Cooperation and Strategic Fit in the Supply Chain of Thai Fruit

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Keywords: food standards, tropical fruit, supply management, strategic management, social networks, multi-stakeholder perspective, participatory methods

Abstract

Maneuvering as an individual actor seems to be common practice in the competitive Thai fruit sector. This paper reflects on a participatory methodology used in a multi-stakeholder process initiated to create linkages and to explore a possible strategic fit between different actors in the supply chain of Thai fruit. Fundamental to the approach was the idea that understanding diversity of interests, building new relationships, enhancing collaboration and combining individual strategies may strengthen the integral performance of a supply chain. From our practitioners' perspective, robust and responsive networks of chain actors might be better equipped to create value and to deal with market demands. Underlying this practitioners' perspective lies the question whether individual behavior enables small and medium enterprises to cope with the requirements of competition and regulation or whether a focus on relations with other businesses and public agencies may enhance their performance. An insight generated during this process was that a viable supply chain or sector strategy requires a feasible balance between market-driven strategies, i.e. standards of food safety and quality, and production-driven strategies, i.e. management of seasonal oversupply in specific production regions and technology development. Consequently, resilient collaboration between partners needs capacity to construct a strategic fit, while acknowledging individual behaviors.

INTRODUCTION

In the markets for fresh fruit in Europe, the United States of America, Japan and increasingly, in urban centers in South and Southeast Asia, the sales of a wide variety of perishable tropical fruits show high growth both in terms of volume and value (Reardon and Barret, 2002; Reardon et al., 2003; Boselie et al., 2003; Dolan and Humphrey, 2000). In these competitive markets for fruit, the capability to assure quality and to guarantee food safety is a key to success (Unnevehr, 2003; Cato and Subasinge, 2003; WHO, 1997). Both public and private sectors have built an array of food safety and quality standards and regulations to cope with an impending commercial threat caused by hazards posing public health risks (Jaffee and Henson, 2004; Henson and Loader, 2001; Dankers, 2003; Hobbs, 2003; Boselie and Buurma, 2003).

Horticulture represents a highly differentiated product market in which grades and standards strongly determine access to markets and condition the rules for competition (Vellema and Boselie, 2003). Understandably, producers and companies active in fruit export are tempted to merely adopt all new requirements en masse and to focus strongly on compliance with externally defined standards. However, this might be a mistake given

Proc. Ith IS on Supply Chains in Transitional Econ.
Ed.: P.J. Batt
Acta Hort. 699, ISHS 2006

the differences in business practices, agro-ecological conditions and socio-economic circumstances (Barton et al., 2004). Accessing export markets with stringent quality and safety standards can modify the structure of primary production and supply chains to accommodate these standards (Dolan and Humphrey, 2000). This raises questions like what kind of institutional arrangements may result from the integration of markets, how these are affected by market coordination or technical controls, and how they may impact on the integral performance of the supply chain.

We approached these questions as practitioners in supply chain development and developed a participatory, multi-stakeholder approach aimed at linking different chain actors and to make them more resilient in coping with other stakeholders. Developing an efficient chain is inherently difficult because it necessitates long-term collaboration and trust between trading partners whose a priori individual mindsets are focused on short-term gain. Connecting stakeholders along and across supply chains involves socio-cultural factors (Batt, 2003; Cadilhon et al., 2003; Lazzarini et al., 2001). This motivated the introduction of a proactive strategy, involving the construction of linkages or networks capable of anticipating changing demands and tailoring requirements to existing business practices and innovative capacity, rather than waiting for measures and responding to them defensively. The challenge is to convince stakeholders of the value of such a network approach, because it may contrast with immediate interests or individual behaviors.

The relevance of managing complex business-to-business relationships and the need to strategically manage these relationships has been introduced by Ford et al (1998). Business relationships emerge from continuous interactions between companies and other actors, while specialization increases interdependence and complexity (Tikkanen and Tuominen, 2000). Therefore, actors have to cope with varying aims, expectations and ways of dealing with each other, which may become a distinct task. These observations fit the approach examined here and raise the question whether a supply chain or industrial network can employ strategic thinking in a joint approach to the market for fruit, where business-to-business and public-private relationships shape the complex environment.

The context for this approach is derived from the evolving food provision system in Southeast Asia, including small independent stores supplied by wholesale markets and supermarkets or cash and carry's supplied by contracted or preferred producers (Cadilhon et al., 2003; Buurma and Saranark, 2004). The Thai government actively supports the development of viable economic clusters as part of its program for local-scale product specialization (OTOP: One *Tambon* -village- One Product), to stimulate export and value-adding in fruit and vegetables.

The industry is typically composed of a variety of small and medium enterprises active in the supply chain for fresh and processed Thai fruit for domestic consumption or for trade in the export markets in Europe or Asia. Most of them are strongly specialized in terms of product or function, e.g. fruit production, post-harvest handling, or fruit processing. Other stakeholders may hold a more general position, e.g. those wholesalers engaged in packaging, forwarding and certification.

To improve the performance of the supply chain, as demanded by various standards and regulations, this fragmented group of enterprises and other actors depend on each other's services and support. Relationship management, however, is not yet part and parcel of the individual behaviors of small and medium enterprises in the Thai fruit sector. A multi-stakeholder approach is one way of trying to introduce this to the mind-set of stakeholders in the Thai fruit sector.

METHODS

The background for designing participatory methods and a multi-stakeholder process was the usually hierarchical nature of supply chains: who sets the rules and who monitors them (Engel and Carlsson, 2002). We also had to take into account existing institutional arrangements in supply chains, which either tend to disperse or concentrate responsibilities (Booth and Lucas, 2000; Guijt, 2000). Due to the introduction of various

standards, fruit producers and exporters have to cope with the question of governance, defined as non-market co-ordination of economic activity. The question of governance arises when some firms in a supply chain work according to parameters set by others. Hence, governance also refers to the distribution of power and strategic autonomy in supply chains (Gereffi and Kaplinsky, 2001; Humphrey and Schmitz, 2001).

We opted for a participatory approach to the process to link different stakeholders. Following participatory methods for monitoring and evaluation of development projects, the assumption was that efforts to improve overall supply chain performance may function best if they dovetail well with perceived benefits and priorities of stakeholders (Guijt et al., 1998). Supply chain partners each have their own perceptions, interests and motives that are often different and sometimes conflicting. Experiences in Dutch and Thai supply chain projects indicate that improved performance, e.g. in terms of quality and safety, cannot be achieved by optimizing individual stages in the chain. Such requires a coordinated approach involving all chain actors (Jongen and Meulenberg, 2005; Vellema and Boselie, 2003). Accordingly, a multi-stakeholder process also involves politics, social processes and negotiations about choices and directions, besides techniques, administrative procedures or standards (Booth and Lucas, 2002; Guijt, 1999). This calls for organizing a learning and negotiation process, controlled by a community of practice (Abma, 2000; 2004).

The designed participatory, multi-stakeholder process was put in practice during a workshop intended to make chain actors skilful in the identification of win-win solutions (technological or institutional) for business partners and/or public interest groups. The participatory methods were designed to explore the options for finding strategic fits and building linkages in cross-border supply chains. The workshop assembled a total of 22 chain members from production, processing, trade, packaging, NGO's involved in food safety regulation, national ministries and regional public agencies (Fig. 1). The variety reflected the reality of the Thai fruit sector, but may also explain the difficulty in constructing collaborative effort (Cadilhon et al., 2003). The strategizing process was organized by two intermediary, non-profit organizations, National Food Institute and Wageningen UR, and was designed to explore opportunities for bringing institutionally remote agencies together in the formulation of a set of coherent sector strategies.

RESULTS AND DISCUSSION

Key to the process was a consistent focus on more than one stakeholder while trying to assess or develop robust performing supply chains involving collaboration between partners. The participatory process focused on multiple problem perceptions, diverse drawings of chain configurations, varying mind-sets, and taking the first steps towards a joint strategy.

Combining Multiple Problem Perceptions

Participants were grouped to draw a 'rich' picture of the Thai fruit sector. Because all layers in the food chain were present in every single group, the pictures reflected multiple perspectives of the situation, assembled in one sketch. Visualizing a group discussion helps to understand the complexity of the entire situation and to see relationships and connections that may otherwise be missed. The procedure followed was that peer groups explained the meaning and intention of the picture, while the actual 'artists' were allowed to respond afterwards.

It is not feasible to distill a common problem out of the 'rich' pictures. However, the pictures were instrumental in starting a situational analysis of the Thai fruit sector, through which problems, such as pesticide use or compliance with food safety standards, were not perceived merely in technical terms, but linked to social and economic conditions. The pictures also revealed external developments confronting the Thai fruit sector, such as international fruit standards and labeling. Also important was the application of chemical pesticides, one of the main focus areas for both food safety regulation and standards for good agricultural practices. It was presented both as a

response to international standards and as a way for farmers to implement alternative farming systems, such as organic. The pictures also expressed problems of low farmer incomes and lack of cooperation among chain actors. Other elements referred to modes of processing, packaging and transporting fruits, which gave us the impression that a multitude of problems exist in the fruit sector. Finally, the quality of Thai fruit was presented as an opportunity to introduce a Happy Thai Farmer brand.

Drawing Supply Chain Configurations

To understand different perspectives on the precise institutional configurations of supply chains, participants drew pictures from their respective positions in production, processing, trade, policy and regulation. The production group remarked that the powers of actors differed for each specific fruit and they saw the relationship between producers and merchants as the most prominent one. As a group, they included the supply of agricultural inputs in their drawing. The trade group put much emphasis on the influence of supermarkets and consumers and perceived food manufacturers/processors as key actors between production and trade. The public sector drew an ideal supply chain with functional links between the private actors and an important role for the Ministries of Agriculture, Commerce and Industry. A messier picture was composed by the group of small and medium processing enterprises and village groups. They placed themselves in the middle of a web of strong and weak relationships and without clear functional links between different layers (Fig. 2).

The drawing of chain configurations showed that each stakeholder in the supply chain was reasoning from his own livelihood or expertise. Simultaneously, the discussion revealed the presence of more technical perceptions of supply chains, essentially representing a supply chain as a linked set of value creating activities performed in a certain sequence, with the objective of enhancing customer satisfaction through delivering the right products, services, resources and information to the right place at the right time. In this view, supply chain management focuses strongly on capturing efficiencies and controlling costs, reducing product losses in transportation and storage, ensuring traceability and improving product safety and quality controls.

Such a functional view of a supply chain leaves little room for discovering the complexity of diverging motives, behaviors, cultures and ethnicities present in the web of relationships surrounding the supply chain (Rigg and Ritchie, 2002). A challenge for multi-stakeholder approaches will include representations of the Thai fruit sector as an open web of relationships, in which coherency, both in social and in functional terms, has to be created (Batt, 2003). Analysis of contract farming schemes (Vellema, 2002; 2005) suggests that understanding the social nature of the relations and transactions in a supply chain is a crucial step for establishing a resilient institutional architecture. In the Thai fruit sector, the variety of stakeholders and the number of market transactions may generate managerial challenges because coherency requires trust, commitment, a willingness to invest, and an acceptable governance system with equitable sharing of power and control. Drawing of chain configurations did not, however, provide a collective understanding of the nature of the relationships between actors. It seemed to be easier to rely on a linear model of a supply chain composed of a fixed sequence of tasks.

Mapping Individual Mindsets

A short questionnaire was used by the organizers for mapping the individual mindsets of the participants, distinguishing between tactical and strategic tracks. The tactical track represents decisions made for the survival in the short term, possibly at the expense of other parties and interests, and includes actions combating symptoms of a structural problem. A strategic track reflects a long-term vision and involves the implementation of structural solutions through experimentation and learning. Identifying tactical and strategic tracks is not an easy task because the behavior of an actor often combines both, while strategic and tactical tracks can also be at odds with each other. In this workshop, the organizers only used the questionnaire while in others this was

complemented by in-depth interviews and invited feedback (Buurma et al., 2003). Nevertheless, the composed mindsets revealed some paradox between fighting, short-term, and learning, long-term.

Figure 3 shows an individual mindset for a fruit producer, confronted with low prices related to seasonal over supply. The tactical track suggests that the problem of oversupply can be resolved by seeking new markets, which is supported by the government. Selling higher volumes or introducing new fruits to new markets may resolve the problem of oversupply in the short term, but it may not change the threat of oversupply or intensive competition between producers. On the other hand, the producer also considered a more structural solution by suggesting the installation of regulatory mechanisms, indicating a strong state involvement, to arrive at a coherent supply regime coordinated between production regions.

To some extent, an individual mindset reveals a mix of short and long-term behaviors. It also indicates what stakeholders might expect from others: the dependence on behaviors of others. Individual mindsets can provide the starting point for exploring the possibilities for collaboration with others. For this purpose, collaboration based on strategic tracks seems to be a good starting point (Buurma and Boselie, 2000), although tactical alliances can be attractive for stakeholders as well.

Taking Steps towards Joint Strategies

To stimulate the search for possible collaboration, the organizers placed individual participants in a labeled area (Table 1): (1) coherence and cooperation; (2) rules, institutions and policy; (3) public research and knowledge development; and, (4) product development and market-oriented innovation. Areas 2 and 3 include public intervention and investment, perhaps leading to public-private partnerships. Areas 1 and 4 have a stronger focus on business-to-business relationships in the marketplace.

We asked participants to review their position and consider an alliance with a person from another area. As a result, a process of maneuvering started in what was called a ‘living chess game’. As the game evolved it appeared to be difficult to oversee the strategic implications of a change of position. Moreover, the game facilitated by the organizers did not succeed in constructing alliances by crossing the borders of institutional entities. Rather, the groups formed closely resembled the institutionally embedded roles of the participants, i.e. market, government and production. Yet, building linkages, and thus crossing borders, seems to be fundamental to a common strategy of an agro-industrial cluster. Achieving a transition through collaborative strategy requires both a viable and robust institutional framework through which new rules and regimes and different institutional roles can be assembled.

After the workshop, reflecting on the individual mindsets, seasonal oversupply, resulting in low prices, came to the fore as a shared problem, which can be solved by engaging different actors. On one hand, participants suggested public regulation and protection of markets through the allocation of volumes to specific production areas and to allow patents on processed fruit products. On the other hand, participants gave a lead role to entrepreneurs to look for new (foreign) markets and find ways to cope with the high quality standards imposed in international fruit markets. No possible strategic fit between regulating oversupply and accessing new markets based on quality of product and process (Koning, 2004), evolved during the process.

CONCLUSIONS

A preliminary conclusion from the process examined in this paper is that it is easier to fight immediate problems than to act out strategic perspectives. In the case of fruit, the current market requirements and standards may motivate a search for institutional linkages but also encourage defensive reactions. Standards may contribute to a coherent cluster strategy when considered as a target for technical and institutional development. In contrast, standards may have a detrimental effect when imposed as a license to deliver because this may stimulate tactical and opportunistic behavior rather

than coherent strategy by an agro-industrial cluster. Focusing on 'meeting conditions' induces a more defensive mindset, i.e. fighting, rather than focusing on 'entering markets', i.e. proactive learning and experimenting. A predominance of tactical behavior, perhaps explained by the common practice of maneuvering as an individual actor in the Thai fruit sector, easily bypasses the opportunities offered by increased interdependence.

ACKNOWLEDGEMENTS

This paper is a result of an International Cooperation research program executed through a grant from the Netherlands Ministry of Agriculture, Nature and Food Quality by Wageningen UR. We thank Mr Kongkiti Phusavat, Kasetsart University, for facilitating the process and the participants for sharing their views and experiences. The comments of the two anonymous reviewers helped to improve the paper.

Literature Cited

Abma, T.A. 2004. Responsive evaluation: the meaning and special contribution to public administration. Public administration, 82: 993-1012.

Abma, T.A. 2000. Onderhandelend evalueren. Bestuurskunde, 9: 393-403.

Barton, D., Coombes, P. and Chiu-yin Wong, S. 2004. Asia's Governance Challenge. McKinsey Quarterly, 2.

Batt, P.J. 2003. Examining the Performance of the Supply Chain for Potatoes in the Red River Delta Using a Pluralistic Approach. Supply Chain Management: An International Journal, 8: 442-454.

Booth, D. and Lucas, H. 2002. Good practice in the development of PRSP indicators and monitoring systems. ODI Working Paper no. 172.

Boselie, D. and Buurma, J. 2003. Grades and Standards in the Thai Horticultural Sector. In: Vellema, S. and Boselie, D. (eds). Cooperation and Competence in Global Food Chains: Perspectives on Food Quality and Safety. Maastricht: Shaker Publishing.

Boselie, D., Henson, S. and Weatherspoon, D. 2003. Supermarket Procurement Practices in Developing Countries: Redefining the Roles of the Public and Private Sectors. American Journal of Agricultural Economics, 85: 1155-61.

Buurma, J.S. and Boselie, D.M. 2000. Stakeholder Perception Analysis for Agri-Supply Management. Acta Hort. 536: 625-633.

Buurma, J.S., Buck, A.J. de, Klein Swormink, B.W. and Drost, H. 2003. Innovatieprocessen in de Praktijk: Grondslagen voor een Eigentijds Innovatiedrieluik (Innovation Processes in Practice: Foundations of a Contemporary Innovation Framework). LEI-report 6.03.12, The Hague: Agricultural Economics Research Institute (in Dutch).

Buurma, J.S. and Saranark, J. 2004. Supply Chain Development for Fresh Products. In: Hofstede, G.J., Schepers, H., Spaans, L., Trienekens, J. and Beulens A. (eds), Hide or Confide: The Dilemma of Transparency. Reed Business Information: The Hague.

Cadilhon, J., Fearne, A.P., Moustier, P. and Poole, N.D. 2003. Modelling Vegetable Marketing Systems in Southeast Asia: Phenomenological Insights from Vietnam. Supply Chain Management: An International Journal, 8: 427-441.

Cato, J.C. and Subasinge, S. 2003. Case study: the shrimp export industry in Bangladesh (brief 9). In: L.J. Unnevehr (ed.) Food safety in food security and food trade. Focus 10. International Food Policy Institute: Washington DC.

Dankers, C. 2003. Environmental and Social Standards, Certification and Labelling of Cash Crops. FAO Commodities and Trade Technical Paper, no. 2. FAO: Rome.

Dolan, C. and Humphrey, J. 2000. Governance and Trade in Fresh Vegetables: The impact of UK Supermarkets on the African Horticultural. Journal of Development Studies 37: 147-176.

Engel, P.G.H. and Carlsson, C. (2002) 'Enhancing learning through evaluation: approaches, dilemmas and some possible ways forward'. Paper commissioned by the Ministry of Foreign Affairs, Directorate-General for Development Cooperation, the Netherlands, presented at the 2002 EES Conference, Seville; October 10-12.

Ford, D., Gadde, L.E., Hakansson, H., Lundgren, A., Snehota, I. Turnbull, P. and Wilson D. 1998. Managing Business Relationships. Chichester, UK: John Wiley & Sons.
Gereffi, G. and Kaplinsky, R. 2001. The Value of Value chains; Spreading the Gains of Globalisation. Institute of Development Studies, Sussex.
Guijt, I. 2000. Methodological issues in participatory monitoring and evaluation. In: Estrella, M. et al (ed), Learning from change: issues and experiences in participatory monitoring and evaluation. IDRC/ITDG Publishing.
Guijt, I., Arevalo, M. and Saladores, K. 1998. Participatory monitoring and evaluation: tracking change together. PLA Notes, no. 31. IIED: London.
Henson, S and Loader, R. 2001. Barriers to Agricultural Export from Developing Countries: The Role of Sanitary and Phytosanitary Requirements. World Development, 29: 85-102.
Hobbs, J.E. 2003. Incentives for the Adoption of Good Agricultural Practices (GAPs). University of Saskatchewan: FAO background paper.
Humphrey, J. and Schmitz, H. 2001. Governance in Global Value Chains. IDS Bulletin 32: 19-29.
Jaffee, S. and Henson, S. 2004. Standards and Agro-Food Exports from Developing Countries: Rebalancing the Debate. World Bank Policy Research Working Paper 3348, http://econ.worldbank.org/files/36684_wps3348.pdf.
Jongen, W.M.F. and Meulenberg, M.T.G. 2005. Innovation in Agro-food Systems: Product Quality and Consumer Acceptance. Wageningen: Wageningen Press.
Koning, N. 2004. Tropical Export Crop Chains and Tropical Export Crop Prices. Discussion note North South Center Wageningen UR. http://www.north-south.nl/files/Debate/sustainable%20chains.pdf
Lazzarini, S.G., Chaddad, F.R. and Cook, M.L. 2001. Integrating Supply Chain and Network Analysis: The Study of Netchains. Chain and Network Science, 1: 7-22.
Reardon, T. and Barret, C. 2000. Agroindustrialization, globalization, and international development: an overview of issues, patterns and determinants. Agricultural Economics, 23: 195-205.
Reardon, T., Timmer, C.P., Barret, C. and Berdegué, J. 2003. The Rise of Supermarket in Africa, Asia and Latin America. American Journal of Agricultural Economics, 85: 1140-46.
Rigg J. and Ritchie M. 2002. Production, Consumption and Imagination in Rural Thailand. Journal of Rural Studies , 18: 359-371.
Tikkanen, J. and Tuominen, P. 2000. Studying Change and Dynamics in Businness Relationships – The Processual Case Study Approach. Paper presented to the 16th IMP 2000 Conference. Downloaded May 2005.
http://www.bath.ac.uk/imp/pdf/67_TikkanenTuominen.pdf.
Unnevehr, L.J. (ed.) 2003. Food Safety in Food Security and Food Trade. Focus 10. International Food Policy Institute: Washington DC.
Vellema, S. 2002. Making Contract Farming Work? Society and Technology in Philippine Transnational Agribusiness. Shaker Publishing, Maastricht.
Vellema, S. 2005. The Local Cultures of Contract Farming: The Export of Fresh Asparagus from the Philippines to Japan. In: N. Fold and B. Prichard (eds) Cross-continental Food Chains. Routledge: London.
Vellema, S. and Boselie, D. 2003. Cooperation and Competence in Global Food Chains: Perspectives on Food Quality and Safety. Shaker Publishing: Maastricht.
WHO 1997. Food Safety And Globalization Of Trade In Food: A Challenge To The Public Health Sector. WHO/FSF/FOS/97.8 Rev.1. WHO: Geneva.

Tables

Table 1. Summary of strategic tracks. Source: participant questionnaire (November 2004).

Area 1: coherence and cooperation
Share market information and install forecasting system Share information on price differentiation and create network for better remuneration Training of inspectors Promote and market organic fruit and establish producers association
Area 2: rules, institutions and public policy
Regulate seasonal supply and production locations Allocate production volumes to assigned regions Harmonize standard setting Install intellectual property rights legislation of fruit products Establish a public network for introducing and monitoring good agricultural practices
Area 3: public research and knowledge development
Set up mobile information centers for farmers Experiment with environmentally benign pest control methods Prevent abundant use of SO_2 through monitoring and determination of tolerance levels Develop modern fruit processing technology
Area 4: product development and market-oriented innovations
Use new technologies to develop and market unique innovative products Develop technologies to comply with international standards Invest in packaging technologies, especially controlled atmosphere

Figures

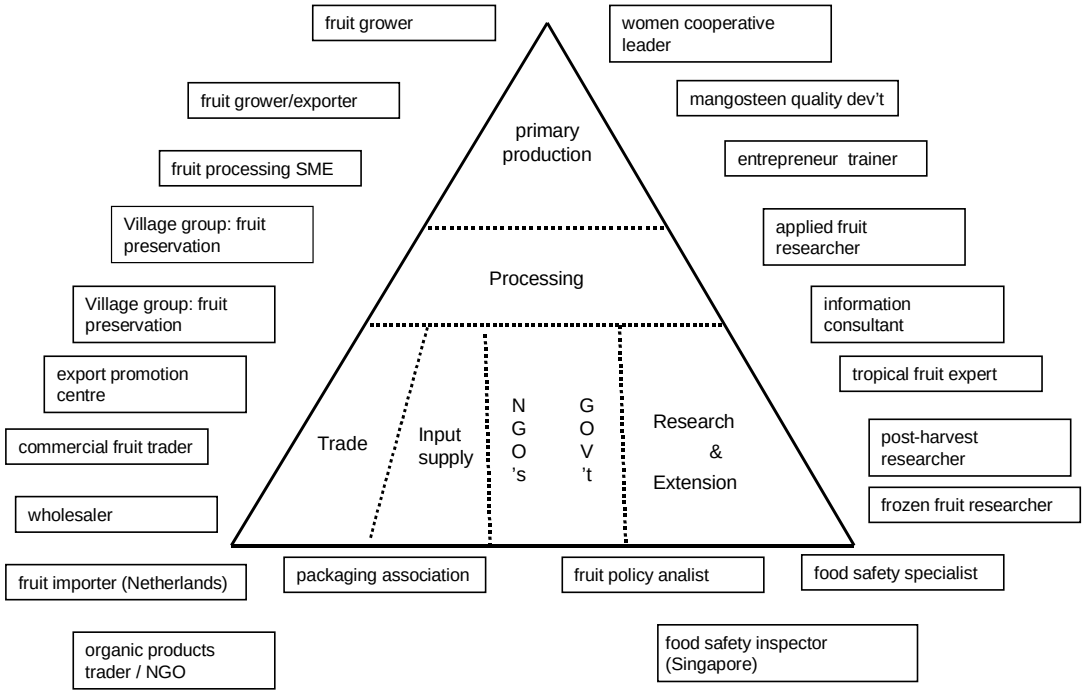

Fig. 1. Overview of participants of strategic insight workshop. (Rayong, Thailand, November 2004).

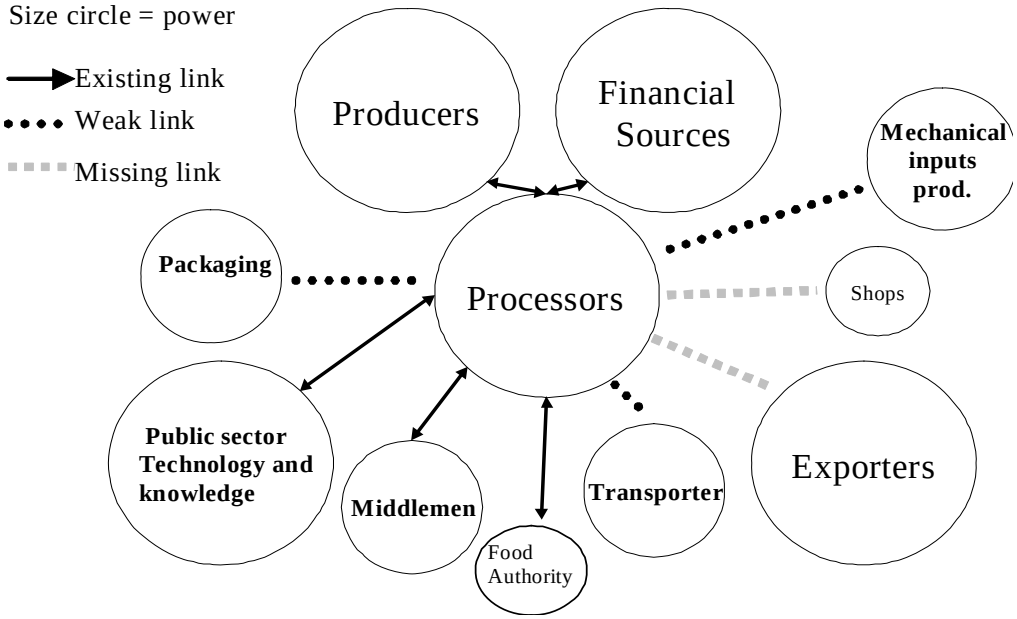

Fig. 2. A schematic presentation of the supply chain by fruit processors. (drawn during workshop, November 2004).

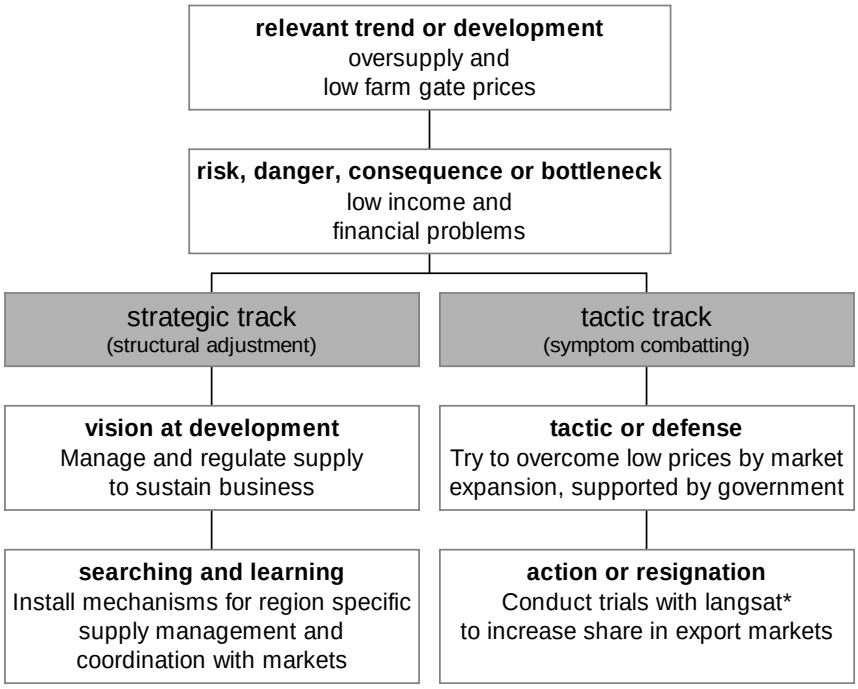

Fig. 3. Individual mind set of a Thai fruit producer composed of a tactic and a strategic track (source: participant questionnaire, November 2004).
* Langsat, *Lansium domesticum* Corr., is known as long-kong in Thailand and also as duku in other parts of Southeast Asia.