
Sub-sector Strategy

Development of the Quality Infrastructure (MSTQ) with Special Emphasis on Agricultural Products

The Relevance of the Sector

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 6 trillion Thai Baht (THB), or USD 150 billion, 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.

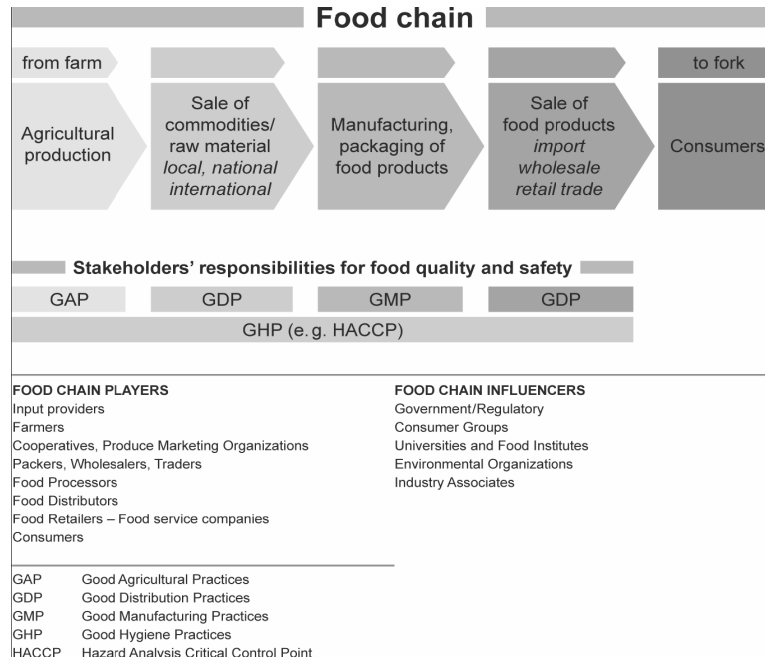
In 2003, Thailand's exported agricultural products were valued at THB 618 billion, accounting for 25% of the total exports and making Thailand the 6th biggest agricultural exporter in the world. In 2004, fresh fruit and vegetable (FFV) exports were valued at THB 39,000 million (6% of total agricultural exports) with the most important fruits and vegetables being longan (THB 2,193 million), durian (THB 2,227 million), asparagus (THB 1,796 million) and baby corn (THB 1,675 million). In addition, shrimp exports contributed over THB 70,000 million or 8.9% of Thailand's total agricultural export value in 2003, and accounted for 1.1% of the country's GDP.

With the increasing competition in the global food markets, the issues of food quality and safety become increasingly important for creating sustainable competitive advantage and constitute a main non-tariff barrier for developing countries' exporters. The producers in the exporting countries are required to meet a growing number of standards and technical rules in terms of quality, safety, reliability, environmental compatibility and hygiene imposed by their target markets. These countries are now expected to furnish the internationally recognized proof of their compliance. This is especially true for the EU market, which has the strictest food quality and safety standards (including requirements for GAP, GDP, GMP, GHP, HACCP and other certifications, zero-tolerance policy for antibiotic and pesticide residues, end-to-end traceability requirement, etc.) (Figure 1). It is only a matter of time until these more stringent regulations addressing consumer safety concerns will be adopted in the US and other global markets, so food quality and safety requirements will become even more globally prevalent. In addition, consumer awareness about food safety, chemical residuals, environmental and social issues are on the rise around the world, and become ever more important part of their purchasing decisions.

An export-oriented country like Thailand cannot ignore these developments and needs to have an efficient and internationally recognized so-called "quality infrastructure" (comprising in itself all aspects of metrology, standardization, testing,

quality management, certification and accreditation, also abbreviated MSTQ) in order to maintain and expand its global market share of agricultural exports.

Figure 1: Food quality and safety standards along the food chain



Thailand's agricultural industry's ability to comply with international food quality and safety regulations has already become a prerequisite for continuing Thai exports in one of the biggest and most lucrative agricultural markets, the EU. There are several high profile cases where Thai products either have no access or lost their market share in the EU due to problems with food safety. For example, few years ago, antibiotic residues were found in Thai shrimp, leading to Thai shrimp EU exports decline from 31,939 tons in 1996 to only 4,900 tons in 2003. As a result, current Thai shrimp export to the EU stands at less than 1%, while the EU represents the world's largest shrimp market accounting for 37% of global shrimp demand. There are other similar examples, e.g., Thai asparagus has gained only 5% market share in the EU due to the lack of the appropriate certification.

In order to have access to the EU and other developed markets, Thai agricultural products should be certified in accordance with international standards by the certification bodies which have international recognition, hence, a well-functioning quality infrastructure is essential to increasing Thai companies' competitiveness and performance within global food industry structure as well as breaking down technical barriers to trade and achieving political objectives in the fields of environment, health and consumer protection.

The existence of a well-functioning quality infrastructure will have a significant impact in terms of increasing Thai food sector's market access, productivity, environmental sustainability and overall competitiveness as well as improving individual companies' business performance.

In the case of export-oriented sub-sectors, and specifically, vegetables (asparagus and baby corn), fruits (longan) and shrimp, Thai producers will be able to increase or protect their market share in the EU and the US markets. Currently, the main market for Thai FFV exports is China, accounting for 58% of vegetable and 32% of fruit exports in 2005. Thai exports to the EU account for only 12% of vegetable and 6% of fruit exports and exports to the US for 6% of total FFV exports. Even though these sectors are major Thai export revenues earners, they are facing increasing competition from countries like Vietnam, China and other regional producers. As Thailand cannot compete with these countries based on labour costs, the only viable strategy is to differentiate itself as an agricultural products producer with high food quality and safety standards which would allow Thailand to increase and maintain its market share in the countries requiring strict adherence to these standards, such as the EU and the US. In the longan sub-sector, Thai producers will be able to increase and protect their market share in the high-end markets of Hong-Kong, Taiwan and Singapore. In the case of shrimps, Thai producers will be able to increase their exports to the EU from current 0.9% to 20% in 2008 (in accordance with the government's Shrimp Roadmap goals).

In the case of domestic-oriented sub-sectors like tangerine and palm oil, better product quality and safety standards will lead to the adoption of more sustainable farm practices and hence, will help to sustain domestic industries like tangerines, or increase its productivity in the case of palm oil (to bridge the 33% productivity gap with Malaysia). It will also protect these sub-sectors from potential low-cost imports from regional competitors by building consumer trust in high quality domestic produce.

Finally, establishing food quality infrastructure will have major spill-over effects for the entire Thai economy. After implementation of quality assurance systems at the farm level, it is expected that the demand for these services will increase from other players in the food value chain, like logistics companies, food retailers (supermarkets, restaurants), packing house, etc. In addition, once installed and internationally recognized, the quality infrastructure can easily be extended from agricultural products to other products and services or adjusted to new requirements. It will also have an impact on the domestic sales by creating better food quality and safety awareness among Thai consumers and ensuring effective market monitoring and consumer protection.

The Competitive Position/ Situation of Thailand

Unfortunately, currently Thailand does not have a well-functioning infrastructure for food certification and standards assurance. It is extremely fragmented and uncoordinated with unclear responsibilities and a lack of international recognition, absorbing extensive financial and human resources and requiring periodical inspections and supervision by the importing countries.

At present, there are 6 ministries and under these ministries there are 23 different departments or agencies involved in quality infrastructure issues (figure 2). Initially, Thailand Industrial Standards Institute (TISI) under the Ministry of Industry (MOI) was the first agency to concern itself with quality infrastructure. In the early years, TISI only dealt with standard setting. Later on it began to conduct testing and award quality certificates. However, as the requirements for its services increased and in order to comply with international norms when different organizations are responsible for different components of quality infrastructure, some tasks were delegated to

different departments under different ministries (DSS, TISTR, CBWM) or new agencies were set up specifically to perform certain tasks (MASCI, NAC, NIMT, ACFS). The full list of these organizations can be seen in figure 3.

Figure 2: MSTQ in Thailand

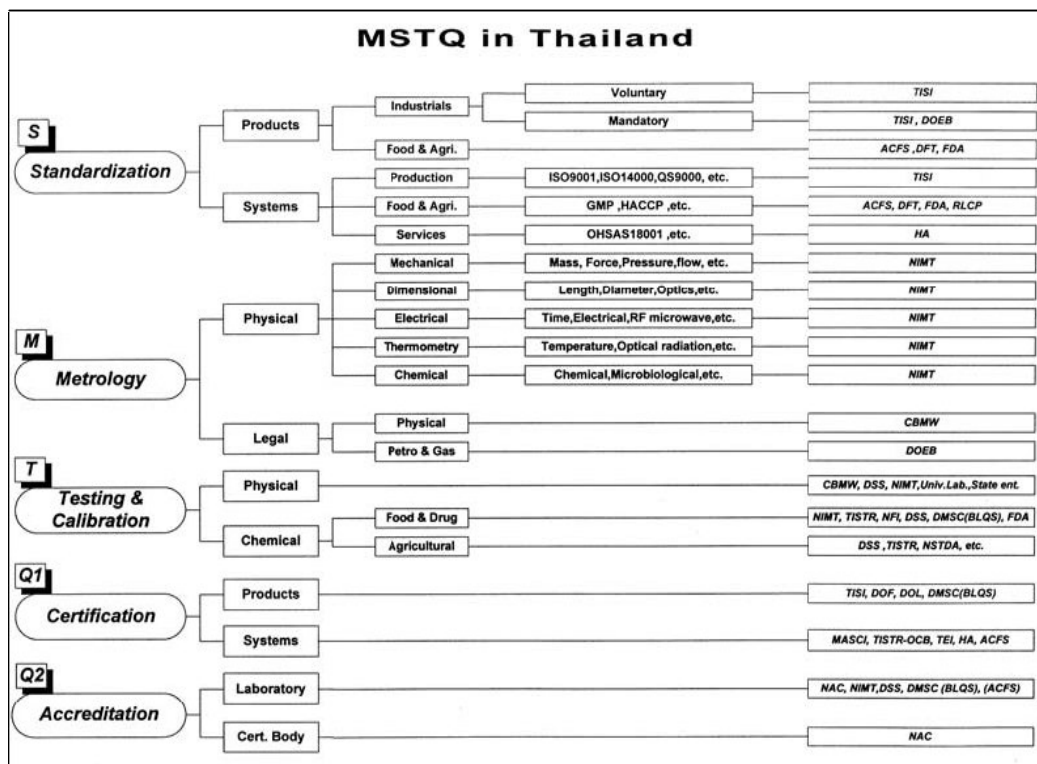


Figure 3: Agencies involved in quality certification in Thailand

MOI Ministry of Industry

1. DIP Department Industrial Promotion
2. EEI Electric and Electronic Institute
3. MASCI Management System Certification Institute
4. NAC National Accreditation Council
5. NFI National Food Institute
6. TAI Thailand Automotive Institute
7. TISI Thai Industrial Standards Institute
8. TTI Thailand Textile Institute

MOC Ministry of Commerce

9. CBWM Central Bureau of Weight and Measurements
10. DFT Department of Foreign Trade

MOPH Ministry of Public Health

11. BLQS Bureau of Laboratory Quality Standard
12. DMSC Department of Medical Sciences
13. FDA The Food and Drug Administration
14. HA Institute of Hospital Quality, Improvement and Accreditation
15. RLCP Rural and Local Health Products Consumer Protection Promotion

MOST Ministry of Science and Technology

16. DSS Department of Science Service
17. NIMT National Institute of Metrology (Thailand)
18. NSTDA National Science and Technology Development Agency
19. TISTR Thailand Institute of Scientific and Technology Research

MOEN Ministry of Energy

20. DOEB Department of Energy Business

MOAC Ministry of Agriculture and Cooperatives

21. ACFS National Bureau of Agricultural Commodities & Food Standards
22. DOF Department of Fisheries

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| 23. DLD Department of Livestock Development |
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This development led to a number of parallel efforts in the various disciplines and even within the same working field. The above mentioned example shows that instead of strengthening an existing institution to meet new or increasing requirements, another agency was set up. At the same time competences and responsibilities were not clearly defined. Overlapping responsibilities of different ministries resulted in an uncoordinated implementation of parallel structures even for the same purpose. As a consequence, several uncoordinated parties assume similar tasks regarding international memberships, participation in conferences, assemblies, negotiations or promotion activities, which is costly and inefficient for Thailand. An overall strategy on rationalization of Thailand's quality infrastructure and creating its legal framework has not yet been developed.

Similarly, in the promotion and supervision of the food-processing sector, the Ministries of Industry, Science and Technology, Environment, Agriculture, Health and Commerce, all six of them, are involved with parallel or competing structures in standardization, testing, certification and accreditation. The majority of quality infrastructure institutions are government institutes or state enterprises depending on different ministries. The recent tendency to privatize public entities has led to more competition and creativity but also to more duplication instead of merging institutions with lean management and high technical competence to become internationally competitive and recognized.

Specifically, product certification bodies in the food processing and food safety field are exclusive departments of the Ministry of Agriculture. Only a few are accredited by internationally recognized accreditation bodies. Recognition is mainly granted on a bilateral MOU basis and with frequent inspections by importing countries. The test reports necessary for certification are accepted from governmental laboratories (even not accredited) or accredited private laboratories.

Similarly, the Thai accreditation system is characterized by an inadequate legal structure and uncoordinated and competing entities. Increasing accreditation demand in different fields encourages the setting up of new accreditation bodies instead of strengthening existing accreditation know-how. With an increasing number of Thai accreditation bodies an international recognition will become complicated. The strategy should be to enhance Thai government agencies to facilitate the emergence of a strong private sector especially in the area of certification.

As stated above, certification and accreditation are two key components of quality infrastructure. Certification confirms conformity with requirements defined in written standards. A third party assessment of the competence of the certification body and regular surveillance visits by an accreditation body confirm reliability and facilitate international recognition. There are two types of certification: certification of management systems (e.g., ISO 9000, HACCP, GMP) and certification of products (e.g., "Halal" for products complying with Muslim food requirements). In case of agricultural products such product certification is related to food safety and certifies certain properties of food commodities or levels of contaminants or residues, mostly according to FAO/WHO recommendations from Codex Alimentarius standards or technical regulations of importing countries. Compliance exists when test results from analytical laboratories confirm conformity. Product certificates with their respective marks exist in most countries of the world. Many of those have only national

acceptance if issued by a national certification body which do not have internationally recognized accreditation (as in case with Thai Q mark).

A reliable certification system should be accredited by an internationally recognized accreditation body. Clients of accreditation bodies are laboratories and certification bodies. Relevant to trade issues are accreditation of testing and calibration laboratories or accreditation of certification bodies where management systems and especially product certificates need to be recognized in the importing countries. Particularly in the agricultural and food processing sector the mutual recognition of product certificates is essential. As long as this is not the case, frequent and costly inspections by importing countries is the only alternative.

Countries generally tend to establish one national accreditation body for all fields of accreditation to avoid competing entities and recognition complications within the country, as well as to reduce the costs for duplicating national structures and for international memberships and representations.

Thai GAP, EurepGap and other standards

There are several international food quality and safety standards available to Thai producers:

EurepGAP is a transnational scheme for Good Agricultural Practice (GAP) at the farm level. It was established by the Euro-Retailer Produce Working Group. EurepGAP members include retailers, producers/farmers and associate members from the input and service side of agriculture. EurepGAP is recognized around the world. The Thai GAP standard is less strict and still needs improvement for international acceptance.

Other international standards are:

Nature's Choice, established by Tesco UK for it's' producers and suppliers for fresh fruits and vegetables. It covers management systems, production, handling and environment.

UK Assured Produce, promoting safe and environmentally responsible practices for production of fruits and vegetable through the use of integrated crop management (ICM).

SQF 2000, providing food safety and quality system for all sectors of the food industry applying concepts and principles of Hazard Analysis and Critical Control Point (*HACCP*), Good Manufacturing Practice (*GMP*), Good Hygiene Practice (*GHP*) and Good Agricultural Practice (*GAP*)

BRC (British Retail Consortium), food technical standard used to evaluate manufacturers of retailers' own brand food products.

Soil Association (Organic Certificate), UK, covering all aspects of agricultural food production.

JAS OMIC, or Japanese Agriculture Standard, assuring organic farm produce and the processed foods made from it when they marketed in Japan.

Certification and Accreditation Bodies and Lab Association

The National Bureau of Agricultural Commodity and Food Standards (ACFS) was created in 2002 by Ministry of Agriculture and Cooperatives (MOAC) to develop and

raise the standards of Thai agricultural commodities and food products to internationally accepted levels and to develop a system for inspection to ensure food safety for consumers while at the same time guaranteeing fair treatment to the agricultural producers. It acts both as a quality scheme owner and an accreditation body. As an accreditation body, it accredited three national certifiers for GAP (Department of Livestock, (DOL), Department of Agriculture (DOA) and Department of Fisheries (DOF) and relies on 65 testing laboratories and 29 calibration laboratories (as of August 2002) which have been accredited by Thai Laboratory Accreditation Scheme (TLAS.) to confirm conformity with the standards. As a quality scheme owner, ACFS authorizes the use of Q Mark on the packages of food and agricultural inputs. Currently it allows all producers with GAP certificates to use Q Mark.

As of July 2005, about 433,000 farms had registered for GAP certification, about 260,000 had been inspected and 140,351 farms with the area of 1,255,373 rai (200,860 ha) had obtained GAP for 31 fruits or vegetables. The majority of the certifications for fruits are longan (50,089) durian (13,011), mangosteen (11,150) and for vegetables are asparagus (3,276) and baby corn (1,565). The DOA's target is for additional 334,100 farms to be registered for GAP certification by the end of 2005.

With such a high number of farms being inspected (about 2,000 farms per day, if 5 working days week) by the governmental agencies with limited financial and human resources, the Thai Q Mark can hardly be consider as a reliable quality guarantee. In addition, as Thai GAP standards were set up by the Thai government, they are less strict than internationally recognized standards such as EurepGAP. Also the government's accreditation and certifying bodies are not recognized internationally for their technical competence. As a result, the Thai Q Mark certificate is not accepted internationally.

Finally, the Laboratory Center for Food and Agricultural Product Co., Ltd (LCFA) owned by the government, offers lab service for tests required by the government. However, its test results are not widely recognized outside of Thailand. Exporters perceive LCFA's tests as additional costs with no value to their customers.

As ACFS is not internationally recognized as an accreditation body, it cannot accredit any certifiers for EurepGAP. If an exporter needs to get EurepGAP certification they have to go to private certification bodies which were accredited by internationally recognized accreditation bodies. Currently SGS is the more prominent EurepGAP certifiers active in Thailand. Other certification bodies registered with EurepGAP and operating in Thailand are SKAL, P&H Agro Control Co (Control Union Thailand) and EFSIS Asia Pacific Ltd. EFSIS is however only working with the British Retail Consortium in Thailand and this is principally in the poultry sector.

Applying for international certification has given Thai producers and importers the market access to the EU, however, the cost of certification (about \$2,500 per certificate renewable annually) is a major constraint. Thai farming is fragmented and most Thai growers have small farms, so it is not economical for them to implement EurepGAP. In practice, growers sign contracts with export companies before implementing EurepGAP. Implementing international standard like EurepGAP requires growers to adopt more disciplined processes compared to the Thai GAP, therefore EurepGAP is still not widespread. As the majority of farmers can't afford it, it is only the exporters who obtain and pay for such certificates. In the west of Thailand, only few exporters comply with international certificates, e.g., RiverKwai, KC Fresh and Swift.

Another problem is that even within Europe, there are different certificates requested by different buyers, e.g., Tesco requires its supplier to comply with its own Nature's Choice standards on top of EurepGAP. According to one of the top 3 Thai exporters of fruit and vegetables, they have to apply for more than 10 certificates annually costing about THB 5 million per year, and the number of certificates required in the EU is increasing each year.

The international recognition of Thai Q Mark would solve this issue by terminating a need to obtain many individual certificates for each importing country and would ease the financial burden on the producers.

In shrimp sector, any certification body can grant the certification of systems, whereas the certification of the product for export can only be granted by the Department of Fisheries (DOF) as a governmental but not accredited body.

It is important to note, that it will not be easy to achieve a broad acceptance of EurepGAP in Thailand in the next few years. This is partly because the current price obtained by farmers for GAP from the Department of Agriculture is heavily subsidized and most farmers do not see the financial incentives for them to incur the higher costs of obtaining the EurepGAP certificate with its complex processes. In addition, due to a general lack of Thai consumers' awareness about issues of food safety, the domestic Thai market doesn't require strict adherence to high food quality and safety standards. Furthermore Thai farmers' knowledge of the international markets demand for food quality and safety standards is very limited. Finally, at the moment the main import markets for Thai agricultural products are Asian markets where quality certification is not required (except Japan).

However, it seems that the Thai government understands the rising importance of food safety standards both for domestic and international markets because it is the government's strategy to promote Thailand as a "kitchen of the world" supplying various food products globally. As a sign of this understanding, one of the "Mega Projects" announced on January 26, 2006, deals with the issues of food traceability. There is also an understanding within government agencies that any improvements in this area will only come from the closer cooperation with the European experts.

Sector Strategy

From all of the above, it is clear that in order for Thailand to maintain its leadership position as one of the world's major agricultural products producers and exporters, it needs to establish a well-structured, coordinated quality infrastructure and get it internationally accepted through multilateral recognition agreements. However, as this process requires establishing an institutional framework and dealing with the policy issues, based on previous experience of such undertakings, it is estimated that it may take between five to ten years to achieve this goal. Hence, GTZ's efforts should be concentrated on the implementation of those components of quality infrastructure which can affect the competitiveness of Thai SMEs within the program timeline.

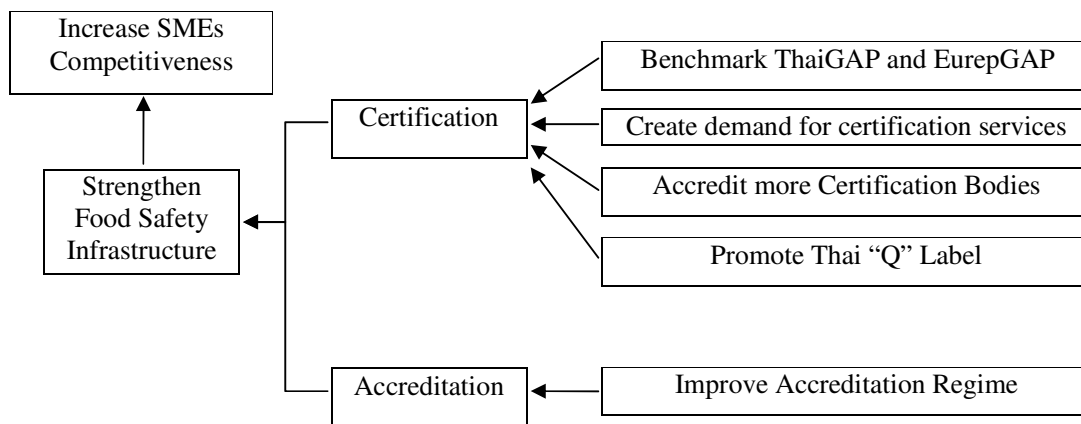
Thus, the strategy is to improve food quality and food safety as well as environmental sustainability by adopting better farm management practices as part of the implementation of an internationally recognized GAP. A first step would be to obtain a better understanding of the Thai GAP as compared with international standards and specifically as it relates to EurepGAP. The second step would be to conduct a

feasibility assessment of how Thai Q Mark requirements can be harmonized with EurepGAP and if internationally recognized Gold Q Mark can be established to denote Thai products adherence to international quality standards. Eventually, the programme should seek to implement a complete “farm to fork” quality certification system according to international requirements based on EurepGAP (currently certification exists only at the farm level until the packing house level). In parallel, the programme should facilitate the harmonization of domestic food quality and food safety standards set by various governmental agencies. The standards should be in line with the requirements of the Thai sector, particularly food exporters, major retailers and restaurant chains.

Part of this strategy is to facilitate the establishment of a well-functioning certification and accreditation systems for compliance with internationally recognized standards such as EurepGAP. This would lead to the increase of Thai exports to the EU market and elsewhere. Additional efforts should be taken to create the demand for certification services by establishing linkages between Thai producers/exporters and European buyers, as well as encouraging the additional supply of certification agencies by assisting potential candidates with obtaining internationally recognized accreditations.

One further part of this strategy is to establish more food quality and safety awareness among Thai people, including educating them on the meaning of Q Mark to solve any current misconceptions. This would lead to further increases in the quality requirements demanded in the domestic market and, hence, create demand for more certification services and service providers (such as metrology and testing laboratories, standards organizations, certification and accreditation bodies).

Program Focus



Specifically, the programme will focus on: improving the access of local certifying bodies to internationally recognized accreditation; creating demand from producers for improved certification and improving the supply capacity of certifying bodies.

The programme will assist the existing players in the certification field (both governmental agencies, institutions like Kasetsart University, and private sector

certifiers) to become internationally accredited certification bodies. Equal criteria for public and private certifying bodies should be defined to be accepted in food safety product certification.

Improving the Thai GAP standard, creating a national food quality mark and promoting this mark in the international and domestic markets would be another major focus of the programme. Cooperation with EurepGAP and domestic buyers (major retailers and restaurant chains) will be sought. In order to achieve initial results in the shortest period of time, priorities will be given to shrimp and fresh fruits and vegetables. This will create the momentum to extend the programme's impact to other commodities.

Interventions

Ongoing Intervention

- Pre-feasibility on the Application of EurepGAP Standard to Thailand:** This intervention is aimed at determining whether EurepGAP standards can be integrated with the currently promoted Thai "Q" label of quality in the food sector. A 10 day mission from EurepGAP, Germany was conducted in March, 2006 with senior technicians to review the current standards and the procedures for assessing compliance as a way of determining whether harmonization is possible. If this is so, then recommendations will be made on next steps.

Valid Intervention Ideas

- ACFS Capacity Building:** This intervention is aimed at building ACFS's capacity to facilitate the overall improvement of the food safety and certification infrastructure. In practice this means jointly working on the establishment and coordination of a National Technical Committee on Food Standards. The purpose of this committee will be to lead the process of benchmarking existing food safety standards with international standards like EurepGAP, in commodities like fresh fruit and vegetables, poultry and shrimps and to oversee the evolution of a new intermediate food safety standard principally for the domestic market. This intermediate standard would be developed with the larger domestic retailers.
- Intermediate Food Safety Scheme:** This intervention would be facilitated through the Thai Retailers Association, and within this association the Project would work with three to four lead firms that are interested in developing a food safety scheme based on EurepGAP. This new scheme will be more demanding than Thai GAP but less demanding than EurepGAP and will converge toward EurepGAP within five years. This would generate the potential inclusion of thousands of additional farms into higher value adding food chains and eventually graduate them to export-quality producers.
- Farmers Outreach:** This intervention is aimed to replicate the success of the Western GAP Cluster in the East of Thailand
- e-Traceability:** The Department of Fisheries is receiving technical assistance from the EU to develop e-traceability systems in Thailand for

shrimps. This intervention will complement the EU's assistance on technological side by developing the markets for these new e-traceability systems. The intervention will, *inter alia*, ensure interoperability between the systems in Thailand with EurepGAP's traceability system.

Raw Intervention Ideas

- **Shrimp Standard:** The DOF is considering EurepGAP's invitation to participate in developing its new shrimp standard. The DOF's participation will ensure a smooth benchmarking between the new standard and the DOF's existing standard. The Project can cooperate with the DOF in facilitating an effective stakeholder participation in the process.
- **Export FFV Standards:** Thai GAP for FFV is currently not benchmarkable to EurepGAP. New FFV Standards for six key export FFV will need to be developed. The Project can cooperate with the DOA and Kasetsart University to develop and pilot test these standards.
- **Capacity Building of Certifying Bodies:** On the assumption that harmonization of standards is possible a subsequent intervention would be aimed at improving the capacity of certifying bodies. This would take the form of seminars and workshops on the details of the standards and their enforcement. This intervention would also include a study tour to German certifying bodies in the field of food safety. The key indicator of this intervention would be related to the expansion of new and relevant sales of certifying bodies in Thailand.
- **Demand Creation for the Certifying Bodies:** Again assuming that the pilot testing has gone well the next phase of the project would be aimed at stimulating the demand for the service from the consumers (food suppliers and exporters). This would be done using standard marketing techniques directed to creating awareness of the commercial relevance of adopting higher standards and eventually directing consumers to certifying bodies that would be able to deliver the service.
- **Recommendations on Appropriate Legal and Regulatory Changes:** At this stage of the development of the market for this certification service changes would be required to assure that the appropriate accreditation body is empowered with adequate authorities.

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