Quality Infrastructure - A Vital Aspect of Business Environment for Enterprise Development

A Case of Thai Fresh Fruit and Vegetables Industry

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Executive Summary

The paper discusses the role of quality infrastructure as an important enabler for enterprise development in the Thai fresh fruit and vegetables industry. The paper begins with a very brief introduction to quality infrastructure and its function as an aspect of the business environment. This is followed by a discussion of an approach to promote quality infrastructure and how it has unfolded in the Thai fresh fruit and vegetables industry. Integration of small farmers into high-value global fruit and vegetables value chain, sustainability of the development outcome and partnership with “lead firms” in the supply chain and key supervising public sector agencies are key features of the experience to be recounted.

The paper concludes by drawing lessons learned for future works in enterprise development and business environment reforms. The key messages are (i) value chain approach contributes significantly to the successful promotion of quality infrastructure as it does to other areas of business environment reforms (ii) quality is more than standards as business environment is more than policy, legal and regulatory environment and (iii) quality infrastructure is not out of reach of small enterprises.

The paper relates to the following conference themes:

- **Regional priorities for business environment reform** – The paper discusses the promotion of product quality certification, which is an important trade facilitation tool. The project discussed employs value chain approach in its development and implementation. The need for the promotion was established through value chain analyses.

- **Managing successful business environment reforms in Asia** – The paper discusses the project’s partnership with “lead firms” with the value chain, where the “lead firms” act as the key drivers of change. The paper also discusses the need to balance the power of the “lead firms” by involving a public sector agency in value chain governance.

The paper also addresses the following hot topics:

- **Increasing the impact of business environment reform on poverty reduction** - The paper addresses the potential exclusion of smallholders from the benefit of a stronger quality infrastructure and how the project is safeguarding against such social exclusion.

- **Sustaining business environment reform efforts** – Sustainability is a parameter defining the success of the project. The paper discusses methodological approach of the project in general and how it has been applied in the project’s particular context.
Reforming the business environment in specific industry sector – The paper discusses quality infrastructure reform in the Thai fresh fruit and vegetables industry. The experience recounted in the paper shows that value chain approach and business environment reforms need to go hand in hand to achieve successful and sustainable enterprise promotion results.

Sub-national business environment reform – When business environment reforms are informed by value chain analyses, the need for reform is driven by the need of value chains. Reforms may happen at the national level or the sub-national level or, in the case of the project recounted by the paper, simultaneously at both levels. The paper discusses how the parallel reforms are expected to have synergistic effects on each other.
1. Introduction

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2. Quality infrastructure preliminaries

2.1 What is quality infrastructure?

Globalization of the international economy and increased consumer awareness have added a new entry to the world of jargons: quality infrastructure. This term relates to all the fields of metrology, standardization and testing, of quality management and conformity assessment, including certification and accreditation. In the past, the abbreviation MSTQ (Metrology, Standardization, Testing and Quality Assurance) was used for this combination of single elements.

Quality infrastructure is a "code" which gives information only to experts on the existing relationships. Producers and consumers make daily use of its components without always being aware of it. This is intentional as the workings of these components are usually invisible. Bolts fit nuts, mobile phones connect and substances in drugs are correctly dosed. This blind trust assumes a high degree of general regulatory conditions and technical possibilities.

A quality infrastructure is based on a number of components. These are closely related and form a network whose logical links are based on a technical hierarchy. This national network must be geared to international requirements. Only if these requirements are met are international commodity trading and an exchange of services possible.

Source: PTB
2.2 Quality infrastructure as a vital aspect of business environment

There is no agreed-upon definition of “business environment”. All definitions include the relationship between the public sector and the business sector – legal and political system, government policies, regulatory framework, law enforcement and other services provided by the public sector such as roads, education, trade promotion and so forth. Some definitions encompass other relationships as well. For the purpose of the experience discussed in this paper, “business environment” encompasses all elements that shape how well a market works.

This definition reflects the systemic approach of German technical cooperation. A market is viewed as a system comprising (i) core market, (ii) the markets for supporting services and (iii) regimes of framework conditions. Supporting services and framework conditions determine the transaction costs incurred in the core market. Service markets together with framework conditions form business environment within which a core market operate.

In this light, quality infrastructure is a vital aspect of any business environment. All market-based transactions can only occur when buyers and sellers agree on product or service characteristics. Once an agreement is reached, the buyers need to have the assurance that the product or service supplied will in fact meet the agreed characteristics. This assurance can be very simple, such as visual inspection of the product, or very complex, requiring a chain of compliance evidences issued by trusted and technically capable service providers. This chain of evidences is the “code” mentioned above.

Within the last century the “code” has crystallized in developed economies. The existence of well functioning quality infrastructure has therefore become a prerequisite for the developing economies’ close integration into the global value chains. Well functioning quality infrastructure will not only open door for producers in the developing countries to the lucrative markets in the development countries, but it will also help the developing countries’ producers to raise the standard of their production processes. This improvement to their productive capacity is vital to the sustained improvement of livelihoods in the developing countries. German technical cooperation has had positive experiences in the field of quality infrastructure in a wide range of partner countries, such as Argentina, Brazil, Chile, Peru, Ghana and Kenya.
Quality infrastructure preliminaries

Source: Springfield Centre, modified with GTZ’s terminology
3. Promotion of business environment reforms in Thailand

3.1 Thai-German Programme for Enterprise Competitiveness

German development policy is guided by the principle of global sustainable development and aims to help build a secure global future. An overarching goal of development policy is poverty reduction. A thriving economy, ecological compatibility, social justice and political stability help to achieve this aim.

In Thailand, this policy is implemented through the Thai-German Programme for Enterprise Competitiveness (T-G PEC). The goal of the T-G PEC is to improve the competitiveness of small and medium sized enterprises (SMEs) in the Thai agro-industry sector. Thailand’s competitive advantage of being a low wage country in the region is eroding. Many businesses are working with outdated production technologies, which are both uncompetitive and environmentally unsustainable. The Royal Thai Government (RTG) recognizes this problem. SMEs in particular have received high policy priority. However, the RTG’s SME promotion policies and programmes are government-centric, subsidy oriented and not demand driven. The number of private service providers is very small and there are few incentives from the public sector aimed at improving SME competitiveness and promoting environmentally friendly production methods. If these problems persist, poverty alleviation and an improvement of the living conditions will be difficult to achieve.

3.2 The T-G PEC’s core approach

3.2.1 Sustainability of outcomes

How can German technical cooperation get the biggest impact for the money that it spends in Thailand or any partner country for that matter? The answer to this question is not so complicated. Imagine giving a snowball a light push down a hill on a mild winters’ day. The snowball gathers speed and mass with its own energy. It starts out small but gains in size and weight on its own. This metaphor describes the “ prefect” development intervention. The change agent initiates a process that develops its own ownership and rationale. Once in motion, the initial input by the change agent is magnified several times. In other words the snowball does not stop and melt when technical cooperation is withdrawn but rather the momentum of the initial input and the supporting business environment allows the snowball to keep going.

Broadly speaking there are three conditions needed to create the snowballing effect:

- Firstly, there needs to be gravity. The issue has to be a real need, and one that a significant number of people consider to be of importance for the betterment of their future, this develops ownership which is an essential ingredient of sustainability;

- Secondly, the snowball sometimes needs to be pushed lightly. The issue has to be nurtured by expertise that can articulate the need and can lead an initial process that involves the key stakeholders; and,
Thirdly, the slope must be downward, covered with snow and not too bumpy. The business environment needs to be supportive.

The T-G PEC’s development hypothesis is that it can influence SME competitiveness in a sustained manner only by reforming the business environment. The way that the T-G PEC approaches this task is by:

- Knowing what it wants to change and knowing how to measure this change. This is where the value chain analysis is invaluable to identifying what the most important constraints to the sector’s competitiveness.

- Knowing what services can be applied to overcome this constraint. The potential viability of this service is determined by measuring the willingness of the target group to make significant contributions.

- Knowing who can deliver or supply this service in a sustainable way and according to the principle of subsidiarity.

- Knowing how to construct the partnerships between the buyers, sellers and regulators so that the framework condition for the service is conducive to its expansion.

3.2.2 Value chains as focal points

The design of the T-G PEC fully embraces the value chain approach to enterprise development. Its term of reference requires it to focus on no more than 6 sub-sectors. This requirement recognizes the complexity of value chains operating in any sub-sector. It also recognizes the embeddedness of business environment within a value chain.

The T-G PEC’s process involves following these steps:

- Choosing sub-sectors that satisfy the agreed-upon criteria (see the appendix).

- Carrying out value chain analyses, identifying constraints to that sub-sector’s competitiveness.

- Developing a strategy to improve competitiveness of the sub-sector through a coherent program of business environment reforms.

- Drawing up raw intervention ideas aimed at generating the maximum plausible attribution to the competitiveness of the sector.

- Validating and refining interventions through stakeholder consultation and, if necessary, market assessment.

- Designing monitoring and evaluation system.

- Implementing the interventions and the monitoring and evaluation system.
So far five sub-sectors have been chosen. Fruit and vegetables sub-sector is one of them. Poorly functioning quality infrastructure has been identified as a constraint to the sub-sector’s competitiveness, particularly in the fresh fruit and vegetables industry.

3.3 Approach toward promoting quality infrastructure

3.3.1 BMZ’s strategy

Germany’s efforts to foster the quality infrastructure in the partner countries have already gone a long way towards enhancing competitiveness, making production processes more environmentally-friendly, improving consumer protection and promoting regional cooperation. Rather than supporting individual components, it has proved best to pursue an integrated approach in order to provide balanced and needs-oriented support for the entire quality infrastructure system. This approach reflects the close connection and inter-dependence between the individual components in a functioning quality infrastructure system. In individual cases, for example in order to deal with temporary bottle necks, it may prove useful to provide assistance for individual components of the system. However, it cannot usually be expected that such isolated measures will have a structural impact.

Instead of providing the partner countries with readymade solutions, the aim of efforts to support the quality infrastructure is to improve the skills and capacities of the partner organizations, thus helping them to find their own solutions (capacity building). Efforts build on existing structures. This reduces the amount of investment required and also the risk that the assistance will not be financially sustainable. Approaches of this kind, aimed at altering structures, require a degree of continuity if they are to be sustainable, not least because existing institutions generate costs and require skilled staff.

A mixture of interventions at different levels, adapted to existing needs, has proved the best way of establishing and developing institutional capacities in the partner countries. Assistance focuses on the institutions. By raising awareness amongst decision-makers of the importance of this area, the necessary political support and thus the necessary institutional continuity can be guaranteed. If there is no awareness of the need for a quality infrastructure, the partner countries cannot be expected to make any long-term efforts of their own. And if there is no awareness of the need to improve competitiveness and become integrated in the trade system, no appropriate political decisions can be made. The result is that existing potential is underused.

In the partner countries, the system is often not sufficiently adapted to the needs of domestic SMEs. It has been shown that involving those who use quality infrastructure services (SMEs or their representative associations) in the implementation of measures helps to ensure that the responsible institutions take a more needs-oriented approach.

Increasingly, the measures conducted as part of German development cooperation are being packaged together to form programmes and adapted to national development strategies. Measures to promote the quality infrastructure must also have a clear link to these programmes so as to ensure a systematic approach and avoid piecemeal solutions. It is particularly important that measures should be linked up with or integrated into the measures
aimed at promoting the value chains. Where links are tenuous, it is harder to maintain the goals that have been achieved.

3.3.2 PTB’s role

The technical cooperation of PTB makes consistent use of the systemic competitiveness concept. Its contributions are not isolated, accidentally or symptom-oriented, but follow a system approach. Governments and partner organizations are supported in the establishment of general conditions which allow enterprises and people to fully develop and use their potential (policy consultancy on the macro-level). On the basis of a country-specific consultancy, partner countries are prepared for the entry to multilateral professional associations, regional professional associations are established and promoted and advice on the implementation of WTO agreements in connection with quality infrastructure matters is given to administrative staff. In addition, a contribution to the reduction of transformation costs is made by harmonizing standards and technical regulations (enabling environment, technical barriers to trade). Measures on the micro-level are promoted only if they produce structural effects (promotion of providers of business and consumer-related services).

These activities are therefore normally performed only in connection with measures on other levels. On the meso-level (service providers within the quality infrastructure), the complexity of quality infrastructure is taken into account. Here, the activities are focused not only on the promotion of single services, but also on an intense interconnection of initiatives and service providers already in existence with those still to be newly and individually created. Here, the technical implementation of the obligations assumed in international or regional agreements is of priority. Via the use of business development service providers, the increase in competitiveness and the creation of value are aimed at.

A result of the systemic approach is that quality assuring services can be offered in the so-called "plug and play" procedure. A complete and internationally recognized national quality infrastructure network is universally applicable.
It is not only possible to connect all product and process parameters, but this connection is also possible at each stage of the value chain. Here, further advantage of the German technical cooperation becomes apparent: embedding of the field of "quality infrastructure" in the focal area of "promotion of economic development" normally not only allows the offer of quality assuring services to be promoted, but also familiarises the users with these services.

This can be realized directly within the scope of the promotion of small and medium-sized enterprises or indirectly via measures in the field of Business Development Services. In this field there is a close link to GTZ. Every implementing organization contributes its professional experience.
4. Experiences from the Thai fresh fruit and vegetables industry

4.1 The problems

4.1.1 Socio-economic significance of Thai fresh fruit and vegetables industry

Thailand’s agricultural sector plays an important role in the country’s economy in terms of GDP contribution and export earnings, but mostly, in terms of employment and income generation for its rural population. It also accounts for the highest number of SMEs compared to other sectors.

Thailand’s gross domestic product (GDP) is about USD150 billion (at market exchange rate), out of which the agricultural sector contributes 13% (crop 68%, livestock 11%, fisheries 8%, simple processing 9%, agricultural services 3%, forestry 1%). Of the total land area of 51 million ha, farm holding land is about 21 million ha (or 41% of total available land), consisting of 5.67 million farms, with an average farm size of 3.7 ha. The agricultural sector employs about 56% of the country’s population.

In 2003, Thailand’s exported agricultural products were valued at USD15 billion, accounting for 25% of the total exports and making Thailand the sixth biggest agricultural exporter in the world. In 2004, fresh fruit and vegetables exports were valued at USD1 billion (6% of total agricultural exports) with the most important fruits and vegetables being durian (USD56 million), longan (USD55 million), asparagus (USD45 million) and baby corn (USD42 million).

4.1.2 Existing organization of quality infrastructure serving Thai fresh fruit and vegetables industry

The institutional framework governing the quality of fresh fruit and vegetables in Thailand is rather complex. As stated above, a quality infrastructure is based on a number of closely related components. These components are:

- **Standards / Technical regulations** – the formal documentation containing the requirements that a product, process or service should comply with. Technical regulations are developed by public sector authorities and enforced by law, whereas standards are voluntary in nature and generally enforceable only when called up in a contract between buyer and supplier. A standard can be developed by either the private sector, the public sector or the multilateral sector.

- **Testing** – the determination of product characteristics against the specifications. They can range from a simple visual check to testing under a special laboratory condition.

- **Metrology** – the technology or science of measurement. Metrology can be subdivided into scientific metrology (the organization and development of the highest level of measurement standards), legal metrology (the accuracy of measurements where these have an influence on the transparency of economical transactions, health and safety) and industrial metrology (the adequate functioning of measurement instruments used in industry, production and testing).
Quality management – the prevention of non-compliance and continuing improvement of quality of a product or a process.

Certification – the formal substantiation that a product, service, organization or individual complies with the specifications.

Accreditation – the formal confirmation by an independent third party that a body is competent to perform certain tasks. This is based on international standards. Accreditation is a means of building confidence in the work and the findings of testing and calibration laboratories and inspection and certification bodies.

How these components function in the Thai fresh fruit and vegetables industry and the issues relating them are described below.

Standards / Technical regulations

Two authorities are empowered by law to develop technical regulations. The Ministry of Public Health (MOPH)’s jurisdiction is over fresh fruit and vegetables for domestic market and the Department of Agriculture (DOA) under the Ministry of Agriculture (MOA) has its jurisdiction over export fruit and vegetables. The Office of the Permanent Secretary of the MOPH is responsible for the promulgation of technical regulations. It is however without its own technical capacity and relies on the Food and Drug Administration (FDA) and the Department of Health (DOH) for such capacity. The FDA, the DOH and the DOA generally follow the specifications set by the Codex Alimentarius Commission (CAC). The CAC is an international body established jointly by the Food and Agricultural Organisation (FAO) and the World Health Organisation (WHO). The DOA also follows the requirements by the authorities in major importing countries.

Source: Thai-German Programme for Enterprise Competitiveness
The number of voluntary standards adopted in the fresh fruit and vegetables industry is very large. HACCP, ISO 9000 and BRC Global Standard are the most widely applied for fruit and vegetable packing. HACCP was developed by Pillsbury Company from the USA and has since evolved into a public domain standard. The CAC is maintaining a version of HACCP that is accepted internationally. ISO 9000 is developed by the International Organisation for Standardisation (ISO). BRC stands for the British Retail Consortium. BRC standard combines the requirements of HACCP and ISO 9000 with additional requirements on environmental management. Unlike other national schemes, BRC Global Standard has grown into an international standard. For primary production of fruit and vegetables, EurepGAP is the most applied standard. EurepGAP is an initiative of large European retail chains. It is administered by FoodPLUS, which is a daughter company of Eurohandelsinstitut (EHI,) a non-profit making, private research and education institute in Germany. The governance of EurepGAP is now shared between retailers and their suppliers. Large retail chains also have their proprietary schemes, e.g. TESCO’s *Nature’s Choice* and Casino’s *Terre et Saveur*.

In its push to promote food safety, the RTG has created its own voluntary standard for food production. The National Bureau of Agricultural Commodity and Food Standards (ACFS) was created in 2003 to centralize the development and administration of food standards based on a farm-to-fork approach. In practice, the ACFS has only nominal control over the standards. Traditional agencies such as the FDA, the DOH and the DOA are still the de facto standard makers. As such, their roles in relation to compulsory technical regulations and voluntary standards are rather muddled.

**Testing**

There are 65 accredited testing laboratories and serving Thailand’s food industry. Most of these laboratories are in the private sector. Despite the existence of a large number of private sector laboratories, the RTG has recently established two testing organisations – the Laboratory Centre for Food and Agricultural Products (LCFA) under the MOAC and the National Food Institute under the Ministry of Industry. They are in addition to existing public sector laboratories situated in the FDA and the Department of Medical Science (DMSc) under the MOPH and the Department of Science Service (DSS) and the Thailand Institute of Scientific and Technological Research (TISTR) under the Ministry of Science and Technology (MOST). Now the LCFA is only approved laboratory for the DOA’s technical regulations.

**Metrology**

The responsibility for scientific metrology in Thailand lies with the National Institute of Metrology Thailand (NIMT) under the MOST. The NIMT provides internationally recognised references for other laboratories to calibrate their instrument. The Central Bureau of Weight and Measurement (CEBW) under the Ministry of Commerce (MOC) is responsible for legal metrology. Lastly there are 29 accredited calibration laboratories providing calibration service.
Quality management

There are several companies providing training in HACCP and ISO 9000. Training in BRC Global Standard is not available from any local provider. However it can be arranged through multinational quality service companies operating in Thailand, e.g. SGS, CMi and Campden & Chorleywood. There are 13 EurepGAP trainers in Thailand trained under the sponsorship of the USAID. However none of these trainers is registered with FoodPLUS. The DOA and the Department of Agricultural Extension (DOAE) also under the MOA maintain thousands of extension officers to provide training and advices to farmers. However the DOA’s GAP standard is not very rigorous when compared with internationally accepted standards. Lastly some pack-houses and retail chains pass on quality management knowledge to their suppliers through their networks of traders/middlemen.

Certification

There are several certification bodies (CBs) providing certification service for ISO 9000. ISO 9000 is applicable to all industries not only fresh fruit and vegetables, so its certification market is very deep. HACCP certification service market is dominated by SGS. EurepGAP certification service is provided by SGS and CMi. So far only 5 grower groups have been certified. The DOA is acting as the sole CB providing certification for its own GAP. So far the DOA has certified more than 330,000 farms in the space of less than two years. This has called the rigour of the DOA’s certification scheme into question.

Accreditation

The overall structure of Thai accreditation system is enigmatic. In most countries, there is only one accreditation body (AB). Accreditation is a technically demanding and costly service. Most often there will not be enough business to support more than one AB. Some countries even rely on foreign ABs instead of establishing their own ABs. Also having only AB streamlines international recognition – a very crucial aspect of accreditation service. Thailand however has five ABs.

The Thai Laboratory Accreditation Scheme (TLAS) was established under the Ministry of Industry in 1987 to accredit CBs certify manufactured products including food. With the introduction of the Agreement on Technical Barriers to Trade (TBT), the TLAS has extended the scope of its accreditation to cover all testing and calibration laboratories in 1993. The TLAS is recognised by the Asia-Pacific Laboratory Accreditation Cooperation (APLAC) and the International Laboratory Accreditation Cooperation (ILAC). The Bureau of Laboratory Quality Standards (BLQS) was established in 1997 under the DMSc to act as the AB for testing laboratories in the area of medical and health products also including food. The BLQS is also recognised by the APLAC and the ILAC. The DSS set up the Bureau of Laboratory Accreditation (BLA). The RTG also mandates the ACFS to act as the AB for agricultural and food certification. Neither the BLA nor the ACFS is recognised internationally. The ACFS does not have the technical capacity to carry out its accreditation function. It simply accredits the DOA as the CB for GAP by administrative fiat. Lastly the National Accreditation Council (NAC) was established to take charge of the Thai accreditation system. Instead of rationalising the structure of the system, the NAC has turned itself yet into another AB. It acts
as AB for ISO 9000 and ISO 14000. The NAC is recognised by the Pacific Accreditation Cooperation (PAC) and the International Accreditation Forum (IAF).

4.1.3 Development challenges

The development challenges that Thailand is facing in relation to the fresh fruit and vegetables industry can be summed up as follow:

- The lack of international recognition for the domestic food quality and safety standards, particularly for fresh fruit and vegetables.
- The limited accessibility for Thai fruit and vegetables growers, who are mostly smallholders, to internationally recognized food quality and safety standards.
- The lack of architectural coherence of the Thai fresh fruit and vegetables industry’s quality infrastructure.

A quality standard is only useful when it is recognized by the buyers. The system of recognition in the developed countries is robust and well defined. The RTG’s GAP fails to meet the requirements in many aspects. It is accepted domestically already with some doubts. On the international stage, it adds virtually no value. This is also applicable to some extent to the technical regulations for fresh fruit and vegetables. For example, test certificates issued by LCFA are often not recognized by food safety authorities in the importing countries. Some exporters are sending samples to two testing laboratories simultaneously – LCFA and a laboratory abroad recognized by the food safety authority in their customer countries. They view testing by LCFA as wasteful with no value added.

Exporters look to EurepGAP as an alternative to the RTG’s GAP. However, the market for EurepGAP certification in Thailand is still weak. The scale of the market does not justify stationing auditors in Thailand. Multinational quality service providers like SGS and CMi fly in auditors as needed at great cost. EurepGAP training recognised by FoodPLUS is not available to Thai fruit and vegetable growers. All these make EurepGAP less accessible to Thai fruit and vegetable growers and rule them out from participating in lucrative global fresh fruit and vegetable value chain.

Underlying the above challenges is the ill-structured institutional framework. The DOA’s technical regulatory responsibility is blurred by its responsibility over the “voluntary” GAP standard. The DOA’s GAP is only nominally voluntary. Policy directive requires the DOA to certify almost all fruit and vegetable farms. They are carrying out this duty without complying with internationally recognized certification practices. There has been no effort to promote private sector participation in certification. To the contrary, the DOA crowds the private sector service providers out of the market by requiring exporters to obtain test certificates required by its regulations only from the state-owned LCFA. Complexity at accreditation level compounds the problems further.

4.2 The solutions

The above development challenges present the T-G PEC with very interesting technical cooperation opportunities. The T-G PEC’s strategy is still very much in the making, and
Experiences from the Thai fresh fruit and vegetables industry

implementation is still in the early stage. Nevertheless the strategy is sufficiently crystallized to be meaningfully examined. The following is a brief discussion of the T-G PEC’s strategy in relation to the quality infrastructure serving the Thai fresh fruit and vegetables industry.

4.2.1 Re-organizational requirements

Ideally the members of fresh fruit and vegetables industry should have a choice of service providers where services can be commercially provided. These services are voluntary standards, training, testing and certification. Here the government should best leave service provision to the private sector. If the government chooses to provide some of these services, it should do so without competing on an unfair basis, such as subsidising the prices of its services with state budget or legally requiring service users to use only the services or the government.

Some services require state sanction, e.g. technical regulations. Some services cannot be provided on a competitive basis, e.g. metrology, accreditation and coordination of policy dialogue. These services are best provided by the government. As for accreditation, the most cost effective arrangement is to have a single AB for the countries.

It is unrealistic to expect that the above described ideal set-up will materialise within the 3-year lifetime of the project. The T-G PEC must focuses on a few critical changes and create the right incentives for the participants in the quality infrastructure to bring about and sustain the changes. These critical changes are:

- Deepening of quality management training market
- Deepening of the market for internationally recognised certification service
- Supporting the evolution of ACFS into the apex manager of the quality infrastructure for agricultural and food sector

Training market

Like their counterparts in many other developing countries, Thai farmers do not pay for training. The thought of paying for one have never crossed their minds. Their attitude has been conditioned by years of free training and advices provided by the RTG’s extension officers. This is not likely to change in the near future. The only feasible option to make farmer training commercially viable is to find someone else to pay for their training. The party most likely to benefit from the farmers’ improved skills is their buyers. This is more so in an oligopsony. Oligopsony is common in Thai agricultural sector. It is the case in the fruit and vegetables sub-sector as discussed above. It is also the case in the oil palm sub-sector where the T-G PEC operates another project. There the T-G PEC has successfully introduced miller-funded training programme for oil palm growers. The training programme was piloted with around 100 growers organised through two mills. It is being marketed to other mills and will eventually reach tens of thousands of growers. The T-G PEC is now planning a similar arrangement in the fruit and vegetables sub-sector.

Certification market
The key challenge toward deepening the certification market is limited demand. If the service providers would serve only producers producing for export, the market would be very small even with the improved access to the export markets resulting from the improvement in quality infrastructure. Certifying export production alone will not provide the critical mass to create a chain reaction in the certification market. Fortunately Thailand is blessed with a modern retail sector. Major retail chains already have some forms of quality management in place for their fresh fruit and vegetables supply. TESCO is starting a quality assurance programme on primary production. Its scheme is based on EurepGAP. For implementation in Thailand, TESCO has removed several criteria and control points from EurepGAP in order to make compliance more amenable to a wide group of farmers. It will reintroduce these criteria and control points back in gradually over a period of five years and in effect pull their suppliers up to the European standard.

TESCO’s scheme and other retail chains’ schemes are all proprietary. So there is considerable redundancy. Cost saving can be gain if an industry standard can be introduced and a number of activities are performed by third part service providers. The Thai Retailers Association (TRA) is very well aware of this potential. In fact it has been toying with the idea for three years without much progress. The association lacks the necessary capacity to make this happen. It is very much interested in engaging in a technical cooperation with the T-G PEC to implement this industry standard, which is likely to use EurepGAP as a model. Thai Chamber of Commerce (TCC) is also giving its support to this initiative as it understands very well the implication of the initiative on the competitiveness of the Thai agricultural and food sector as a whole.

Apex manager

Its accreditation responsibility gives the ACFS a sense of power. But Thailand does not need yet another AB. So far the ACFS has not performed any real accreditation function in the sense understood in countries with well functioning quality infrastructure. This ought to make it easier for the ACFS to let go of its accreditation power. In place of accreditation responsibility, the powerful role of the apex manager of the quality infrastructure for agricultural and food sector is what the ACFS can contribute better to the Thai quality infrastructure. This role involves two areas of responsibilities. The first area is the coordination of dialogue relating agricultural and food quality policies. The ACFS will in a sense act as an agenda setter. The second area is the maintenance of integrity of the Thai agricultural and food quality infrastructure. This will involve the assurance that appropriate rules are in place and followed. This is in a way in a part of what FoodPLUS is doing for EurepGAP. FoodPLUS does not act as an AB, but it sets and enforces the rules how CBs are accredited for EurepGAP. This is but just one dimension of integrity. The ACFS is taking the first step on this part by acting as the secretariat for the national technical workgroup to prepare the Thai national interpretation of EurepGAP fresh fruit and vegetables standard.

4.2.2 Public-private value chain governance

According to Humphrey and Schmitz (2004), governance occurs when one actor follows parameters set and enforced (through monitoring and sanctions) by another. At any point in a value chain, the three key parameters to be specified are:

- What is to be produced: product specifications.
■ How it is to be produced: process specifications.

■ How much is to be produced, and when: production scheduling and logistics.

Value chain governance is an alternative to coordination through market transactions. Both methods of coordination involve costs. Members of a value chain choose which coordination methods to rely upon based on their relative costs. Obviously not all members of a value chain are in a position to choose value chain governance over market transactions. Only those with capacity to govern their value chain can make the choice. This has an important implication on economic development. Whereas coordination is through market transactions, the main development challenge is market efficiency. Whereas coordination is through value chain governance, the main challenge is equity.

Members of a value chain who opt for a more integrated value chain do so because doing so benefits them. This does not automatically translate into reduced benefits attainable by other members. A win-win outcome is possible. But, there is always a risk that such outcome is not assured. Members with less bargaining power, e.g. small farmers, are potentially at risk of losing out. One way to insure against inequitable value chain governance is to have some form of public sector participation in the value chain governance. This is very much the T-G PEC’s strategy as regards the Thai fresh fruit and vegetables quality infrastructure.

As mentioned above, the T-G PEC believes that the private sector is in the best position to set standards – both product standards and process standards. The ACFS’s continued involvement in standard setting and conformance assessment, albeit at one level removed, is an insurance policy against any abuse of governance power by the “lead firms” in the fresh fruit and vegetables value chain.

4.2.3 “Lead firms” as key drivers of change

Lead firms’ interest in driving changes in their value chains is natural. As mentioned above, a lead firm chooses to make a change in its value chain only because doing so benefits them. In most cases, lead firms upgrade their value chains with any contribution from the public sector or the donor community. Under favourable circumstances, lead firms’ self-interest can be congruent with the goal of development policy. The T-G PEC’s project on quality infrastructure relies on such favourable circumstances to create positive changes.

The T-G PEC was approached by the Thai Chamber of Commerce and the Thai Fruit and Vegetable Producers Association to seek the T-G PEC’s cooperation to a benchmarked scheme to EurepGAP fresh fruit and vegetable standard. A benchmarked scheme is a local standard scheme recognised by EurepGAP as being equivalent to and surpassing EurepGAP standard. Further investigation led to a conclusion that the creation of the Thai national interpretation of EurepGAP fresh fruit and vegetable standard is a more appropriate to make EurepGAP certification cost effective and accessible to Thai fruit and vegetable growers. The national interpretation is EurepGAP’s scheme of approval for a common interpretation guideline of its standard to be used in a particular country. The national interpretation guideline does away with differing interpretation, which adds cost to standard compliance.
In order to prepare the national interpretation guideline, EurepGAP requires that a national technical workgroup is set up. The establishment of such workgroup serves the T-G PEC’s goal of refashioning the ACFS as the apex manager of the Thai agricultural and food quality infrastructure as discussed earlier. Without the Chamber of Commerce and the Thai Fruit and Vegetable Producers Association, which represent the lead firms in the fruit and vegetable value chain, pushing for the national interpretation guideline, it is less likely that the T-G PEC can successfully draw the ACFS into performing the role of the apex manager. Such effort is pivotal to the rationalisation of the institutional framework for the Thai agricultural and food quality infrastructure.

4.2.4 Inclusive development for smallholders

A regular criticism against quality standard schemes is that they are only for big businesses. Small business enterprises and farmers often find the cost of compliance outweighing the benefit they can gain. This assumes that they can come up with the managerial resources to organize a formal quality management system in the first place. The attraction of EurepGAP’s scheme lies in the fact that it allows for group certification. Smallholders can organize themselves (often with the help of the pack-house they are supplying) into a group. The group then implements a quality management system with an internal control mechanism. Third-party inspection of the group is limited only to the square root of the total number of members, e.g. 5 in 25, 10 in 100 and so on. This dramatically changes managerial feasibility of compliance and cost-benefit profile of certification. GTZ is working on a sectoral project to develop EurepGAP Smallholder Manual. The manual is being piloted in three countries, one of which is Thailand. Piloting of the manual in Thailand will be a collaborative effort between the EurepGAP Smallholder Manual Project, the T-G PEC and the Thai Fruit and Vegetable Producers Association.

This group certification arrangement will be incorporated into the fresh fruit and vegetables standard that the TRA will develop in cooperation with the T-G PEC. This will widen the reach of the fresh fruit and vegetables quality infrastructure to a much greater number of smallholders.

4.2.5 The expected outcomes and impacts

The ultimate aim of the T-G PEC is to foster a well-functioning quality infrastructure for the Thai fresh fruit and vegetables industry. This will require a well-functioning framework condition for setting standards and technical regulations, well-functioning quality management training market and well-functioning testing and certification market supported by well-functioning metrological service and accreditation system. It is not likely that this ultimate aim will be achieved by just one round of interventions. The initial success of the T-G PEC will more likely be in term of a convincing demonstration of the benefits of these services on a pilot scale. Further interventions may be needed. On the other, patient monitoring of market self-development may suffice. The snowball may pick up enough momentum.
The impacts of achieving this aim are quite obvious. Fruit and vegetables growers, particularly smallholders, will be able to participate in high-value modern agri-food value chains both internationally and domestically. They will also be protected against competition from unsafe, poor-quality fresh fruit and vegetables imported from countries without proper quality infrastructure. The outreach can be expected in terms of around a quarter of over 300,000 households engaging in fruit and vegetables farming. Market access is only a small part of the positive impact that will benefit farmers. The benefit of improved productivity will far outweigh the benefit of market access even though most farmers will be drawn toward quality management more by the latter than the former. Rejection rates at packhouses currently run as high as 50%. With proper quality management system, this rate will drop tremendously. The uses of hazardous agricultural chemicals will also be better managed. Consumers both foreign and domestic will be supplied with safer and more cost-effectively produced fresh fruit and vegetables. The percentage of contaminated fresh fruit and vegetables reaching end-consumers in the domestic market is estimated at around 4%. Last but not least any efforts on strengthening quality infrastructure always contribute toward fostering good governance, an overarching of development cooperation.
5. Conclusion and lessons learned

5.1 “Bottom-up” implementation with “top-down” vision

A combination of a clear strategic vision and nimble tactical opportunism is required for a successful implementation of quality infrastructure strengthening project. Quality infrastructure is complex. It comprises a multiplicity of components, within each there are many key players. On the one hand, the understanding of the current roles and the vision of the future roles of these players need to be sufficiently prior to the implementation of the reform. Value chain analysis is often a very useful tool to map out these roles and their relationships. Meso-level and macro-level relationships beyond the micro-level transactions within the core markets along the value chain need also to be taken into consideration. The vision for change has to be compatible with market-based, sustainable solutions where as many commercially viable services as practical should be put in the hand of the private sector. On the other hand, the importance of pragmatism can never be overstated. Any change process can only be successful only when there is sufficient incentive for change and resistance to change is within manageable limit. Here the role of “lead firms” is the change process can be very useful. Close partnership with them is often fruitful. A development agency has to be opportunistic in seizing hold of the partnership opportunities. This opportunism needs, of course, to be bounded by a clear strategic vision. This particular lesson is likely to be as applicable to other aspects of business environment as to quality infrastructure.

5.2 Standard is not quality

A standard is not quality. A technical regulation is not food safety. Unfortunately this point is often confused. When quality is a problem, a standard is often focused on singly as a solution. A standard without conformance is of no value. Neither is conformance without trust. A well-functioning quality infrastructure is needed in order for any standard to have any value to the buyers and the sellers. A quality infrastructure is a totality of closely interrelated components. Poor performance by just one component can erode the usefulness of all other components. Strengthening quality infrastructure requires a full understanding of this totality. Again value chain analysis can be a very useful tool. It can help a development agency to understand how quality is communicated along the value chain. Could this lesson also be applicable to other aspects of business environment? Has the service side of the business environment been overlooked?

5.3 Quality infrastructure is not out of reach of smaller enterprises

Integrating quality infrastructure project into enterprise development is still very much in its early. Few bilateral and multilateral development agencies have so far been involved in the effort. Most of the projects involve agri-food chains. Very little has happened elsewhere. Complying with the requirements of any highly formalised quality management system may appear to be out of reach of micro- and small enterprises, the main targets of any enterprise
development project. One lesson that the T-G PEC is learning is contrary to the conventional wisdom. Quality management can work for even the smallest of smallholders. Some members of grower groups that have already been certified with EurepGAP fresh fruit and vegetables standard have only one acre of land under cultivation. If EurepGAP can work for such smallholders, other quality schemes may be accessible to micro and small enterprises. Group certification may be the missing link that will bridge micro and small enterprises to modern quality infrastructure.
References


Humphrey, J., 2005, Shaping the Value Chain for Development: Global Value Chains in Agribusiness, Eschborn, GTZ


Appendix : T-G PEC’s sub-sector selection criteria

1. Outreach (weighting 15%)
   - Number or significance of SMEs in the sub-sector and their distribution along the value chain.
   - Estimated employment in the sub-sector
   - Location of major clusters in more rural areas

2. Market Demand and Growth Potential (weighting 15%)
   - Contribution of the sub-sector to GDP/export earnings of the country or district
   - Evidence of high market potential or strong effective demand for products being produced in the sub-sector
   - Positive growth prospects and opportunities for incomes and employment
   - Assumed (potential) competitive advantage of a particular sub-sector in relation to the regional or world market

3. National Priority Ranking (weighting 20%)
   - Political priority sector as mentioned in speeches or government plans
   - Relevance or importance to programme partners
   - Potential demonstration effects, assumed spill-over effects, repeatability of ‘lessons learned’ in other sub-sectors

4. Opportunities for Programme Intervention (weighting 30%)
   - Existence of constraints that could potentially be tackled by the programme
   - Ease of entry for the programme and openness of key actors (private and public sectors) towards cooperation
   - Likelihood of stakeholders to buy in and actively support programme interventions

5. Relevance of cross-cutting issues (weighting 10%)
   - Likely high impact on poverty or socially excluded portions of society
   - Opportunities to impact on critical environmental and social issues

6. Complementarity of Intervention (weighting 10%)
   - Existence of other major actors/donors’ activities (opportunities for synergies, niches, coordination)