vegetables (e.g. baby corn) than large-scale growers due to their high commitment to the crop and labour-intensive production techniques (Boselie *et al.*, 2004).

Given that many of the production techniques required for growing crops demanded by supermarkets and/ or to meet quality requirements cannot be mechanised, there may be

very limited economies of scale in production. Indeed, small producers may have lower costs of production because they achieve higher yields and/ or are less capitalised. These can at least partially offset the higher management costs typically associated with procurement from small producers.

In certain cases, the traditional agronomic and production practices employed by small producers are more amenable to the requirements of supermarkets than the more intensive methods typically used by large growers. A clear example is fruit and vegetables produced to organic standards. In Thailand, the domestic supermarket chain TOPS has found that small producers are able to adapt to organic production methods because practices such as crop rotation and selection of resistant varieties are long-established elements of their traditional production systems.

A geographically dispersed base of small producers can be an effective risk-spreading strategy for supermarket suppliers and/ or can afford flexibility in the procurement of relatively small quantities of product that meet specific and exacting standards.

3 CONCLUSIONS AND HYPOTHESES FOR FURTHER RESEARCH

In order to understand the strategies by which small scale producers can respond or anticipate pro-actively to institutional and organisational changes in agri-food systems we analysed four case studies.

The cases indicate that for smallholders the benefits of new supply chain management (or should we call it contract farming) are that it can provide information on new products, input, credit and extension services, and marketing services. These can ease the resource constraints farmers face otherwise, and reduce production and marketing risks for farmers. Some services such as information and extension services that private supermarket supply chains may provide to farmers can also save scarce public resources. Because of supermarkets, agents such as traditional vendors based in villages and sub-districts, and wholesalers based in districts and big cities, are usually bypassed in the modern procurement system, reducing the transaction costs smallholders will normally bear (see also Orden *et al.*, 2004).

Furthermore the role of strong social networks appears to be important. Strong social networks (or social capital), create trust and facilitate cooperation, reducing risks and transaction costs (DFID, 1999). Trust is an important factor in shaping the effective and efficient supply chains. Networks need to be strengthened both vertically (e.g. producer-industry), as well as horizontally (e.g. strengthen the producer organisations) in order to increase people's trust and ability to cooperate, and expand access to markets.

It is increasingly clear that the institutional infrastructure is a critically important factor for smallholders to maintain their competitiveness in restructuring domestic and regional markets. According to Gabre-Madhin (2004), institutions play five potential roles in strengthening markets for agricultural products produced, bought, and sold by smallholders: reducing coordination costs; reducing risk; enforcing contracts; enabling collective action; and building human capital. Increasingly, the strategies aimed at including small producers in supermarket supply chains involve partnerships between public and private sector stakeholders. Frequently these have been supported by donors and involve academic and/ or research institutions from industrialised countries partnered with domestic institutions.

Public-private partnerships are often seen as a panacea for development. The process of establishing partnerships is often ignored, even though it generally determines future success. During the pre-partnership stage, particular attention should be given to the transparency of interests (who does what?), the redefinition of roles (who is best at what?)

and the timing of intervention. It is a general misunderstanding that public-private interventions should always take place synchronically with each other, whereas in fact, most interventions have an optimal time dimension. For example, public investments may be required before private initiatives can be undertaken. A time frame of optimal action by public and private actors is therefore an essential element of a formal partnership agreement. Another element often excluded from public-private partnerships is the role of civil society. Evidence from literature supports the observation that the private sector only responds to organised production and ignores individual smallholders. Producer organisations reduce the procurement costs and may increase the level of trust. They can influence government policy and are more likely to be creditworthy. Strengthening the level of organisation of rural producers can neither be a role of the government, nor of the private sector. This will require a public-private-civil society partnership (Van de Kop *et al.*, 2004).

The four cases do not allow us to draw statistically significant conclusions but form a basis to put forward a number of interesting hypotheses. The global rise and dominance of supermarkets has led to a line of thinking that follows the logistical strategies of those purchasing giants. Warehouse operations, transportation management, and supply chain optimisation strategies, tend to lead to the conclusion that we need to follow blue-print designs in finding solutions. However, the international grass roots reality appears to be far more heterogeneous.

On basis of the case study material we come to the following hypotheses:

Hypothesis 1: *There is not a single unique design for organisational modalities of supply chains or other alliances. Although intrinsic product characteristics and agro-ecological circumstances might induce preferential modes of production and exchange, there are other factors allowing for organisational diversity and success.*

Fruit and vegetable procurement regimes are usually characterised by high frequency, constant delivery and stable quality. Delivery arrangements between growers and supermarkets can be based only on well-observable output characteristics (volume, size, colour) but could also include more detailed specifications of the input requirements (e.g. type of seed, fertiliser use, pesticides applications, packaging, etc). In the latter case, the buyer tries to enforce particular resource use decisions made by the growers and thus reduces the uncertainty regarding the desired product attributes (taste, quality, food safety and freshness).

Supermarkets' procurement strategies, which include functional aspects such as warehouse operations, transport management and packaging are influenced by the characteristics of specific product category. These characteristics concern technical matters like seasonality, storability, transportability and processing on the supply side, but also aspects on the demand side such as consumers' preferences and the value of the commodities. In addition, quality control problems are of a specific nature in the case of fresh fruits and vegetables. Buyers face problems for monitoring the quality, safety and shelf life of products. Pesticide residues and phytosanitary aspects of production and trade are difficult to detect but influence business relationships between sellers and buyers. In order to guarantee traceability, retailers search for sustainable partnerships with producers that reduce such information and screening costs and reinforce trust amongst chain agents.

The selected case studies confirm the importance of control and sustainable relationships but also show that the search for these partnerships results in a broad range of modalities. Within the preferred supplier programme of TOPS there were two ways in which smallholders were included: a) through contract farming with selected wholesalers; b) through the establishment of new village level associations.

Hypothesis 2: The formation of supply chains and networks is not a linear process; chain alignment and re-alignment follow upon each other continuously.

A central theme in the global food industry developments is the rapid rise and dominance of supermarkets. By now we may conclude that no region remains untouched by this development. Although this development induces similar phenomena in organisational restructuring, we also see a continuous process of alignment and re-alignment taking place. The case of the Greenery describes a process of collectivisation, cooperative formation and subsequently a phase of dis-integration followed by a start of new small producer associations. Apparently, retail driven quality requirements were not transferred optimally through the large-scale collective auction; smaller associations appeared to be more responsive, flexible and innovative.

Hypothesis 3: It is questionable whether the unique selling points and competitive advantages of smallholder producer systems can ever outweigh the costs of convergence and compliance with the increasingly high retail (quality) standards. There are indications that the inclusion of smallholders can only be guaranteed through substantial support and co-investments from public resources.

The cases of Blue Skies (Ghana) and Nghe An Tate & Lyle (Vietnam) indicated that the strategies aimed at including small producers in supermarket supply chains often involve

partnerships between public and private sector stakeholders. In many cases these partnerships are being supported by donors and involve academic and/ or research institutions from industrialised countries partnered with domestic institutions. Supermarkets and/ or their suppliers need to work closely with groups of producers in order to communicate clearly their requirements and how (and why) these change over time. Further, they have a role to play in facilitating compliance through programmes that, over time, enhance the capacity and self-reliance of producers. Public authorities must provide a policy environment that promotes mutually beneficial partnerships between supermarkets and small producers and a legal framework that protects the economic interests of the parties involved. They also have a role in the development of infrastructure, from road networks to extension services and rural credit institutions, which meet the needs of small producers operating within supermarket supply chains, particularly whilst private sector capacity develops.

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