Sustainable Development Department
East Asia and the Pacific Region

The World Bank
1818 H Street, NW
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www.worldbank.org

Lao People's Democratic Republic

Sanitary and Phytosanitary Measures:
Enhancing Trade, Food Safety and Agricultural Health

The World Bank
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Contents

FOREWORD

In 2006, the Lao People's Democratic Republic (PDR) undertook a Diagnostic Trade Integration Study (DTIS) under the Integrated Framework for Trade-related Technical Assistance to Least-developed Countries. The DTIS Action Matrix includes capacity building for the management of sanitary and phytosanitary (SPS) measures. The World Bank subsequently supported Lao PDR in developing an Action Plan for Capacity Building in SPS Management, which the Government of Lao PDR eventually adopted.

This study implements one of the recommendations of the SPS Action Plan, that is, to study SPS requirements faced by Lao agricultural exports and imports from both Lao PDR Government and trading partners. It focuses on compliance with principles of the World Trade Organization (WTO), market access, competiveness, and the management of risks of plant pests and animal diseases and threats to food safety arising from trade by Lao PDR and trading partners. It provides recommendations for improved management of SPS measures and SPS capacity building.

This study preparation involved consultations in Lao PDR with main stakeholders in the Ministries of Agriculture and Forestry, Health, and Industry and Commerce; the private sector; and donor representatives. Short consultation visits were made to neighboring China, Thailand, and Vietnam, and border crossings with these countries. These countries are not only Lao PDR's main trading partners but also provide support in its SPS capacity building.

Results of the study were presented in a workshop held on February 6, 2009 for senior officials of the Ministries of Agriculture and Forestry, Health, and Industry and Commerce.

The work was carried out by Cornelis van der Meer, Laura Ignacio, and Xin Qin (consultants) under the supervision of Ulrich Schmitt, task team leader for the World Bank. Overall guidance was provided by Mona Haddad, Sector Manager, World Bank. The authors would like to acknowledge the valuable support and advice from the various Ministries in Lao PDR, Vietnam, Thailand, and China; private sector representatives; and donor agencies (listed in Appendix A). Special thanks go to Mr. Xaypladeth Choulamany and Mr. Phaydy Phiaxaysarakham for their overall guidance. Much valuable support was provided by staff of World Bank offices in the same countries, especially Sari Soderstrom, Hongwei Zhao, Phetsila Somsanith, Sengxay Phousinghoa, Angkanee Luangpenthong, and Thu Thi Le Nguyen.

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ABBREVIATIONS AND ACRONYMS

AFTA	ASEAN Free Trade Agreement
AQSIQ	General Administration of Quality Supervision, Inspection and Quarantine (China)
ASEAN	Association of Southeast Asian Nations
CIQ	Entry-Exit Inspection and Quarantine Bureau [in each province of China]
DLF	Department of Livestock and Fisheries, Lao PDR
DOA	Department of Agriculture, Lao PDR
DTIS	Diagnostic Trade Integration Study
FAO	Food and Agriculture Organization
FDD	Food and Drug Department
FDQCC	Food and Drug Quality Control Center, Lao PDR
GAIN	Global Agriculture Information Network
GDP	Gross domestic product
GMP	Good Manufacturing Practice
GMS	Greater Mekong Subregion
HACCP	Hazards Analysis and Critical Control Points
IFC	International Finance Corporation
IPPC	International Plant Protection Convention
ISPM	International Standard for Phytosanitary Measures
Lao PDR	Lao People's Democratic Republic
MAF	Ministry of Agriculture and Forestry, Lao PDR
MARD	Ministry of Agriculture and Rural Development, Vietnam
MOAC	Ministry of Agriculture and Cooperatives, Thailand
MOIC	Ministry of Industry and Commerce, Lao PDR
MOF	Ministry of Finance, Lao PDR
MOH	Ministry of Health, Lao PDR
NAHC	National Animal Health Center
NPPO	National Plant Protection Organization
NSTA	National Science and Technology Authority, Lao PDR
OECD	Organization for Economic Co-operation and Development
OIE	World Organization for Animal Health
PAFO	Provincial Agriculture and Forestry Office
SITC	Standard International Trade Classification
SPS	Sanitary and phytosanitary
TBT	Technical barriers to trade
VND	Vietnamese Dong
WHO	World Health Organization
WTO	World Trade Organization

EXECUTIVE SUMMARY

Lao People's Democratic Republic (PDR) is making effort to integrate itself into the regional and international economy. It is seeking membership in the World Trade Organization (WTO); participating in the Association of Southeast Asian Nations (ASEAN), the ASEAN Free Trade Agreement (AFTA), and the Greater Mekong Subregion (GMS); and working to attract foreign investment and to expand its foreign trade.

In recent years Lao PDR has been successful in rapidly expanding its export and import of agriculture, food, and forestry products. Most trade is with neighboring China, Thailand, and Vietnam. Improved infrastructure in the GMS and availability of good land in Lao PDR offers potential for further growth of agricultural production and exports. Commercialization of agriculture will lead to further import of seed, planting material, breeding stock, pesticides, veterinary drugs, fertilizer, and animal feed. Further increases in income and changes in consumer demand will lead to greater imports of consumer goods.

Increased foreign trade raises exposure to risks of also importing animal and plant pests and diseases, and foods that are unsuitable for consumption. Import of seeds, breeding stock, pesticides, and veterinary drugs pose particularly increased risks. Lao PDR needs in general to strengthen protection against an influx of pests and diseases, and to assure safety of food — that is, to strengthen sanitary and phytosanitary (SPS) measures.

The WTO SPS Agreement

The WTO SPS Agreement allows countries to protect the health of their consumers, crops, and livestock against trade-related health risks, but requires that any protective action is done in ways that are least disruptive to trade.

Key principles of the Agreement are:

(1) Measures should not discriminate between countries and between domestic and foreign producers.

(2) Measures should be transparent so that all interested parties have full access to information.

(3) Measures should be proportional to the risk they aim to control.

(4) Countries should accept measures from other countries that provide equivalent protection.

(5) Measures should be based on science.

(6) Moreover, countries are encouraged to harmonize with international standards, and, where relevant, to recognize disease- or pest-free zones for trade.

The WTO SPS Agreement plays a major role directly and indirectly in the development of Lao PDR's SPS management – directly through the county's accession process and indirectly through interactions with regional groupings (such as the GMS and ASEAN)

and with trade partners. By applying for WTO membership, Lao PDR must adjust its laws and policies to comply with the WTO Agreement's principles. However, the GMS, ASEAN, and Lao PDR's main trade partners can influence the pace, details, and urgency of adjustment. The GMS and ASEAN both aim for regional harmonization through adoption of international principles of the WTO. Leading the regional harmonization effort, China, Thailand, and Vietnam are rapidly upgrading their domestic systems for plant and animal health protection and food safety.

Implementing SPS Requirements in Lao PDR

This study focuses on Lao PDR's requirements and implementation of SPS measures. It looks at Lao PDR's compliance with WTO SPS principles, market access in neighboring countries, effectiveness of health protection, and impacts on cost of doing business and competitiveness. Information has been collected from public and private sources in Lao PDR and in the main trade partner countries, China, Thailand, and Vietnam. The study identifies gaps and weaknesses in the implementation of SPS measures and makes recommendations for strengthening SPS management.

Export of plant products, including wood and timber, is highly critical for Lao PDR, making the SPS capacities imperative for this sector's successful export. Export of processed food is small, and its safety and quality depend mainly on capacities of exporters. For the livestock sector, possibilities for formal export are limited with the main challenge being the containment of cross-boundary diseases and reduction of cost to farmers of animal diseases by reducing morbidity and mortality.

Lao PDR faces some constraints on market access for its plant products in the Southeast Asia Region. This can be cause for concern. For Lao PDR exporters seeking market access for the first time, China requires data (for most crops) on the pest situation in Lao PDR in order to assess pest risk. However, capacities for providing these data are not available in Lao PDR; consequently, trade with China is constrained to small crop amounts for border trade under special allowance. Fruit and vegetables and most likely rice and other potential crops cannot be formally exported.

Although Thailand and Vietnam have similar legal requirements (in cases of new products or first time exporters of processed food to the countries), these are often waived in the case of Lao PDR since the pest situation in Lao PDR is also considered similar to Thailand and Vietnam. However, any calamities could trigger enforcement of the requirements at short notice. Given the rapid commercialization of Lao PDR agriculture and introduction of new crops and varieties, the risk of calamities is increasing, making it all the more pertinent for Lao PDR to collect adequate data on pests and diseases. Lack of adequate capacities for data collection and management will constrain market access and threaten new investments.

Weakness in Lao PDR SPS Measures

Lao PDR's SPS measures are not compliant yet with WTO principles. One primary basic weakness in the SPS measures is lack of compliance with transparency; overcoming this requires attention from policymaking and changes in the legal and regulatory system,

particularly with regard to decentralization policies. There is a real need for laws and regulations that wholly cover plant health, animal health, food safety, pesticides, seed, veterinary drugs, and feed and that follow good international practice. This includes clarification of decentralized roles and responsibilities of different ministries and the provincial governments. The amount of work needed goes far beyond the Government agenda for WTO accession.

A second major weakness is that the SPS system does not provide adequate health protection from potential hazards in imports, such as foods unsuitable for consumption and pests and diseases, putting at risk consumers, crops, and livestock. The controls on international and local border crossings need to be strengthened and unified. However, border controls are, in many cases, not the most important element in health control systems. Effective health control systems should be based on monitoring and surveillance of the prevalence of pests, diseases, and health hazards, providing both the data required by trade partners and information needed for health risk managers.

A third weakness is that the SPS system adds more to cost of doing business than necessary. General regulations and poor service provided to the private sector add much more to the financial burden than SPS measures do. There are unnecessary measures and inefficient procedures that could be abolished or simplified; waiting times and advance application periods could be shortened; and fees and informal payments, in particular, could be reduced.

A fourth weakness is that the lack of scientific expertise in Lao PDR constrains the country in defending its legitimate rights under the WTO SPS Agreement. At present it is virtually impossible for the country to ask questions about the scientific legitimacy of measures imposed by its trading partners, such as market access constraints and treatment requirements.

Support for SPS Capacity Building

At the core of each of these weaknesses is low institutional and human resource capacity. The 2006 SPS Action Plan, written by the World Bank and adopted by the Lao PDR Government, provides guidance for capacity-building efforts.[1] International organizations, donor organizations, and neighboring countries continue to provide assistance. The newly created Trade Development Facility covers important parts on SPS of the Diagnostic Trade Integration Study (DTIS) Action Matrix, primarily legislative aspects but also training and application of risk management principles. There are further possibilities for assistance in SPS capacity building and for improving effectiveness of foreign support:

- Establishment of new and strengthening of existing bilateral working groups for plant health, animal health, and food safety with China, Thailand, and Vietnam

[1] *Lao PDR Sanitary and Phytosanitary Standards Management: Action Plan for Capacity Building* (World Bank, Washington, DC, 2006); and *Building Export Competitiveness in Lao PDR* (East Asia and the Pacific Region, World Bank, Washington, DC, 2006).

with the aim of strengthening policy dialogue, setting a joint agenda for cooperation, and identifying priorities for technical assistance. Independent international expertise might provide professional guidance and support for developing the agenda for meetings.

- Sustained support for the strengthening of human capital and SPS institutions, including parts of universities, through long-term twinning arrangements.

Of general concern in neighboring countries and by international specialists is that the present level of Lao PDR Government funding is insufficient for operating an effective SPS system. Donor grants and lending can help build most capacities, but minimum funding for Government staff and operational expenses is needed for making sustainable use of new capacities created with external support. Since no estimates have been made about the minimum amount of public funding needed, it is recommended an assessment be made based on public expenditure review and on experiences of Thailand and Vietnam.

1 INTRODUCTION

The Lao People's Democratic Republic (PDR) aims to implement sanitary and phytosanitary (SPS) measures to comply with principles of the World Trade Organization (WTO) and requirements of trading partners, in order to protect human and agricultural health against trade-related risks while effectively participating in international trade.

This study examines how various SPS measures, such as legal and regulatory measures and border crossing procedures, and institutional capacities on their implementation affect Lao PDR agro-food export and import, and reviews experience of the private sector with SPS export and import procedures.

The study also looks at SPS requirements of Lao PDR's main trading partners, China, Thailand, and Vietnam. Each importing country has its own requirements based on established practices and perceptions of import-related risk. However, throughout the Southeast Asia Region, these requirements evolve with economic development, changing requirements in domestic and international markets, regional harmonization, continuing implementation of international standards, and perceptions of newly emerging SPS risks. Appendix B provides list of legislations discussed in this study from China, Vietnam, Thailand, and Lao PDR.

The study aims to contribute to the Lao PDR Government's preparation for accession to the WTO, support the country's effective participation in regional trade, and assist in awareness building with regard to rights and duties under WTO rules and principles. It also aims to contribute to the goal of the Greater Mekong Subregion (GMS)[2] initiative to expand intra-regional trade by improved border procedures. Results of the study could be beneficial in the preparation of Lao PDR's bilateral meetings on trade facilitation and SPS capacity building with its main trade partners.

Following this introduction, Chapter 2 gives an overview of agricultural production and trade. Chapters 3 and 4 describe the international context and national SPS framework, respectively. Chapter 5 describes Lao PDR requirements on agricultural exports and imports. Chapters 6 through 8 provide information on requirements in trade with China, Thailand, and Vietnam. And the final chapter provides an analysis and offers recommendations.

[2] The Greater Mekong Subregion includes Cambodia, China (Yunnan Province and Guangxi Zhuang Autonomous Region), Lao PDR, Myanmar, Thailand, and Vietnam.

2 AGRICULTURAL PRODUCTION AND TRADE

Agriculture is the largest sector of the Lao PDR economy, contributing an average of 48 percent of the gross domestic product (GDP) for 2000-2006, as compared to 27 percent contributed by industry and 25 percent by the service sectors. Refer to Appendix C for production and trade tables. About 77 percent of the total labor force is engaged in agriculture.[3] Agriculture, however, with an average annual growth rate of 3 percent (2000-2006) falls behind the service (7 percent) and industry (12 percent) sectors (Table C.1). The agriculture sector is primarily subsistence oriented and composed of household and smallholder farms. The main crops are grains (primarily rice and maize), root crops (sweet potatoes and cassava), sugar cane, watermelons, and vegetables (Table C.2).

International trade is highly focused on neighboring China, Thailand, and Vietnam, representing 53 percent of total 2007 exports and 84 percent of imports (Table C.3). The European countries are the main destinations for coffee exports. Asian countries are the main sources for imports with an average share of 90 percent. Since there is much unregistered trade, the actual dependence on trade with neighboring countries is even higher.[4]

2.1 Agricultural Exports and Imports

Agriculture, food, and forestry products comprise 35 percent of total registered export value (2001-2006 average). Out of this, food and live animals contribute 6 percent and forestry products contribute 30 percent. Important agriculture and food products are coffee (47 percent average share), cereals (22 percent), vegetables and fruit (16 percent), and live animals (14 percent). The share of live animal exports has been declining from 28 percent in 2001 to 8 percent in 2006 while the shares of cereals (rice and maize) and vegetables and fruit grew from 2 percent to 44 percent and from 2 percent to 18 percent, respectively, in this same period (Table C.4).

Non-food products include wood and wood products, rubber, hides, oil seeds, medicinal plants, and forest products such as resin. Wood and wood products have been primary export products of Lao PDR for years with a 28 percent average share of overall exports. In the past few years, there has been an emerging export for rubber as evidenced by the rapid expansion in production with an estimated plantation area of 48,000 hectares in 2007.[5] Since 2004, about 1,592,000 rubber trees and 47,930 kilograms of seeds have been imported.

The value of agriculture, food, and forestry exports nearly doubled from 2001 to 2006, with an average annual growth rate of 12 percent (Table C.4). A look at the trade volume

[3] 2005 labor force data comes from the Lao PDR National Statistical Center.

[4] The trade data in this study are based on recorded trade and do not include the significant amount of informal trade with neighboring countries. The UNDP Third Lao PDR National Human Development Report (Lao National Statistics Center and UNDP, 2006) cites estimates of informal trade of about 80 percent of total trade for agricultural exports.

[5] Lao PDR Ministry of Agriculture and Forestry Notification No. 0131/MAF.07, June 10, 2007.

and value of some of the major exports — coffee, rice, maize, and cabbage to Thailand; and untreated hardwood to China — reveals that the rise in export value for these selected products was due to increases in both commodity prices and quantities (Table C.5).

Registered imports of agriculture, food, and forestry products make up 8 percent of total imports on average (Table C.6). The main food imports are cereals, sugar products, vegetables and fruit, and miscellaneous food products. Thailand is the primary supplier of food products, providing significant shares of almost all food categories that include grains, fruit and vegetables, both raw and processed sugar products, and coffee extract. Thailand is also a main supplier of animal feed and rubber. Another important agro-food supplier is Vietnam, notably for pork products, rice, and garlic. European countries provide miscellaneous food products and malt products.

2.2 SPS-sensitive Products

Agriculture and food products are classified according to SPS sensitivity — with SPS-sensitive products assumed to have higher risks of either contamination or being carriers of pests and diseases and therefore having stricter SPS requirements. Thus, live animals, meat and meat products, dairy products and eggs, and fresh fruits and vegetables can be roughly classified as highly SPS-sensitive products.[6]

Following such classification, Table 2.1 presents a breakdown of 2001 and 2006 export and import values by SPS sensitivity of products and destination (OECD and non-OECD) with OECD countries representing the more "demanding" markets. A significant share of agro-trade (both imports and exports) comprises products with low SPS sensitivity. Lao PDR increasingly exports non-SPS-sensitive products to non-OECD countries, especially because of the relative decline in export of animals and coffee.

2.3 Trading Partners

Thailand provides a growing market for Lao PDR agriculture, food, and forestry products. Of the neighboring countries, Thailand receives the biggest share (37 percent in 2006) of the value of these exports with an average annual share (2001-2006) of 44 percent. The main agriculture and food exports to Thailand are maize; vegetables such as cabbages, garlic and mushrooms; bananas; and preserved fruits. Thailand is also a main destination for wood and wood products. Thailand also imports forestry products such as oil seeds, resin, and medicinal plants.

Vietnam imports on average 32 percent of agricultural, food, and forestry products from Lao PDR. A significant share of this is coffee to supplement Vietnamese coffee exports.

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[6] Using the Standard International Trade Classification, Rev. 3 (SITC3), SPS-sensitive products were assumed to include live animals except fish (00), meat and preparation (01), dairy products and eggs (02), fish/shellfish etc. (03), and fresh/chilled/frozen vegetables (054). The remaining products under the "food and live animals" category are considered to be of low SPS sensitivity.

In 2006, 14 percent of the value of Lao PDR agriculture and food exports to Vietnam came from coffee, 12 percent from maize, 31 percent from live animals, and 39 percent from rice. Vietnam is a main importer of Lao PDR wood products, having purchased 43 percent of wood exports (US$83 million) from Lao PDR in 2006.

Table 2.1. Share of Agriculture, Food and Forestry Products by SPS Sensitivity and Market, 2001 and 2006

Products\Markets	*2001*		*2006*	
	OECD	*Non-OECD*	*OECD*	*Non-OECD*
Exports	%			
High SPS sensitivity	1	34	0.4	21
Low SPS sensitivity	56	9	30	49
Total	57	43	30	70
Imports	%			
High SPS sensitivity	1	30	1	22
Low SPS sensitivity	5	64	5	73
Total	6	94	6	95

Source: Authors, based on UN COMTRADE data.

China is fast becoming an important market. Lao PDR's agriculture, food, and forestry exports to China have grown very rapidly in the last few years, from 5 percent in 2001 to 16 percent in 2006 (Table C.4). Exported products are mainly timber, maize, rice, Job's tears *(Coix lacryma-jobi)*, sesame, cassava, vegetables, and sugar cane. Rubber export is expected to grow rapidly because of large-scale investment in plantations in recent years.

Europe is the main destination for Lao PDR-grown coffee and some fruit products in preserved and prepared forms. About 71 percent (2001-2006 average) of the value of coffee exports goes to the European countries. The United Kingdom imports preserved fruits, and France imports resin and gum benzoin.

2.4 Growth Potential for Agricultural Trade

Lao PDR trade will remain predominantly oriented to its neighbors. In response to high commodity prices, improved infrastructure, and access to land, agricultural investments such as in rubber plantations and field crop cultivation saw a boom in recent years in Lao PDR by private enterprises from China, Thailand, and Vietnam.[7] Most of these private investors aim to export the products back to their own countries or to other markets, including Europe.

Lao PDR agricultural trade is likely to grow further in the coming years. Lao PDR has favorable climatic and ecological conditions and natural resources for producing more exportable field crops such as grains, cassava, sugar cane, and sesame. Rubber is a tree crop with much potential and likely to become a major export. Farmers and investors in

[7] Darren Schuettler, Economic Boom in Laos is Producing Struggle over Land Rights (International Herald Tribune, April 11, 2008) http://www.iht.com/articles/2008/04/10/business/laosecon.php.

Lao PDR increasingly adopt modern agricultural technology, including mechanization of field crops, to cope with labor scarcity.

The connectivity with neighboring countries has improved under the GMS economic cooperation program and offers incentives for increased agricultural production and trade. The East West Economic Corridor was the first major inter-country project and links Myanmar, Thailand, Lao PDR, and Vietnam to promote investments and growth. The Kunming-Bangkok Expressway offers Lao PDR improved links with Thailand and China that foretells important new incentives for agricultural production in land-locked northern Lao PDR. China gives great importance to connecting the Yunnan and Lao PDR road system with that in Thailand and has offered to pay Lao PDR's part of the Huay Xay Bridge over the Mekong. The first cross-border railway linking Thailand's Nong Khai and Lao PDR's Thanaleng is expected to be operational in 2009. Lao PDR and Vietnam have agreements to develop a railway link between Vietnam and central Lao PDR as well as to create favorable conditions for investments. A new fiber optic cable connecting Lao PDR and China will greatly facilitate telecommunications between the two countries.

3 INTERNATIONAL CONTEXT

Lao PDR is a member of international standard-setting organizations for SPS: Codex Alimentarius, World Organization for Animal Health (OIE), International Plant Protection Convention (IPPC) and the Asia and Pacific Plant Protection Commission. In 1997, Lao PDR started preparation toward WTO accession. A WTO Working Party was formed in 1998.[8] Within the Lao PDR Government, the preparatory work for WTO accession is guided by two Prime Ministerial decrees and led by a National Committee of ministers chaired by a Vice Prime Minister.[9] A Vice Minister of the Ministry of Industry and Commerce heads the National Committee secretariat.

3.1 Regional and Bi-lateral Trade Agreements

Together with Cambodia, Myanmar, and Vietnam, Lao PDR is one of the newest members of the Association of Southeast Asian Nations (ASEAN), joining in 1997. Lao PDR is a signatory to the ASEAN Free Trade Agreement (AFTA) and included in the GMS initiative.

ASEAN countries agreed to establish the ASEAN Economic Community by 2015, which will increase harmonization in the areas of standards, conformity assessment, and mutual recognition agreements.[10] Preparatory work for this is carried out in working groups under the ASEAN Consultative Committee on Standards and Quality and the ASEAN Ministers on Agriculture and Forestry.

The GMS Cross Border Transport Agreement aims to facilitate cross-border transport, and a GMS Strategic Framework for Action on Trade Facilitation includes work on SPS risk management, laboratory mutual recognition and support, and information sharing.

Lao PDR has various bilateral agreements of relevance to SPS with its neighbors, particularly with Thailand in the area of laboratories and animal health, with Vietnam in animal and plant health, and with China on general SPS assistance and at the provincial level on public health and trans-border animal diseases. In most cases there are annual or biannual inter-country meetings at the expert and senior management level. For example, the Department of Livestock and Fisheries (DLF) within the Ministry of Agriculture and Forestry (MAF) has bi-annual bilateral meetings with their Thai counterparts.

All these multilateral and bilateral memberships, negotiations, and working parties are necessary, but at the same time demanding and a strain for small countries with limited capacities. Understandably, Lao PDR's level of active participation is constrained by limited financial and human resources. At accession to ASEAN by Cambodia, Lao PDR, Myanmar, and Vietnam, it was recognized that their capacities were in many aspects lagging to those of earlier member countries. Closing the gap was seen as a priority for

[8] The fourth meeting of the Working Party was held in July 2008 (www.wto.org).

[9] Under the National Committee is a working group comprised of Director Generals from various ministries. Below the working group is a technical group with representatives from all relevant departments that include the heads of the relevant SPS offices, i.e., Plant Quarantine Division, Department of Livestock and Fisheries, Food and Drug Department, and National Science and Technology Authority.

[10] ASEAN website: www.aseansec.org.

which donor support was recommended. Also, the more advanced countries in the region provide support to the late entrants.

3.2 Implications for Lao PDR SPS Management

The international context increasingly poses challenges to SPS management in Lao PDR. The rules-based WTO trading system is the main driver for change in this area — directly through the accession process and indirectly through interactions with regional groupings and neighboring countries. Lao PDR's application for WTO membership necessitates policy, legal, and institutional compliance with WTO principles. Lao PDR must abide by a number of WTO agreements, one of which is the SPS Agreement with its principles that can be seen as mandatory obligations:

- ***Nondiscrimination.*** Measures are equally applied to importers as well as domestic producers. Similarly, all trading partners are subject to same requirements.
- ***Transparency.*** Information on SPS measures is easily accessible. There are set procedures for notification in cases of new or amended measures.
- ***Proportionality.*** Interventions are proportional to the health risks to be controlled.
- ***Equivalence.*** There is mutual recognition among trading partners of different measures that achieve the same level of protection.
- ***Use of science-based measures.*** Measures to protect plant, animal, and human health are based on scientific principles with sufficient scientific evidence. Generally, this requires the assessment of risks involved and the definition of the level of risk that is acceptable.
- ***Regionalization.*** The principle recognizes the possibility of disease- or pest-affected countries having disease- or pest-free areas or regions and allowing exports from such disease- or pest-free areas or regions.

In addition, countries are encouraged to harmonize with international SPS standards and measures such as those espoused by Codex Alimentarius on food safety, IPPC on plant health, and OIE on animal health; but they are allowed to apply stricter requirements as long as these measures are based on scientific justification that includes an assessment of risks. Countries may also apply fewer and less stringent standards, or opt not to apply international SPS standards and measures, provided that this does not affect the rights of other countries under the multilateral trade rules.

The indirect impact is that ASEAN and GMS use WTO principles as the base for harmonization and that countries in the region are progressively implementing the same SPS principles in their own trade and domestic policies. There are potentially significant implications emerging from the bilateral trade requirements of Lao PDR's main trading partners. China, Thailand, and Vietnam are leading the process of economic integration and work with regard to SPS meassures in ASEAN and GMS.

Indeed, the process of policy reform and SPS capacity building by Lao PDR should be guided not only by requirements from and demands arising from accession to WTO or AFTA but more so by the country's opportunities in trade and improved human health, and plant and animal health, which are largely defined by Lao PDR's neighbors. This requires an active engagement on SPS among Lao PDR and its neighbors.

4 SPS FRAMEWORK AND CAPACITY: ACTION PLAN UPDATE

The motive behind any country's implementation of SPS measures is clear: protect human and agricultural health from potential threats from pests and diseases and food contaminants arising from trade in agricultural and food products.

The SPS functions relevant to importation include *border inspection* to detect threats from imports of agricultural and food products, planting materials, pesticides, fertilizers, animal feeds and veterinary drugs; and *surveillance and monitoring* to detect introduction or spread of hazards. On the export side, *inspection and certification* can be required for assurance of compliance to requirements of trading partners. These functions are supported and strengthened by technical capacities on diagnosis and testing and risk analysis.

The Lao PDR SPS Action Plan offers details of the country's capacities to manage SPS.[11] This chapter updates information on these capacities that are relevant to the current study.

4.1 Central and Provincial Institutional Management

The main offices with SPS responsibilities are within the Lao PDR Ministries of Agriculture and Forestry, Health (MOH), Industry and Commerce (MOIC); and the National Science and Technology Authority (NSTA). A breakdown of each office and area of responsibility is shown in Table 4.1.

Table 4.1. Institutional Responsibility for SPS Management

Areas	*Offices/Agencies*
Food safety	Ministry of Health • Food and Drug Department • Food and Drug Quality Control Center • Provincial Health Department
Plant health	Ministry of Agriculture and Forestry • Department of Agriculture • Provincial Agriculture and Forestry Office
Animal health	Ministry of Agriculture and Forestry • Department of Livestock and Fisheries • Provincial Agriculture and Forestry Office
WTO Accession	Ministry of Industry and Commerce Foreign Trade Policy Department
SPS/TBT Enquiry Point SPS/TBT Notification Point	National Science and Technology Authority Ministry of Industry and Commerce

Source: *Lao PDR Sanitary and Phytosanitary Standards Management: Action Plan for Capacity Building* (World Bank, Washington, DC, 2006) and interviews.

[11] *Lao PDR Sanitary and Phytosanitary Standards Management: Action Plan for Capacity Building.* World Bank, Washington, D.C., 2006).

The NSTA is a new agency formed from the former Science, Technology and Environment Agency and includes the Department of Intellectual Property, Standardization and Metrology and the SPS and Technical Barriers to Trade (TBT) Enquiry Point. Within the Department of Agriculture (DOA), the former Agricultural Regulatory Division was split into the Plant Quarantine Division and the Regulatory Division. With regard to import- and export-related responsibilities, the Plant Quarantine Division manages plant products, plant seedlings, and planting materials; and the Regulatory Division regulates market access for fertilizers, pesticides, and seeds, including the registration of producers, retailers, distributors, and importers of these products.

The decentralized system of the Lao PDR Government provides the provincial offices of the Ministries of Agriculture and Health with important roles in SPS implementation. The Provincial Health Departments issue import permits for food products. The Provincial Agriculture and Forestry Offices (PAFO) are responsible for quarantine and inspection of plant and animal products and issuance of certificates and import permits. The PAFOs receive policy guidance from the MAF although provincial administrations exercise significant discretionary power in implementing policies.[12]

4.2 Legal Framework

Under the responsibility of the National Committee for WTO accession, an agenda has been adopted for legal and regulatory reform (Box 4.1). The agenda will provide Lao PDR with adequate protection for food safety and animal and plant health, and strengthen the legal and regulatory framework and make it compliant with WTO principles.

Box 4.1. Lao PDR's Legislative Agenda for WTO Accession

Food Safety

- Regulation on the implementation of the Food Law to be finalized in 2008;
- Regulation on food control system in 2008;
- Regulation on food additives to be drafted by 2009; and
- Adoption of *Codex Alimentarius* Standards in 2009.

Animal Health

- Draft on Veterinary Law to be amended to ensure compliance with SPS Agreement by 2009;
- Decree on inspection of live animals at import and transit to be drafted in 2009;
- Decree on Animal Quarantine to be drafted in 2009; and
- Decree on Zoonotic Diseases Control to be drafted in 2009.

Plant Health

- Law on Plant Protection and Plant Quarantine to be completed in 2010;
- Regulation on Plant Inspection and Certification to begin drafting in 2011;
- Decree on Pesticides to be drafted by 2010; and
- Regulation on Plant Quarantine to be drafted in 2011.

Source: Foreign Trade Policy Department, MOIC.

[12] See Appendix B.1, MAF organizational chart, in *Lao PDR Sanitary and Phytosanitary Standards Management: Action Plan for Capacity Building* (World Bank, Washington, DC, 2006).

The Lao PDR Government is making considerable effort to carry out this agenda. The first Veterinary Law, passed by the National Assembly in August 2008, took effect in February 2009; implementing regulations are being prepared. A Phytosanitary Law, under consideration as of April 2009, is expected to address observations of assessments by the Food and Agriculture Organization (FAO) that identified outdated provisions and main gaps on (a) standards to be enforced in domestic markets, (b) guidelines on products and plant pests and diseases that should be controlled and monitored on the borders, (c) MAF mandates with regard to surveillance of plant pests and diseases, and (d) funding of monitoring and surveillance. A Fisheries Law under preparation will provide for aquatic animal health and food safety.[13]

The existing Food Law needs revision and additional regulations for implementation and enforcement. Moreover, it only refers to the roles of the MOH and not of the other ministries and provincial services. Another serious omission is provision for allocation of funds for post-market surveillance of food products.

Generally, the authorities in charge of the WTO accession process prefer legal adjustments by issuance of decrees since that requires less time than revision of laws. Still, the legislative agenda will require many by-laws, regulations, and administrative decisions that have not been fully mapped out. There is a backlog of work in policy formulation needed for drafting effective laws and regulations for SPS management.

Added to the inherent complexity of management of food safety, plant health, and animal health systems, the progress on legal and regulatory reform faces some constraints:

- There is limited technical and legal capacity available for legislative work. For example, the MAF legal unit does not have lawyers, thus limiting work to only administrative functions such as matters of procedures and documentation between the MAF and the National Assembly. Ad hoc committees that include officials and lawyers are formed to facilitate drafting of laws and regulations.
- Legislative effort requires decisions by the National Assembly. However, WTO principles are new to the National Assembly.[14]
- One reason for the delays in submitting laws compliant with SPS principles for enactment by the National Assembly has been concern among Government officers about the insufficient capacities for implementation.

Challenges for ongoing legal revisions and additions include modification of present model of decentralization and improvement of general governance through a strengthened rule of law in order to achieve compliance with international principles.

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[13] Danielle Manzella, Legal Report, Annex to report of FAO-NZAID Technical Assistance in Phytosanitary Legislation (2005) and Plant Health Legislation in Lao PDR: Status and Way Forward (FAO Legal Office, 2008).

[14] The difficulty of legal revisions can be illustrated by the experiences with the Food Law. In the course of the review of the Food Law, the National Assembly removed provisions that were included in a draft provided by FAO and WHO because the National Assembly did not consider these as relevant within the context of the Lao PDR situation. Thus, the resulting Food Law was not compliant with the WTO SPS Agreement and would require further decrees for correction.

Nonetheless, implementation will require creating public awareness and extensive staff training within ministries and provincial administrations.

4.3 Surveillance and Diagnostic Testing

There are two main ways to achieve adequate prevention of hazards and control of the food supply chain. The first is through supply-chain coordination that is practiced in advanced forms of contract farming where, for example, food processors can successfully control their suppliers. These schemes however are generally only feasible for quality segments in demanding export markets and high-end domestic markets, and therefore generally not applicable to Lao PDR.

The second way to protect the food chain, which is virtually the only tool for domestic informal food supply, is through active market surveillance of agricultural inputs such as pesticides, veterinary drugs, growth enhancers, and particular high-risk food products. Border inspection and application of Good Agricultural Practice and Integrated Pest Management are helpful tools, but there are no practical ways to apply them on a scale sufficiently large enough to ensure food safety in the main market segments. Active surveillance is critical for control of food safety, and even more so for control of animal diseases and plant pests.

Lao PDR has no surveillance and monitoring system. Limited ad hoc surveillance was undertaken for selected pests and crops[15] under various donor projects. Along the Lao PDR–China border, the Yunnan Provincial Agriculture and Entry-Exit Inspection and Quarantine Bureaus carried out surveillance for some export crops destined for China. But, there is no pest quarantine list in part because of lack of surveillance.

There is limited capacity for surveillance for the main animal diseases: avian flu, foot and mouth disease, and classical swine fever. Meat inspectors, rather than vets, perform market surveillance of meat products. These inspectors receive training only for the more common infectious diseases such as anthrax and brucellosis. There is no list yet of specific infectious animal diseases to be monitored (but a list will be prepared with the forthcoming regulations). Veterinary drugs are all imported, yet there is no list of banned veterinary drugs to monitor.

Post-market surveillance is currently not undertaken for food products because there is no provision for the funding of required tests for surveillance. A new MOH regulation establishes an Office on Quality Control and Surveillance (similar to the United States Center for Disease Control).

Diagnostic and testing capacities. Surveillance requires capacity for diagnosis of pests and diseases, and for the testing of agrochemicals and food products. Lao PDR lacks this capacity in plant health, animal health, and food safety:

- The Plant Protection Center has limited capacities for diagnosis and pest identification and does limited pesticide residue testing with test kits that measure choline-esterase inhibition levels as an indicator of presence of organophosphates or carbamates.

[15] For example, fruit flies, maize, sweet corn and baby corn.

- The National Animal Health Center has capacity to diagnose only avian flu, foot and mouth disease, and classical swine fever. There is no capacity to test for veterinary drugs although the DLF can make some use of the Food and Drug Quality Control Center (FDQCC) findings and recommendations on human drugs that livestock owners use on animals.
- The food testing capacity of FDQCC does not yet include testing for mycotoxins. The FDQCC is the primary facility for pesticide residue testing according to the National Plan for Capacity Development in Pesticide Residue Testing, a joint work by MOH, MAF, and FAO.[16] The FDQCC has the equipment for pesticide residue testing but its staff will need more training.

New risks. The introduction of new crops and varieties implies an advent of new risks that expand the knowledge base on how the public and private sector should deal with them. Lack of awareness and insufficient knowledge will have severe consequences, posing risks to domestic agriculture and to exports as well. A costly example of lacking adequate risk management comes from a foreign-owned company that grew potatoes and exported these to Thailand for processing. Because of mono-cropping, the soil became infested with nematodes in a few years, which resulted in major decline of profitability and led to the collapse of the potato exports. Awareness of risks and risk management both at the private company and public levels could have helped avoid this downturn.

Border inspection. Capacity is lacking in facilities, equipment, and human resources to adequately perform border inspections for food safety, plant health, and animal health. There are no quarantine facilities for live animals. For plant products, suspicious pests may be brought to the Plant Protection Center, but it has limited capacity for pest identification. Border controls are virtually just checkpoints for documents. At Lao PDR international border crossings, the plant and animal quarantine offices are insufficiently equipped. There are few inspectors with only one to three plant quarantine inspectors[17] and about the same number of animal health inspectors at each international border checkpoint. Box 4.2 gives an example of the border office at Savannakhet.

Box 4.2 Border Inspection at Savannakhet

The quarantine office in Savannakhet has visual material on plant quarantine pests and international phytosanitary documents, but the staff do not have inspection manuals, priority lists of quarantine pests and diseases, or pest specimen for reference. There is virtually no equipment to perform diagnoses of pests and diseases. Lao PDR inspectors at the Lao PDR-Thai border in Savannakhet reported that they have not yet detected any quarantine pests from Thai imports.

In Savannakhet, a province with 800,000 people, the plant quarantine staff consists of 11 staff without specialists and 3 workers (to be hired in future). From this office, 2 staff work on the Thai border and 4 on the Vietnamese border. Quarantine officers in Vientiane and Savannakhet work in 17-hour shifts since borders on the East-West corridor are open from 6:00 AM until 10:00 PM.

Inspectors generally have low-level education and training. Plant quarantine officials at the border should receive DOA-conducted training. Although there is an MAF Inspection

[16] Roundtable Report on Pesticide Residue Testing Capacity Development in Lao PDR (FAO, 2007).

[17] As of October 2008, there were 40 plant quarantine officers authorized to inspect and certify (Plant Quarantine Division, Department of Agriculture).

Department whose exclusive role is to assess and evaluate the performance of official inspectors of other ministerial departments and PAFOs, there are no formal requirements for inspectors, no formally appointed body of inspectors, and no oversight of how the inspectors perform their duties with regard to plant health and animal health.

4.4 Funding and Assistance

Insufficient funding to operate a viable SPS system is at the core of the problem for SPS capacity building. Although one-time improvements in training, legal reform, and diagnostic facilities can get temporary help from donor funding or lending from international financial institutions, the recurrent costs fall upon Government resources. Hence, poor funding constrains the absorptive capacity for external support, and sustainability of capacities created with external support is weak.

At the end of 2007, a four-year project initiated a Trade Development Facility in support of formulating new laws and regulations for the whole SPS area that also includes extensive training and application of risk management principles. The Trade Development Facility became operational at the end of 2008.

5 LAO PDR AGRICULTURAL EXPORT AND IMPORT REQUIREMENTS

Enterprises that trade in agriculture, food, and forestry products must meet the following requirements:

- Formal general export and import requirements;
- Formal sanitary and phytosanitary requirements;
- Formal requirements to ship products from a production location or place of purchase to an international border crossing; and
- Informal requirements by public services and officers.

5.1 Formal General Import and Export Requirements

The Decree on Import and Export Management provides main guidelines for the export and import of goods. There are controls on both exports and imports with regard to economic and social stability, national culture, welfare of society, and compliance with international agreements. Control measures include prohibitions or restrictions; requirements of permits, tests, and certifications for safety and quality; regulations on packaging and labeling; imposition of fees; and issuance of licenses. There are products whose import or export is not allowed (*forbidden goods*) because these are deemed harmful to life, national security, culture and tradition, and natural resources. There are *controlled goods* that require prior approval from MOIC or other pertinent ministries to export or import. Agricultural controlled goods for export, requiring approval for export, include live animals, fish and aquatic animals, rice and paddy rice, resin and other non-timber forestry products, and wood and wood products. The longer list of agricultural controlled goods requiring approval for import includes live animals, fish and aquatic animals, animal meat and products for human consumption, milk products, rice and paddy rice, cereals and plant-based products for human consumption, beverage, alcohol and juice, animal feed, veterinary drugs, fertilizer, pesticides, processed sawn wood, logs, and seedlings.[18] Import controls are used "to protect domestic production and consumers, to prevent price speculation in the country and to maintain equilibrium of imports and exports."[19]

Export requirements The general documentation required for export of agricultural goods includes invoice, customs declaration form, packing list, company registration, and export permits issued by MOIC and relevant agencies. Some importing countries and/or private buyers might ask for certain documents, such as certificates of origin, sanitary and phytosanitary certificates, food product registration and certificates of free sale (that is,

[18] Notification on list of goods subject to import-export control and prohibition, No. 1376/MOIC.DIMEX, dated October 10, 2006.

[19] Decree on Import and Export Management, Decree No. 205/PMO, dated October 11, 2001.

products are freely sold and used in the domestic market of the exporting country). Although Lao PDR law may not require these documents, the issuance of the requested documents might be subject to any number of Lao PDR requirements.

- Form A of the required MOIC-issued export permit costs 10,000 Kip (US$1.10) with an accompanying registration fee of 50,000 Kip (US$5.50).
- Exports of wood, wood products, and non-timber forest products require an initial permission to export from the PAFO. The Provincial Division of Industry and Commerce will then issue a monitoring record certificate to keep track of the products from the production to the processing site, to the warehouse and until the export point.
- Exportation of coffee follows a procedure that requires several government offices each with their own requirements and fees. The coffee exporter first registers the intended export volume with the Lao Coffee Exporters' Association, which provides the export invoice. With the invoice in hand, the exporter follows a sequence of requests: (a) phytosanitary certificate from PAFO, (b) quality control certificate (moisture content, etc.) from the Provincial Science and Technology Office (local office of NSTA), (c) Certificate of Origin from the Provincial Office of Commerce, (d) Customs Certificate from the Customs Office, (e) permit to transport to border from the local Department of Construction, Roads and Telecommunications, and (f) tax payment by the exporter to the local tax department.

Import requirements Application for an import license requires submission of a list of import goods to the regulating agency. The importation of controlled goods needs a MOIC-issued import permit or one from relevant agencies such as the Food and Drug Department (FDD) for food products, DLF for animal products, DOA for plant and plant-related products, or the provincial offices of such agencies.

Food products. The MOH and MAF have agreed on the delineation of responsibilities over permits for food products. The FDD/Provincial Food Control Division issues import permits only for processed and/or packaged (labeled) food products. For unpackaged meat products or grains, import permits are provided by MAF/PAFO.

Application for import permits requires the following documents: import license, invoice or purchase order, and certificate of laboratory analysis issued by official laboratory of exporting country. The laboratory certification requirement depends on the particular product; for example, the sanitary analysis for seafood should show that there is no microbiological contamination. The documents should be submitted at least 15 days before importation.

A recommendation arising from the WTO accession process suggested that, due to scarce resources for control, MOH should limit import monitoring and control to only high-risk food products. The list of high-risk food products would be regularly revised and updated according to emerging threats. The recommendation is currently being studied and, so far, 10 foods have been identified among fish, fish products, and meat products. Inclusion on this list will be based on occurrences of food-borne illnesses in Lao PDR and in neighboring countries and justified by evidence of data or information, such as

notifications from public health authorities. Consideration is being given to only require import permits in the future for these high-risk foods.

Plant and plant-related products. Importation of plant products, planting materials, and agrochemicals requires import permits from the DOA. Under the Pesticide Regulation,[20] the import, sale, transport, and storage of pesticides are controlled through a registration scheme (Box 5.1). Prior to the issuance of import permits, pesticides and importers of pesticides must be registered with the DOA Regulatory Division. Similarly, before the application for import permit, seeds should be registered for selling in Lao PDR. Plant products and plant parts, which are to be imported for scientific research or experiment, must have a special MAF-issued import permit. For seed and plant propagation materials, permit application requires a certificate of origin issued by relevant authorities of originating country and submitted to the DOA/MAF at least 15 days prior to importation; in this case, the PAFOs may issue import permits under supervision of the DOA.

Animal and animal-related products. There are particular requirements for the application of import permits for the animal-related products. With regard to animal feed, a certificate of quality – issued by country of origin or manufacture – must show feed ingredients, date of manufacture, and expiry date. Fifteen days prior to importation, feed samples must be submitted for analysis to the National Animal Health Center (NAHC) laboratory. The feed samples should comply with MAF regulations.

With regard to veterinary drugs, a product license is required for the permit application from the authority of the exporting or manufacturing country. The license must show the name of the medicine, substance, uses, dosage, color of medicine, and date of manufacture and expiration. The DLF follows MOH guidelines with regard to banned drugs.

For importation of live animals for breeding, a special DLF authorization is required. However, due to lack of capacity, PAFOs issue import permits at the provincial level, but in consultation with the provincial and central DLF. With implementation of the new Veterinary Law, PAFOs will refer such issues to DLF; prior semen collection and testing by NAHC will be required before issuing import permits.

Varying implementation. Formally, permits should be obtained for each shipment. However, there is non-uniformity in the implementation of this requirement (as indicated from interviews conducted for this study). For example, a Lao PDR supermarket has never applied for a permit when it imports food items from Thailand. Their explanation is that the MOIC-issued business license allows them to import. An animal feed importer applied for an import permit from the Vientiane Capital PAFO only once on its initial import.

[20] Regulation on the Management and Usage of Pesticides for Agricultural Production. MAF Notification No. 0886/MAF dated March 10, 2000.

Box 5.1 Pesticide Use in Lao PDR

In a test-kit screening of fruits and vegetables in May-June 2006 by the Plant Protection Center, 44 percent of 326 samples had pesticide residues and about a one-fourth had residue levels considered to be unsafe for consumption. As some of the commonly used pesticies are not detected by these kits, the actual pesticide residue problem is likely to be bigger.

FAO surveys in the northern Lao PDR provinces on pesticide use uncovered the following points:

- The majority of pesticides in the market entered through informal channels from Thailand, Vietnam, and China, and in some cases, brought in by plantation owners, contract farming operators, traders, and individual farmers.
- There was little enforcement of regulations of retail pesticide sale. Only few retailers had a license to sell pesticides. Paraquat, although not included in WHO Class 1 ("extremely and highly hazardous toxicity") but recognized as toxic and hazardous, was being sold in music and embroidery shops.
- Most stores that sell pesticides do not sell protective gear. There are gloves and masks available, but these are only proper for dust and not for chemical fumes. Moreover, few of the products surveyed had labels in Lao PDR language.
- In general, there is improper application and usage of pesticides. There were reports of contract farming investors providing farmers with pesticides without accompanying protective gear and detailed instructions. Pesticides are usually mixed without regard for dosage or type of pests.
- Earlier surveys found highly hazardous (WHO Class 1) pesticides in the market. More recent surveys found fewer of these hazardous chemicals. Also, pesticides are commonly sold in small units, therefore there is less probability that these are stored in farms or in households.

As of 2007, 26 active ingredients are prohibited in Lao PDR (see Appendix D). There are 46 active ingredients and 100 brand names of pesticides registered with the Department of Agriculture, of which 75 products come from Vietnam and 25 come from Thailand.

The FAO studies identified the major constraints:

- Unclear pesticide legislation;
- Lao PDR Government's lack of resources to enforce pesticide regulations; and
- Limited capacity to strengthen extension work on plant protection problems.

The assessment of pesticide use in northern Lao PDR drew further attention to uncontrolled pesticide use on plantations and contract farming schemes, and recommended that plantation owners and contract farming operators be made responsible for the safe and proper application of pesticides (including the provision of adequate protective gear) and compliance with pesticide legislation on the importation and use of allowed pesticides.

Sources:

Country Report on Plant Protection and Plant Quarantine of Lao PDR. 25th Session of Asia and Pacific Plant Protection Commission, Beijing, China (APPPC, August 2007).

Pesticide Survey Northern Lao PDR, January 8-12, 2008 (FAO, 2008).

Roundtable Report on Pesticide Residue Testing Capacity Development in Lao PDR (FAO, 2007).

Mid-Term Evaluation Mission of FAO Regional Vegetable IPM Programme in Asia – Phase II, October 29–November 18, 2005. Country Report for Lao PDR (FAO, 2005).

Contract Farming in Lao PDR: Cases and Questions. Research for Lao Extension for Agriculture Project (LEAP) (NAFES, 2007).

5.2 Formal Sanitary and Phytosanitary Requirements

Food safety certification. Export of food products requires FDD-issued sanitary certificates that require mandatory testing. A Lao PDR company that processes and sells products to markets in Europe must send samples of processed food products to the FDQCC, with each tested sample costing 500,000 Kip (US$55). Reportedly, after a month, the laboratory issues a certificate that "the product is suitable for consumption" and without which the product cannot cross the border.

The value of a mandatory sanitary certification is mixed at best as to whether it is enough to satisfy the customers. For example, foreign customers of a fruit and vegetable processing company ask for an additional food safety document. Some customers reportedly will accept a FDQCC health certificate (costing 2,000-3,000 Baht or US$60-90); other customers prefer test results from the company's parent company in Thailand that has an accredited laboratory; and still others want independent certification by the SGS Group in Thailand.[21]

Adoption of Good Manufacturing Practice (GMP), Hazards Analysis and Critical Control Points (HACCP), or other food safety control systems are increasingly required by private buyers or importing countries. The practice of GMP/HACCP is voluntary in Lao PDR. So far, only one Lao PDR company has a GMP/HACCP certificate. The IFC Mekong Private Sector Development Facility provided a grant to this company for implementing GMP/HACCP, with the company's Thai shareholders raising about 4-5 million Baht (US$120,000-150,000) for investment in upgrading hardware. The Thai National Food Institute renews the GMP/HACCP certification every two years for 100,000 Baht (US$3,000). The Thai certification sufficiently complies with the buyer's requirements and international standards; yet the Lao PDR Food and Drug Department imposes its own GMP/HACCP inspection and certification incurring additional costs (10,000-20,000 Baht or US$300-600) for the company.

Plant health certification. According to IPPC International Standard for Phytosanitary Measure (ISPM) 12, phytosanitary certificates for the export of plant products are issued if the exporter or importing country asks for it.[22] The purpose of a phytosanitary certificate is to facilitate international trade by providing assurance to the importing country that the plants or plant products are free of quarantined pests and practically free of other pests and meet the phytosanitary import requirements of the importing country. Consequently, it is not necessary for the exporting country's plant health authorities to issue a certificate if the importing country does not require it. Also, phytosanitary certificates should not be issued for products that cannot carry pests and diseases. It is also not proper to issue phytosanitary certificates because the exporter requires such documentation to meet a letter of credit requirement.

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[21] SGS Group is a world leading inspection, verification, testing, and certification company.

[22] Guidelines for Phytosanitary Certificates (IPPC, 2001). Plant health legislation in Lao PDR is discussed in Appendix E.

In practice, however, all plant products in Lao PDR are exported with a phytosanitary certificate because (a) the MOIC requires phytosanitary certificates prior to the issuance of export permits for agricultural products, and (b) neighboring countries require phytosanitary certificates for all plant products when trading. The PAFOs issue phytosanitary certificates, for example, on coffee bean exports although not required by the importer. In some cases, the provincial chamber of commerce requires phytosanitary certificate before issuing a certificate of origin that is a required document for coffee export.

Plant quarantine inspections are required before the issuance of a phytosanitary certificate. The fees for the inspection tend to be much higher than the fee for the certificate. For one company, a phytosanitary certificate (plus the necessary inspection) for organic rice exported to Europe reportedly costs 130,000 Kip (US$14). The cost of a phytosanitary certificate is about US$1.[23] In fact, the guidelines for setting inspection fees are not clear (see Table E.1 in Appendix E), and fees are said to differ much because of room for discretionary decisions by the inspector.

The different status of international and local border crossings has impact on (phytosanitary) fee levels. According to one respondent on the northern border, at the international crossing there are reportedly fees for the national (MAF) and the provincial (PAFO) levels, and at the local crossings only provincial fees.

Under provision of ISPM 15,[24] international trade also requires the fumigation of wood packing materials. In Lao PDR, this service is provided by a private enterprise as described in Box 5.2.

Lao PDR plant health authorities are aware of and concerned about the risks carried by plant propagation materials. According to current regulations, plants imported for breeding purposes are inspected and checked for regulated pests (see Appendix F for list of Lao PDR-regulated pests). In light of the increasing number of rubber plantations in the country, several measures are implemented for rubber plants. For the importation of rubber tree planting materials, the accompanying phytosanitary certificate should certify freedom from the following diseases: South American leaf blight, white root disease, rubber tree pink disease, corynespora leaf fall diseases, colletotrichum leaf fall diseases, and red root disease.[25] A certification of fumigation is also required. And stakeholders are advised to be involved in surveillance of diseases.

Lao PDR, however, does not require similar requirements for other specific plant products. Reportedly it is easy to bring in propagation material. Yet, in most cases Lao PDR benefits from the SPS measures of its trading partners. A Vietnamese enterprise brings in corn seeds for use in contract farming in Lao PDR. The corn seeds undergo fumigation not as a Lao PDR import requirement but because of a Vietnamese export requirement for all seeds. Lao PDR lacks an adequate system for entry control of seed and propagation material and for approval of the introduction of new varieties. Plant health legislations should include plant variety protection (protection of intellectual

[23] According to interviews.

[24] Guidelines for Regulating Wood Packaging Material in International Trade (IPPC, 2002).

[25] MAF Notification No. 0131/MAF.07 dated 10 June 2007.

Box 5.2 Private Fumigation Service

General Service Lao is the only enterprise in Lao PDR licensed to perform fumigation according to ISPM 15 requirements (certified by SGS Group). It does methyl bromide fumigation on wood packing materials, furniture, and caskets, and phosphine fumigation on agricultural products such as grains (including imported rice for the UN World Food Program) and tobacco leaf.

The company has 5 regular clients although they provide occasional services to other clients from Luang Prabang to Savannakhet. Its monthly output totals 10-20 wood packing materials, mainly for shipping items to the United States, Australia, and Canada. Furniture and caskets usually go to the United States.

General Service Lao encourages customers to check the requirements of the destination country or the importers. Fumigation is carried out in the warehouses wherever the wood packing materials are located. The materials are first visually checked for pests. The dosage of fumigation chemicals follows IPPC requirements. After the fumigation, General Service Lao issues a certificate and stamps the material with the ISPM 15 mark. The minimum charge is about US$80 per crate, with discounts for greater number of crates. The company considers its service charge to be minimal compared to other costs, particularly transport costs. Every provided fumigation service is reported to the Department of Agriculture, which visits the company occasionally and issues a certificate of authorization every year for a nominal fee.

So far, there has been only one problematic incident involving a fumigated crate that was later filled with furniture and shipped to Bangladesh. On arrival, an insect was found inside the crate and the shipment was not accepted. The problem may have occurred after fumigation and may be due to insufficient care during the transport of the fumigated material to the packing or shipping place.

The fumigation industry is fairly new. Businesses may not be aware of the need for fumigation yet. General Service Lao recommends that the Department of Agriculture puts out a notification or advisement to exporters that clarifies which product and destinations require fumigation. There are alleged cases where shipments were rejected because packing materials and/or products were not fumigated.

Source: Interview with repesentatives of General Service Lao.

property) as required by WTO and related regulation for the introduction of plant genetic material from abroad.

Animal health certificate. The export of live animals requires DLF-issued health and vaccine certificates. Similar with plant products, prior inspection and inspection fees are required for the issuance of a health certificate. The import of animal feed involves inspections, and periodic diagnostic tests incur additional costs. A Lao PDR animal feed importer who imports some 30 tons per day sends samples to the NAHC laboratory about twice a month. The fee, paid by the importer, is about 30,000 Kip (US$3.30) per sample. In addition to import permits, there are requirements specific to the product:[26]

- Live animals should have certification of appropriate vaccinations, health certificates, and zoosanitary certificates issued by veterinary authority of the exporting country.
- Meat products not for consumption should be disinfected by formalin and certified by the relevant laboratory in the exporting country to be free from infectious disease.

[26] Technical Norms on Livestock Management in Lao PDR, Ref. No. 0313/MAF, Ref. No. 0036/DLF.

Border procedures. Lao PDR has 15 international border checkpoints: 7 with Vietnam; 5 with Thailand; and 1 each with China,[27] Cambodia, and the Vientiane airport. There are also local border crossings, slightly more than international crossings. In addition to formal trade through international and local border crossings, there is significant smuggling and informal trade through long, porous borders along local trails or by boat.

Until March 2008, there were up to 15 agencies present at the international border posts that were involved in inspections and fee collection on imports and exports. In line with international trends in reducing border controls and policies promoted by the Cross Border Transport Agreement by GMS countries, regular presence on the border has been reduced to 3 agencies: immigration, customs and quarantine of plants and animals.[28] Among the consequences has been the removal of food safety inspectors from the border.

A new Prime Minister Decree is expected to modify this policy and allow food safety inspectors again at Lao PDR international borders. In the future, FDD plans to use test kits to measure for microbiological contamination and for some 11 chemicals which include formalin and borax. Until such time and depending on budget availability, food safety inspectors can only do documentation and visual examinations. Perhaps contrary to National Government policy, in some provinces, agencies removed from border posts have established internal checkpoints on the road to the border for inspections and collection of levies and taxes. At Luang Namtha along the Lao PDR-Chinese border, the primary control is situated at a checkpoint 6 kilometers inland from the border.

Plant and animal quarantine checkpoints are under direct management and supervision of the PAFOs.[29] The veterinary and phytosanitary controls on international borders involve no more than visual inspections and document checks. This applies to all (100 percent) shipments. A more active preventive health measure is the required disinfection of vehicles at the border as a precautionary measure against bird flu. Imported plant products and planting materials require phytosanitary certificates to be submitted upon entry at the border. Although animal health regulations require the quarantine of live animals for a certain number of days before being released for selling, rearing, or slaughter, insufficient capacities do not allow this practice.

At local border crossings, which are under the responsibilities of provincial and district governors, safety controls are limited or absent and largely confined to collection of fees for local governments. Yet, several local border posts are very important for import or export of certain agricultural or agricultural-related products. Most fruits and vegetables imported from Thailand for the Vientiane market reportedly go through local border crossings without inspections. And in Phongsali in the north, increasing amounts of commercial agricultural exports enter China through local border posts. It is reported that many products requiring permits, such as agrochemicals and veterinary drugs, pass uncontrolled through local border crossings.

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[27] There are in fact two international border posts with China; but since they are combined, they are often counted as one.

[28] Notification No. 405/GS (Prime Minister's Office/Government Secretariat), dated March 14, 2007.

[29] Guidelines on the Implementation of Plant Quarantine Border Checkpoint, Notification No. 115/DOA dated February 22, 1996.

Countries in the region recognize informal border trade or exchanges among border villages for which there are no requirements whatsoever. A Lao PDR company involved in aquaculture, which usually sells fish to the local market in Vientiane sometimes has "informal" exports (thus, no requirements) to Nongkhai and Udonthani in Thailand when there is fish shortage in these two provinces.

Transit goods. There are no official guidelines for transit of food products yet. There are reported instances of unsealed food products with accompanying documents that say "for transit." These shipments are handled according to the discretion of border inspectors. Sometimes, the border inspectors mark it "Pass through FDD," meaning that based on accompanying documents and visual inspection the product is of good quality with no contamination and is fit for human consumption.

For plants and plant products, there are no guidelines on transit in Lao PDR. Border inspectors only check documents and allow transit goods to pass. According to IPPC guidelines, consignments in transit are classified either as "presenting risks" or "do not present risk." In the first case, phytosanitary measures are required.[30] In the latter case, such as sealed shipments or in cases where no Lao PDR-regulated pests are associated with the consignment, no phytosanitary measure is required. Under the draft Plant Quarantine Law, traders will be required to request for transit permits for all transit shipments. According to the Plant Quarantine Division, phytosanitary certificates are not required for plant products, planting materials, and agrochemicals in transit.

For livestock, animal products, animal feed, and veterinary drugs in transit to a third country, transit permits are granted by DLF and PAFOs. There are more requirements for transit goods because they must comply with not just Lao PDR requirements but also those of the destination country. The new Veterinary Law will strengthen enforcement by providing livestock officers with authority to check traders for transit shipments.

Noncompliance and rejections at the border. According to the Food Law:

> Importation or distribution of unsafe, unqualified, non-standardized food or food not in conformity with the Food Law and regulations of the Lao PDR, such as contaminated, adulterated, decomposed, fraudulent, expired, unlabelled, or quality non-certified food is prohibited.

In practice, shipments of food products with unsatisfactory documentation are not allowed entry. There have been suggestions to destroy the shipments because these rejected shipments easily find another way into Lao PDR. Goods complying with requirements are passed on to the Customs Office for clearance.

The Decree on Plant Quarantine states:

> If any plants, agriculture produce, or forestry products, including parts of these or items containing these materials, intended for export or import, are found to be infected with disease, or are suspected of such infection, then they must be steam-sterilized, or placed in quarantine, in order to identify the diseases. In the event that the inspecting officers find prohibited plant diseases, the produce or products must be returned or destroyed.[31]

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[30] ISPM No. 25, *"Consignment in Transit."*

[31] Prime Minister's Decree No. 66/PM dated March 21, 1992.

However, there is as yet no capacity for steam sterilization. Reported rejections are usually due to spoiled fruit and vegetables and not the presence of pests and diseases. In these cases, shipments were not destroyed but merely denied entry. One weakness of plant quarantine measures is that plant quarantine inspectors do not have the authority to directly search or seize "risk" goods and instead depend on Customs official to refer such materials to them. The forthcoming Plant Quarantine Law may resolve this issue. At present, however, an effective coordination with the Customs Department is necessary for plant quarantine measures to work.

The DLF Director General can order a total ban on the importation of livestock, animal products, animal feed, and veterinary drugs when in his opinion importation could result in a significant risk for either animals or consumers, based on the following:

- If there is an unresolved epidemic disease in the originating country;
- If PAFO finds symptoms or infectious disease (such as anthrax, *hemorrhagic septicaemia*, blackleg, foot and mouth disease, classical swine fever) in imported animals;
- If the quality of animal feed or veterinary drugs does not meet the standards specified in the certificate of country of origin or manufacture.

Provincial autonomy. With limited capacities of the central agriculture authorities, provincial authorities are given power to institute measures for plant and animal health protection in their respective jurisdictions. If there are animal disease outbreaks, provincial authorities can impose import bans or bans on livestock movement. However, the legal limits of exercising local authority are not fully clear. Animal health authorities are confident that the new Veterinary Law will address the issue by strengthening both vertical and horizontal lines of responsibilities. Under the present system, the private sector does not easily comply, for example, with seizures and animal movement policies because there are no provisions for enforcement or legal authority. In the same way, the forthcoming Plant Quarantine Law will establish a National Plant Protection Organization (NPPO) that will decide on import restrictions.

With WTO membership, a provincial ban on a particular product may be noncompliant with international regulations and create a phytosanitary issue, especially if the ban is not based on NPPO-issued SPS requirements and on any risk analysis.

5.3 Formal Requirements to Transport Products from a Production Location or Place of Purchase to an International Border Crossing

The collecting of miscellaneous fees and levies, other than for SPS services, is a contentious issue especially with regard to the transport of goods across villages, districts, and provinces. This was acknowledged in interviews with several Lao PDR business enterprises. Requirements by the Ministry of Finance to raise local tax revenues force the various administrative levels to raise levies on all kinds of products shipped from their respective territories. The local tax revenues are eventually passed on by provincial governors to economic bureaus at provinces and districts and economic officers in

villages. Each district border, through which a shipment of goods passes, can impose that additional levies.[32] The following are examples and cases:

- A produce exporter in Savannakhet reports reduced exports compared to a couple of years ago because of the higher levies to transport raw materials from farms in Pakse to the factory in Savannakhet. In order to avoid levies, much of the raw product is now exported directly from Pakse to Thailand. Another report states that export of a 14-ton container from Lao PDR to Thailand is more expensive (1,600,000 Kip or US$175) than from Thailand to Lao PDR (2,000 Baht or US$59).
- A trader in Savannakhet required 4 permits for the transport of 19 buffalos and 1 cow from a village in Savannakhet to Vientiane (Table 5.1). Altogether the permits cost time and about US$15 (excluding transport expenses) in fees per animal.
- In the Lao PDR-China border, multiple levies charged by various government agencies in Lao PDR add significantly to the cost of trade (Box 5.3). For example, the fees on the border and inland for a truck passing from Boten to Huay Xay are reported to be RMB 6,000 (US$821).

Table 5.1 Documents Required for Domestic Trade of Cattle and Buffalo

Documents	*Offices*
Permit for movement of domestic goods	Registration Section, Domestic Trade and Business Division of Commerce and Industry (province)
Goods delivery	District Tax Office
Permit for movement of animals	PAFO
Animal movement issuance	District Commerce Office

Source: Interviews.

Box 5.3 Levies Reportedly Charged by Lao PDR Government on Export and Import Goods

On exports. A trading company reported that it must pay various fees to multiple agencies in Lao PDR when exporting to China. In addition to regular taxes, it pays an agriculture fee to the agricultural authorities, another fee to the Forestry Bureau, a public safety fee to the Public Safety Bureau, and another fee for use of roads. Together this totals RMB 100 (US$14) per ton of grain.

On imports. Another company reported that a truck from China to Lao PDR costs RMB 320 (US$44) in fees, of which there is a mandatory "insurance" of RMB 120 (US$16). However, if there is an accident or loss, the insurance does not provide any compensation.

According to a Chinese logistics company, the following fees are charged on goods entering Lao PDR at Natoei, a new checkpoint 6 kilometers from the Boten-Mohan border that was set up in February 2008:

- Entry fee (for entering Lao PDR): US$100-200 per 15-ton truck.
- Custody fee (for entering the temporary custody area): US$100-200 per truck.
- Reloading fee from Chinese to Lao PDR trucks: US$50-100 per truck. Lao PDR trucks try to avoid this fee by reloading at the Chinese side of the border.
- A fee of 20 percent of the value of the goods, which is by far the highest fee, is levied for an unknown agency.
- Official published tariff.

Source: Interviews in Kunming and Mengla, Yunnan Province, China.

5.4 Informal Requirements by Public Services and Officers

There is consensus among private establishments that there are trade issues of greater concern than the SPS requirements.

- There are cases of "facilitation" fees. An exporter related that he may choose to have the MOIC Form A signed on the same day for an additional 30,000 Kip (US$3.30).
- There are informal payments over and above the official fees. One exporter paid an additional informal payment of 150,000 Kip (US$16.50) for a phytosanitary certificate. Another exporter gave informal payment to have a Customs officer observe the loading and sealing of a container whereas there is no official fee for that service.
- Private sector respondents at the Lao PDR-Chinese border complain that, unlike on the Chinese side of the border, there is no published fee schedule for various services at the Lao PDR border. Fees are levied arbitrarily at different locations on the border and along the roads inland.[33] The basis for the fees is not given. No proof of payment is received. Fees can reportedly differ from day to day and from person to person who collects.

5.5 Impact on Competitiveness

All formal and informal import and export requirements involve costs. The time required to perform administrative procedures (working time of company staff to do the paper work and obtain clearances) and delays may be more costly than the fees. During this time, extra cost for interest, insurance, transport, and storage are incurred and goods may lose value during delays. These make it more difficult for enterprises to serve foreign buyers quickly and reliably. All fees, levies, informal payments, delays, and handling costs together raise costs and affect competitiveness with the small producers paying relatively more than the larger ones.

However, efficiency and attitude to serving business may be more an issue than the payments. One exporting company noted that it can cope with official SPS requirements and informal payments but is more concerned about the government agencies' general lack of understanding of the nature of agribusiness. Another entrepreneur advised that government services should reduce paperwork and improve service. Chinese enterprises also complain about the lack of service orientation of Lao PDR Government agencies.

With regard to the overall documentation, the World Bank report *Doing Business* described the Lao PDR export procedures in terms of number of days and costs (Table

[33] It seems that after the Decree (Notification No. 405/GS) removed several agencies from the border, more inland checkpoints were created for levying fees.

5.2).[34] Consistent with the discussion above, inland transportation contributed 91 percent to the total costs while document preparation used up two-thirds of time. The report also noted the main general obstacles identified by Lao businesses: deficient infrastructure, regulatory uncertainty, and access to finance. Regulatory uncertainty plays a role in the way SPS measures are applied.

Table 5.2. Export Requirements in Lao PDR

Nature of Export Procedures	*Duration (days)*	*Cost (US$)*
Documents preparation	33	10
Customs clearance and technical control	3	10
Ports and terminal handling	4	130
Inland transportation and handling	10	1,600
Totals:	50	1,750

Source: Doing Business 2008 Lao PDR, www.doingbusiness.org (search "Trading across borders in Lao PDR").

Overall, these requirements impose a heavy toll on traders in particular, and on the investment climate in general. Certainly, SPS requirements for export are not the main concern, but they cannot be ignored either. They are part of the broader problem of administrative costs, low efficiency and weak orientation of public services, informal payments, and levies of all kinds by agencies that together undermine profitability of trade.

[34] Doing Business 2008 Lao PDR. www.doingbusiness.org (search trading across borders in Lao PDR).

6 TRADING PARTNER – PEOPLE'S REPUBLIC OF CHINA

China's SPS controls on the border are mandated to one agency — the General Administration of Quality Supervision, Inspection, and Quarantine (AQSIQ). This lead SPS agency in China has branches (Entry-Exit Inspection and Quarantine Bureaus or CIQ) in all provinces, with offices in municipalities and at most national and international border posts.

Basic laws and regulations guiding China's SPS control at the border include:

- Law of the People's Republic of China on the Entry and Exit Animal and Plant Quarantine;
- Law of the People's Republic of China on Import and Export Commodity Inspection;
- Regulations for the Implementation of the Law of People's Republic of China on the Entry and Exit Animal and Plant Quarantine; and
- Regulations for the Implementation of the Law of the People's Republic of China on Import and Export Commodity Inspection.

According to the Law on the Entry and Exit Animal and Plant Quarantine, the following are prohibited from entering China: pathogenic micro-organisms (including seed cultures of bacteria and viruses) of animals and plants, pests, and other harmful organisms; animals and plants, animal and plant products, and other quarantine objects from countries or regions with outbreak of animal or plant epidemic; animal carcasses; and soil.

For first-time imports of any of these products a market access permit is necessary. Granting of such permits is subject to a procedure that involves provision of data by the exporting country; AQSIQ inspection of production areas, packing houses, and related infrastructures for shipping and storage; and review of production practices, including the use of pesticides; post-harvest practices; and a pest risk analysis. More importantly, the permit requires the exporting country to sign a memorandum of understanding outlining the conditions for market access and possible special requirements for production, handling, and export by the exporting country.

Products with market access permits go through an entry quarantine licensing system. Inspection and quarantine procedures in China are discussed in Appendix G. For the import of animals, animal products, seeds, seedlings, and other propagating materials, the consignee is required to make the quarantine approval application formalities before concluding the trading contract.

The AQSIQ (2005) *Catalogue of Import-Export Commodities Subject to Inspection and Quarantine by Entry-Exit Inspection and Quarantine Organs* defines all commodities that are subject to inspection; it is regularly updated based on the latest trade situation and covers an extensive list of agricultural and non-agricultural commodities. AQSIQ has the

legal mandate to exempt certain commodities from inspection. However, no exemption has ever been granted for food and agricultural products.

6.1 Requirements

Food products. Virtually no processed food is exported from Lao PDR to China, which reflects the lack of competitive exporters. According to China's Food Hygiene Law, imported food products should meet China's food hygiene and safety standards and be inspected against these standards.[35] If intending to export high-risk products to China, foreign export establishments are required to be registered with the Certification and Accreditation Administration of China. The veterinary service, the plant protection system, and public health system of the country where the establishment is located need to pass assessment by the Certification and Accreditation Administration. The country (region) where the establishment is located should be an epizootic-free area. The establishment itself should be approved by and under the proper supervision of the competent authority of the country where it is located, and its hygienic conditions should be in compliance with relevant Chinese standards. At present, the only food products for which registration of establishments is required are meat products and edible by-products and offal.[36]

Animals and animal products. The Law on the Entry and Exit Animal and Plant Quarantine and its implementation regulations are the overarching standards for China's animal health management of imports. There are other regulations or measures guiding approval, inspection, and quarantine of specific animal species and animal products, such as Administration of Inspection and Quarantine of Inward Aquatic Animals.

According to the Law on the Entry and Exit Animal and Plant Quarantine and its implementation regulations, a permit is required for import of animal and animal products. Only when the exporting country or region is free of serious animal diseases will import permit application be considered by AQSIQ and its CIQ branches. An animal health certificate issued by the competent authority of the exporting country or region should be provided along with the inspection application form.

Other than small-scale border trade, import of livestock products is banned because of the disease situation in Lao PDR.[37] In response to outbreaks of foot and mouth disease in Lao PDR, China banned the import of artiodactyls (even-toed mammals); and outbreaks of highly pathogenic avian influenza led to the ban of all poultry import from Lao PDR.

Plants and plant products. Similarly, the Law on the Entry and Exit Animal and Plant Quarantine and its implementing regulations lay out China's main requirements and procedures for plant quarantine of imports. In addition, AQSIQ also promulgated several

[35] Food Hygiene Law of the People's Republic of China, effective October 30, 1995.

[36] Regulation on Registration for Foreign Establishments Intended to Export Foods to China (2002).

[37] In one case of smuggling of pigs from Thailand to urban areas in China when prices in China were high, the Chinese authorities reacted strongly.

measures for the inspection and quarantine of specific product categories, including fruits, grain and feed products, and plant propagating materials.[38]

China requires heat or fumigation treatments for the importation of certain agricultural products as protection against plant pests and diseases. Fumigation of wood products is undertaken generally for wood packaging materials following ISPM 15 guidelines.[39] Cereals are fumigated on a limited scale when pests are identified. Maize imported from Lao PDR is required to be heat treated to kill insects. Sun-dried cassava chips can, according to different respondents in China, carry viral diseases and storage insects and are fumigated mostly to comply with private buyer, not CIQ, requirements. The total (heat) treatment and inspection costs for grain by a Lao PDR-based Chinese company is about RMB 40 per ton (US$5.60) of which RMB 5 (US$0.68) is paid to the CIQ and RMB 35 (US$4.80) is for heat treatment cost. According to a Chinese importer of cassava chips, fumigation treatment costs about RMB 24 (US$3.36) per ton. Based on information from the Mengla CIQ, fumigation of wood costs about RMB 12 (US$1.68) per square meter.

China regularly conducts plant pest surveys. It has a quarantine pest list of over 400 items, which is provided in Appendix H. In 2007, the CIQ staff in Yunnan Province reported detection of 943 pests in imported products from all countries. Forty-seven cases were found by the Mengla CIQ, most of which were from Lao PDR shipments but also some from Myanmar and possibly Thailand as well. These numbers included hazardous pests and general pests, in both cases they might have been acquired from the field and warehouses.

Non-SPS constraints. Although this report focuses on SPS controls, one important non-SPS constraint in grain imports that should be mentioned is the Chinese grain import quota. Grain from northern Lao PDR is imported under border trade allowance; it is not officially allowed as import because of phytosanitary constraints. Yet, as with all food grains in China, this import is controlled by the Chinese Ministry of Commerce through a quota system for approved enterprises. The available quota for import from Lao PDR is much smaller than the available amount of exportable product. However, China is reportedly reluctant to increase the quota for fear of being accused of buying food from a country with food shortage (Lao PDR is still a recipient of food aid).

Removal of the Chinese quota restriction on grain imports from Lao PDR would allow for greater exports. In late 2007 a Chinese company working with Lao PDR farmers under the opium crop substitution program bought 20,000 tons of rice from contracted farmers. The local Lao PDR market could not absorb so much rice leading to the company trying to sell it to foreign markets. The company had 1,600-ton quota for rice export to China in 2007 and did not know how much it would get for 2008. Of the 2007 rice crop, it exported 6,000 tons to Thailand and still needed to sell 14,000 tons. In this company's view, with rapidly improving agricultural technology in Lao PDR, agricultural outputs will increase significantly in the coming years, and the Lao PDR

[38] Implementation of Inspection, Quarantine and Supervision of Entry Fruits (2005); Administration of Inspection and Quarantine of Exit-Entry Grain and Feed Products (2002); and Administrative Measures on Quarantine of Entry Propagative Plant Materials (2000).

[39] Administration of and Supervision over Quarantine of Wood Packaging of Entry Goods (2006) .

domestic market is too small to absorb the extra products. Marketing will be the key challenge for farmers and agribusinesses.

6.2 Lao PDR-China Cooperation

The CIQ in Mengla County that borders Lao PDR is more than adequately staffed and sophisticated given the small volume of trade at present; it is seemingly anticipating strong increase in trade from the South, especially Thailand. It has 26 staff of which 7 are laboratory technicians, 4 are at the border post, and the rest are managerial and supporting staff. There are 15 temporary workers to provide multiple support tasks. The Yunnan CIQ laboratory, to which the Mengla laboratory belongs, has ISO 17025 accreditation.[40] A Chinese private sector respondent rated the capacities and efficiency of Thai and Chinese SPS border handling as about the same, but in sharp contrast with Lao PDR capacities and efficiency.

The political relations between Lao PDR and the People's Republic of China are good. The following points highlight joint efforts in managing SPS:

- In 2001, AQSIQ and the Lao PDR Ministry of Health signed an agreement to cooperate on controlling communicable human diseases, including malaria, dengue fever, and plague (pestis). In 2007, AQSIQ and the Lao PDR Ministry of Agriculture signed a memorandum of understanding on technical assistance for food safety and animal and plant inspection and quarantine. China has organized several seminars on its SPS requirements for ASEAN countries, which included Lao PDR participants.
- There are two meetings per year between Mengla CIQ and staff of the Luang Namtha Provincial Department of Agriculture and Forestry.
- Staff from Yunnan and Luang Namtha carried out joint research in diagnosis of pests and laboratory analysis. Chinese scientists conducted surveys to collect information about plant pests in Lao PDR. Lao PDR staff come to Mengla and work with Chinese technicians; the Chinese CIQ pays cost of the exchange. However, since no specimen from these surveys has been collected for storage in Lao PDR collections, some experts question the usefulness of the exercise for Lao PDR.
- In 2004 and 2005, joint animal disease surveillance was carried out in border areas. Although the basic purpose was to collect information in Lao PDR on animal health risks for China, it reportedly had benefits for both sides.
- During the recent outbreaks of avian flu in Luang Namtha, the Luang Namtha animal health authorities informed CIQ immediately; CIQ provided direct support with personnel, vaccines, equipment, and increased surveillance.

[40] ISO is issued by the International Organization on Standardization.

In addition to periodic meetings on animal health, Chinese authorities welcome similar working-level bilateral meetings for both food safety and plant health. Bilateral meetings are considered important for solving problems.

Constraints to trade

There are several factors that constrain growth of agricultural trade between Lao PDR and China. Two such factors are not concerned with SPS issues — the import quotas by the Chinese Government on grains (discussed earlier) and poor governance and inefficiency on the part of the Lao PDR agencies. Traders described Lao PDR border procedures as complex and prone to long delays. Although the travel time by truck between the Chinese border post at Mohan to the Thai border at Huay Xay is no more than 4 or 5 hours, waiting time at the Lao PDR border can be 5-15 days.

A bigger deterrent to trade are the weak SPS testing and certification capacities of Lao PDR. In the Luang Namtha Province in northern Lao PDR, the Chinese CIQ prefers to have the inspection of products done by CIQ or designated staff of companies at the production site before being shipped to China. In addition, CIQ staff carry out surveillance on the border and inside Lao PDR, which at least in part should be the responsibility of the Lao PDR Government.

China does not allow import of fruits and vegetables from Lao PDR. The Chinese plant health authorities have adopted precautionary principles with regard to border control because of the limited information on pests and diseases in Lao PDR, and require information on the plant pests and disease situation. A foreign company started an agribusiness in Lao PDR with plans to supply neighboring Thailand, Vietnam, and China. The company found out that exporting its products to China was not possible because of Lao PDR's inability to comply with China's requirement for pest and disease information. The difficulty for the Lao PDR Government is that (a) it does not have the resources to supply the data required, (b) its inspection capability is limited, (c) its diagnostic services are weak, and (d) its organization of phytosanitary services is not adequate.

Improved capacity in plant quarantine functions would enable Lao PDR to provide reliable information about pest and disease conditions thereby allowing for market access into China. If Lao PDR cannot provide such data, its export to China could remain constrained to small amounts of border trade on many different tradable products. In order to comply with the requirements of trade with China, Lao PDR must invest financial resources in relevant capacity building.

7 TRADING PARTNER – THAILAND

Significant increases in agricultural export volume from Lao PDR to Thailand reflect the growing investments by Thai companies in Lao PDR agriculture, mainly in maize, rubber, and sugar cane, over the last 10 years.

7.1 Requirements

The overall SPS umbrella legislation is the Agricultural Standards Act B.E. 2551 (effective August 20, 2008) that regulates the production and import of agriculture, fishery, forestry products, and by-products to protect consumer welfare and "protect against possible damage to its exports." The Act includes standards and procedures on inspection and certification. It created a Committee on Agricultural Standards to be led by the Ministry of Agriculture and Cooperatives (MOAC) and the Bureau of Agricultural Commodity and Food Standards, which is the SPS coordinating agency.

Food products. The Food Act B.E. 2522 (1979) is the primary law that protects consumers from food-borne hazards. The Food and Drug Administration (FDA) under the Ministry of Public Health is the agency responsible for the implementation and enforcement of this law.[41] The Department of Medical Sciences provides support on food analysis. The FDA establishes food standards and regulations, such as on food labeling; oversees production and importation of food products; conducts epidemiological studies; and performs inspection and certification of food manufacturing premises (GMP, HACCP, etc.). Food control measures differ among the 3 categories of foods defined by the Food Act:

(1) *Specific controlled foods* — dairy products, infant food, and food additives, among others — require registration and compliance with standard requirements (such as quality, packaging, and labeling).

(2) *Standardized foods* — such as oil products and bottled water — do not require registration but have to meet requirements on quality and labeling.

(3) *Other foods* that are not included in specific controlled or standardized categories.

Importation of food into Thailand requires a license from the Thai FDA. The designated storage and warehouse of the importer are inspected and approved before issuance of a license. Application for a license takes about 7 days and costs 15,000 Baht (US$445). The license is renewed every three years.

Animals and animal products. The importation of animals and animal products is regulated by the Animal Epidemic Act and importation of animal feed by the Animal Feed Control Act. For animals and animal products, importers request an import permit from the Department of Livestock Development prior to importation. The animal quarantine officer at the border will issue a preliminary import license at time of importation. The importer presents an official health certificate together with invoice and packing list and pays import fees (according to a Ministerial Regulation). After a general examination, the

[41] Food and Drug Administration, Thailand www.fda.moph.go.th/eng/index/stm .

animals or animal products are moved to quarantine facilities where tests are undertaken. A final import license is issued when the animals or animal products pass the tests.[42]

A small number of animals pass through quarantine from Lao PDR. Formal animal trade is cumbersome; it is much easier to import animals informally. As a result, the quarantine system is ineffective for its main purpose, which is to prevent spread of diseases across the borders. Realizing these weaknesses, the Department of Livestock Development is now selectively implementing a new system that requires 20 days of quarantine for animals in approved premises. For licensed traders, this is cheaper than the official quarantine because the system involves much less administration and fewer options for levies and more attractive than the illegal border crossings, which involve many informal payments (bribes) and commercial risks. The system is being implemented on the border with Myanmar and in the Chiang Rai section of the border with Lao PDR. Implementing the system on other parts of the border with Lao PDR is considered unnecessary since few animals are exported from Lao PDR to Thailand.[43]

Plants and plant products. The Plant Quarantine Act regulates the importation of plant material, with other relevant legislation for plant health found in the Hazardous Substance Act, the Fertilizer Act, and the Plant Variety Act.

There are 3 plant quarantine regulations that went into effect July 31, 2007, revising the Plant Quarantine Act.[44] Under the revised Act, there are three classifications: prohibited articles, restricted articles, and unprohibited articles.[45] One of the regulations established a list of plants and plant products classified as *prohibited articles* with some exemptions and conditions. The prohibited articles include 472 quarantine pests (see Appendix I). Plants having these prohibited plant pests become prohibited products themselves.[46] Importation of prohibited plants and plant products is accompanied with a phytosanitary certificate and is subject to a pest risk assessment justification prior to importation.[47] The pest risk assessment shall follow pertinent ISPM guidelines. Thai plant quarantine officials might visit the exporting country during the conduct of the assessment to evaluate pest management, post-harvest treatments and certification schemes, and pre-shipment inspections before the importation of prohibited articles.[48] The exporting country is responsible for the expenses incurred from such visits.

The list of *restricted articles* includes plant materials for propagation that must be handled according to prescribed conditions. These articles require phytosanitary

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[42] Department of Livestock Development. www.dld.go.th.

[43] In recent years bovine animal trade goes to Vietnam where prices are higher.

[44] Food and Agricultural Import Regulations and Standards (GAIN TH7098 July 30, 2007).

[45] The Official Announcement of Three New Plant Quarantine Regulations (GAIN TH7073 June 8, 2007).

[46] MOAC Notification, Specification of plant pests as prohibited articles under the Plant Quarantine Act B.E. 2507 (1964) (No 6), B.E. 2550 (2007) (GAIN TH7073).

[47] MOAC Notification, Specification of plants and carriers from certain sources as prohibited articles, of exceptions and conditions under the Plant Quarantine Act B.E. 2507 (No. 5) B.E. 2550 (GAIN TH7073).

[48] MOAC Notification, Specification of plant pests and carriers from certain sources as restricted articles under the Plant Quarantine Act B.E. 2507 (1964) B.E. 2550 (2007) (GAIN TH7051).

certificates from the exporting country NPPO but not a pest risk assessment.[49] *Unprohibited materials* are those that are neither prohibited nor restricted. Imports of unprohibited materials also require phytosanitary certificates.

7.2 Lao PDR-Thai Cooperation

At present, agricultural trade between the two countries is not impeded much by SPS requirements. Specifically for plant products, Thai plant health authorities consider the associated risks to be very small due to the similarity in ecosystems and because imports of plant materials from Lao PDR generally consist of unprohibited and restricted materials that are considered to have low risks. For the meantime, at least, compliance with the new Regulation No. 5 that requires exporting countries to provide information on plant pests and diseases is not strictly enforced with Lao PDR. The Thai authorities believe that there is, at present, no immediate known SPS risk that may spill-over from Lao PDR.

Nonetheless, Thai SPS agencies are concerned about the weaknesses of Lao PDR SPS capacities. Thai animal health authorities note that Lao PDR standards on animal health are lower than those of Thailand, and not strictly implemented. Thai plant health authorities are concerned about the absence of a phytosanitary law, weak human resource capacity, and limited information on the pest and disease situation. They believe that producing full pest lists would be too difficult for Lao PDR at this stage. The focus should be on a few priority issues and on the use of risk profiles as basis for risk management. Data from rejected shipments in neighboring countries can be helpful to guide priorities for this "learning by doing" exercise with support from outside.

Thai authorities are willing to extend assistance to Lao PDR. The Thai can share their risk profiles and help in their implementation. Much effort must be given to train staff on the implementation of policies. The Thai Ministry of Agriculture and Cooperatives will soon produce a revised handbook with pictures of pests and diseases for particular commodities and is willing to share this with Lao PDR counterparts.

Thai authorities would much appreciate periodic bilateral consultations in order to better understand and mitigate common risks and to intensify technical cooperation. For animal health issues, Thailand and Lao PDR authorities have biannual meetings that are useful for cooperation and technical assistance. Also, agreements between Lao PDR and Thailand, in particular with regard to surveillance of SPS risks, may be pursued under the 2005 GMS Strategic Framework for Action on Trade Facilitation and Investment.

[49] MOAC Notification "Specification of plant pests and carriers from certain sources as restricted articles under the Plant Quarantine Act B.E. 2507 (1964), B.E. 2550 (2007)" (GAIN TH7073).

8 TRADING PARTNER – VIETNAM

There are good political and economic relations between Vietnam and Lao PDR. With significant investments in hydroelectric, coffee, and rubber, trade between the two countries reached US$240 million in 2006.[50] To promote greater trade and growth for both countries, in 2003 Vietnam imposed a 50 percent tax reduction for selected goods imported from Lao PDR; these goods include certain wood products, medicinal products, forest products and farm products such as glutinous rice, long-grain rice, and sesame seeds.[51]

There is little exchange of processed food between Lao PDR and Vietnam. Formal trade in animals and animal products is limited considering the presence of endemic animal diseases. Export of fishery products from Lao PDR to Vietnam is limited as well. By far most exports from Lao PDR to Vietnam consist of plant and forestry products, in particular, wood, corn, and coffee.

8.1 Requirements

Food products. For the importation of processed food products, the Vietnam Food Administration under the Ministry of Health requires a GMP or HACCP certificate, a certificate of free sale for high-risk foods, and a certificate of analysis from the exporting country.[52]

A food safety inspection agency (indicated by Vietnam's Ministry of Health) is notified at least 5 days before the shipment of import products arrives. Inspection is done before Customs clearance[53] and is based on risk as determined from the information (documents) submitted. *Normal inspection* consists of inspection of organoleptic qualities of a sample and analysis of some critical hygiene quality. High-risk goods (those with signs of contamination, spoilage, or chemical exposure; goods from areas with epidemics; or goods with history of rejections) would have a *strict inspection*, and samples would be tested and evaluated. Low-risk goods (goods having passed two normal inspections or foods having test results in manufacturing country) would undergo *light inspection* in which case a random sample is taken for organoleptic test.[54]

Inspection fees are based on the retail value of the shipment. For example, the fee for food quality inspection is 0.1 percent of the retail value but should not be less than VND 300,000 (US$19). If the goods pass inspection, the quarantine officers issue a Certificate of Attainment of Import Quality to the importer. If the goods or samples do not meet the

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[50] Vietnam News Agency, February 11, 2007.

[51] Ministry of Finance-Ministry of Trade Joint Circular No. 54/2003/TTLT-BTC-BTM dated June 3, 2003, to carry out 2003 Treaty on Economic, Cultural, Scientific and Technical Cooperation between the Government of the Socialist Republic of Vietnam and the Government of the Lao People's Democratic Republic, signed on January 9, 2003.

[52] GAIN Report VM7070, "FAIRS Export Certificate Report", September 28, 2007.

[53] GAIN VM7074, "Exporter Guide Update", October 30, 2007.

[54] MOH Decision No. 23/2007/QD-BYT dated March 29, 2007.

necessary requirements, the shipment will be destroyed.[55] The import company will be sent a written notification and explanation.

Animals and animal products. An animal health certificate for live animals and aquatic animals issued by the animal health authority of the exporting country is required by the Department of Animal Health of Vietnam's Ministry of Agriculture and Rural Development (MARD). Animal health inspectors perform the inspection of animals and animal products prior to Customs clearance.[56]

MARD regulations for quarantine and inspection of animals and animal products include details on the marking or ear tags. Animal health authorities have a list of animal diseases to be monitored at the border and animals to be quarantined. Trade in fish and fish products is significant for Vietnam (although not for trade with Lao PDR) and is therefore guided by many regulations. There are also regulations on the registration, importation and sale of veterinary drugs.[57]

Plant and plant products. Plant quarantine officers handle the inspection of plant and plant products, which is done before Customs clearance.[58] MARD Plant Protection Department requires phytosanitary certificates for all exported and imported plants and plant products. Samples of products to be exported are tested, and phytosanitary certificates are issued within 24 hours. Seeds and planting materials are fumigated prior to export. A specially trained private firm is accredited to do fumigation services. Concerns with agricultural inputs prompted plant health authorities to provide regulations on registration, importation, and sale of plant protection products.[59]

A policy on plant health requires pest risk analysis before certain agricultural products are allowed entry into Vietnam. The products listed subject to the requirement include plant varieties, breeding material, fresh fruit, biological control agents, and other living organisms. Other high-risk articles may be subsequently added. The policy, however, only applies (a) to products being imported into Vietnam for the first time, (b) to products from a new origin, (c) when a regulated pest is detected, or (d) when there is scientific evidence of an epidemic in the exporting country. There are regulations that explain the procedures in carrying out a pest risk analysis and the procedures for granting an import permit subject to the findings of the pest risk analysis.[60]

Unlike China, Vietnam requires hardly any fumigation or heat treatment on plant and timber imports from Lao PDR.

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[55] GAIN Report VM7074, "Exporter Guide Update", October 30, 2007.

[56] GAIN VM7074, "Exporter Guide Update", October 30, 2007.

[57] MARD Regulations No. 15/2006/QD-BNN dated March 8,2006; MARD Decision No. 49/2006/QD-BNN dated June 10, 2006; MARD Decision No. 45/2005/QD-BNN dated July 25, 2005; MARD Decision No. 10/2006/QD-BNN dated February 10, 2006; and MARD Decision No. 10/2006/QD-BNN dated 10 February 10, 2006.

[58] GAIN VM7074, "Exporter Guide Update", October 30, 2007.

[59] MARD Decision No. 89/2006/QD-BNN dated October 2, 2006.

[60] MARD Decision No. 34/2007/QD-BNN dated April 23, 2007; MARD Decision No. 4096/2006/QD-BNN-KHCN dated December 29, 2006; and MARD Decision No. 48/2007/QD-BNN dated May 29, 2007.

Vietnam has a list of quarantine pests (see Appendix J). In case pests are found, the shipment will be fumigated outside the border quarantine area under the supervision of a plant quarantine officer. [61]

8.2 Lao PDR-Vietnam Cooperation

At the Dane Savanh-Lao Bao border post, the Vietnamese quarantine personnel are better housed, staffed, and equipped than their Lao PDR counterparts. The Vietnamese border post has a staff of 5 and some simple diagnostic tools; the Lao PDR post has a staff of 2 and virtually no equipment. However, similar to the Lao PDR border checks, the Vietnamese staff generally perform only document checks with visual inspection of goods. So far, Vietnamese quarantine staff have found no quarantine pest in products shipped from Lao PDR; only pests already existing in Vietnam have been detected.

The good relation between the two countries is acknowledged by Vietnamese SPS agencies. The Vietnam Department of Animal Health is committed to helping Lao PDR with capacity building in the form of training in Vietnam. The Plant Protection Department is aware of the many shared concerns with neighboring countries in the management of plant health. The Department hosted a workshop in April 2007 for Cambodia, Lao PDR, Myanmar, and Vietnam and was also attended by various donors who discussed needs assessment for an improved SPS implementation.

Vietnam benefits in providing assistance to Lao PDR in management of SPS risks in light of the growing Vietnamese agribusiness operating in Lao PDR. The Daklak Rubber Company has already invested US$6.25 million in two provinces to grow cash crops on about 4,000 hectares, including 3,200 hectares of rubber trees. In March 2007, Daklak started a new project worth US$32 million to plant rubber trees (on 10,000 hectares), cashew, coffee, and cocoa in Lao PDR's Champasack and Salavan Provinces.[62]

Vietnam plant health authorities consider the lack of human resources and the insufficient legal framework as the main gaps of Lao PDR's phytosanitary capacity. Government commitment was singled out as the key factor toward the establishment of better SPS capacities. Vietnam plant health authorities expressed little concern at the immediate phytosanitary risks of agricultural products from Lao PDR because of (a) the relatively small volume of trade consisting mostly of raw materials for further processing, (b) the similarity of ecosystems and plant pest and disease situation in the two countries, and (c) the stronger inspection and adequate quarantine capacities on the Vietnam side that compensate for the lesser Lao PDR capacities. Bilateral cooperation for SPS capacity building in Lao PDR is given high priority by Vietnam.

[61] MARD Decision No. 117/2000/QD-BNN-BVTV dated November 20, 2000.

[62] Thanh Nien News, March 20, 2007.

9 ANALYSIS AND RECOMMENDATIONS

9.1 Exports of Agriculture, Food and Forestry Products: Emerging Concerns

Exports of plant products (including forest products) are by far the most important for the Lao PDR agriculture sector. There are a few high-impact phytosanitary constraints from importing or potentially importing countries. The main constraints are in the trade with China. The Chinese restrictions on Lao PDR fruit and vegetable exports, because of the lack of pest and disease information, increasingly deter growth of agricultural trade. Uncertain still is whether China would formally allow grain exports from Lao PDR, other than the constrained volumes under the present border trade arrangements, if the quota limits on imports are waivered. The Chinese requirements on fumigation and heat treatment for some products such as maize, wood, and timber products have so far no major quantitative impact on overall exports, except to raise costs.

The situation in Lao PDR's main markets — China, Thailand, and Vietnam — is changing rapidly and affects prospects for growth of agricultural exports. These countries export to demanding markets in OECD countries. They are rapidly upgrading standards and controls in their domestic markets and want to reduce spillover of risks from their neighbors. In particular China is increasingly strict in applying a system of first-time import permits based on risk assessment, which requires surveillance data and criteria that cannot be met with the present capacities in Lao PDR.[63] Similarly, the new Thai and Vietnamese plant health regulations that require exporting countries to provide information on pests and disease situations are based on international principles and allow these countries to refuse imports from noncompliant countries. However, unlike the case of China, the Thai and Vietnamese regulations are not yet fully enforced for Lao PDR; but in case of incidents they may be enforced at short notice. Many Lao PDR exports could potentially be banned because Lao PDR is at present not able to meet these requirements. In this light, the limited SPS management capacities of Lao PDR cause increasing risks, constraints, and treatment costs to investors in export-oriented agriculture.

Export of livestock products from Lao PDR is difficult because of endemic contagious livestock diseases and formal quarantine requirements. Although neighboring countries have the same diseases, their policies focus on control of movement and border quarantine leaving little room for formal exports in the region. Since efforts of containment and eradication of these diseases are weak and effectiveness low, there are limited prospects for developing formal livestock exports in the foreseeable future. Nevertheless, Lao PDR has reportedly significant informal export of low-quality cows

[63] Chinese authorities justify the strict requirements by pointing at differences in agro-ecological situations and pest risks in China. However, it should be noted that the southern part of Yunnan and most of Gangxi have similar environments as bordering Myanmar, Lao PDR, and Vietnam, and yet plant products from Yunnan and Guangxi can be freely transported in China. Only a few forestry products from Yunnan have internal trade constraints because of dangerous pests. Cambodia faces similar market access constraints in China and, unlike Lao PDR, does not have a common border with China through which exports can take place under special conditions for border trade.

and buffalos, for which the country has a traditional comparative advantage. There may be some prospect for channeling more animals through border quarantine using simple and low-cost procedures, similar to the innovative program implemented by Thailand. This, if applied on a larger scale and by other countries as well, could solve part of the problem of transboundary spread of animal diseases. However, a similar arrangement by Vietnam, the main destination of bovine export, is not possible at this stage because it would require a change in Vietnam's Veterinary Law.

Given the disease situation in Lao PDR, the best chances for development of quality beef production for export would be through development of compartments or disease-free zones. This action would require a sustained and collaborative effort with at least one buying country and significant capital investment for which no investors have been found so far. For poultry and swine, Lao PDR probably does not have comparative advantage to be an exporter of significant amounts.

Lao PDR has limited export of processed food due to the small number of enterprises in this sector. Although public SPS management capacities are weak, they do not seem to constrain market access of exporters.

9.2 Imports of Agricultural Inputs: Inadequate Protection

The SPS Agreement allows countries to effectively protect the health of crops, animals, and people against risks related to trade of agriculture products, food, and forestry products. Unfortunately, Lao PDR's SPS controls, particularly the border controls, are disturbingly ineffective. But, even if effective, border controls alone cannot provide sufficient protection.

There are three reasons for ineffectiveness of border controls.

(1) Controls on Lao PDR's international border posts are weak because of lack of knowledge and training of inspectors and lack of technical facilities to support inspections.

(2) Products can easily enter the country without control through local border posts. Improved controls on international border posts are likely to divert larger amounts of dangerous and substandard products to local border crossings.

(3) Lao PDR, just as other countries in the region, has long and porous borders; traditional local trade and smuggling can circumvent international and local border posts as a means to avoid high taxes or transaction costs, and to import counterfeit products.

Although border controls can and should become more effective, in many cases they are not the most important element for SPS control. An effective SPS control system always needs to be supported by a system of monitoring, market surveillance, and market control, especially for risky products. Risky products that deserve priority in surveillance include:

- Products with high food-safety risks;
- Products with high risk of spreading cross-boundary animal diseases;

- Plants and plant products that can be carriers of quarantine and non-quarantine pests with high impact, especially plant propagation material; and
- Agrochemicals, pesticides, veterinary drugs, and growth enhancers.

To guarantee food safety requires prevention and control of the whole supply chain from farm to fork. Once unacceptable levels of pollutants and residues of pesticides, veterinary drugs, and growth enhancers have entered the food chain, they can never be removed. Experiences from China, Thailand, and Vietnam show that forbidden substances, formulations, and applications are constant threats. They pose health risks for domestic consumers, especially with regard to consumption of fruit, vegetables, poultry, pork, and aquaculture products. They can seriously undermine the promotion of good agricultural practice. And if trading partners detect forbidden substances in imported products, loss of market access can be the result.

Seeds and propagation materials that carry pests and diseases are significant risks for plant health. With Lao PDR's rapidly commercializing agriculture, new commercial crops and new varieties that may be more susceptible to quarantine pests are being introduced or expanded over large areas. The phytosanitary risks involved in these introductions are greater than with subsistence agriculture and small-scale border trade of traditional products. Most traditional crops — sugar cane, rubber, cassava, corn and rice — are not high risk from a phytosanitary point of view. However, through increased contact with other Southeast Asian countries and introduction of new varieties, certain risks are increasing.

9.3 Increased Scientific Capacity to Validate Trade Requirements

Lao PDR needs the scientific capacity to validate the requirements imposed by trading partners. Some of these requirements raise questions:

- Many countries, including China, require treatment even for timber products and furniture. Forest products are a major Lao PDR export item. *Are these requirements based on good science and adequate risk assessment?* In many cases these measures are probably causing unnecessary drain of income from forests products.
- It is common practice for plant authorities in both Lao PDR and in countries of destination to require phytosanitary certificates for non-timber forest products. *Does good scientific reasoning support these requirements and are incurred costs justified?*

The requirements by Chinese CIQ on first time fruit and vegetable imports are strict, and there are no obvious issues of noncompliance with international principles. However, to assess the scientific grounds for the Chinese requirements on Lao PDR exports — and the potential to increase market access and reduce treatment cost through mitigating requirements and improved compliance — would require a study on pest and weed incidence from the survey data in China.

Lao PDR lacks information on pests and risks at home and in countries of destination, and it lacks the scientific expertise to assess import requirements by trading partners with

regard to their compliance with international principles. The country also lacks the capacity to propose modifications on the basis of equivalence.

9.4 GMS Cooperation: Interdependency

Given the porous borders of the GMS countries, agricultural health and food safety depends on the SPS capacities of the individual countries and their cooperative arrangements. Efforts of one country to combat animal diseases, contain important plant pests, and prevent tainted foods from entering markets can easily be undermined by spillover from neighboring countries. The entry and establishment of an alien pest in Lao PDR could eventually affect the entire region. Hence, Lao PDR's relatively weak capacity for SPS risk management not only has potential implications for the Lao PDR domestic situation but also for the food safety, agricultural production, and exports of its neighbors.

Various cooperative arrangements between GMS countries are based on the understanding that they share risks and are mutually dependent on each other to effectively control health hazards. To address these, China, Thailand, and Vietnam are rapidly building up their capacities for surveillance and risk analysis, which have greatly increased with SPS measures being increasingly risk based. They expect the same from their GMS and ASEAN neighbors. Interviews for this study revealed that respondents from the private and the public sectors in neighboring countries are well aware of the weakness of SPS controls in Lao PDR. However, there is also clear willingness to bridge gaps in SPS capacities through bilateral technical assistance and multilateral cooperation. In particular bilateral working groups are identified as effective tools for policy dialogue, setting a joint agenda for cooperation, and identifying priorities for technical assistance. Independent international expertise could be sought to provide professional guidance and help developing the agenda for meetings.

9.5 Compliance with WTO SPS Principles

WTO requirements are driving SPS capacity building in Lao PDR, directly because of Lao PDR's application for WTO accession and indirectly because WTO principles guide SPS capacity building in the more advanced neighboring countries, link harmonization of SPS measures in GMS and ASEAN, and support development of the ASEAN Economic Community.

There are several elements in Lao PDR's implementation of SPS measures that are not consistent with the WTO framework. These inconsistencies are the principles pertaining to transparency, uniform national measures, nondiscrimination, use of risk-based measures, and avoidance of unnecessary measures.

9.6 Transparency Issues

The decentralized system of the Lao PDR Government places important SPS responsibilities at the provincial level. Plant and animal quarantine border controls, issuance of phytosanitary and veterinary certificates, conducting related inspections, and collection of fees are under direct PAFO management. However, the existing legal framework leaves much room for provincial governors to adopt their own regulations and

operational guidelines. According to WTO principles, there should be one authority that can promulgate trade policies. The IPPC recognizes only one National Plant Protection Office in charge of plant quarantine. Similarly, OIE recognizes only one veterinary authority. Decentralization of authority in this case lacks transparency and does not promote uniformity of SPS measures in accordance with WTO principles.

9.7 Unnecessary Requirements

Several unnecessary SPS requirements are imposed on exporters because the authorities either lack knowledge for proper implementation or need instruments to raise revenues. This affects the business climate; and for imports, it can violate the WTO principles that SPS measures should be science based and proportionate to the health risks.

- Foreign clients of Lao PDR food processors have different requirements, such as HACCP-based quality and safety management systems, which private enterprises have responsibility to meet. There are sufficient accredited certification and laboratory services from public and private providers in the GMS. Mandatory public health certificates and HACCP certification are not necessary for market access and only add to exporters' cost. These services need not be provided by the Government or should be optional.
- In most cases, phytosanitary certificates are required by importing countries and should be provided; but for certain products such as coffee, these phytosanitary certificates are unnecessary but required by PAFOs and neighboring countries. Lao PDR and GMS countries should aim at progressively removing such requirements.
- The budget policy of the Ministry of Finance prompts districts and provinces to use regulations in the area of food safety, plant health, and animal health for para-fiscal purposes rather than for protection of health and promotion of trade. The fees and informal payments for the many controls and inspections form a significant source of revenue for local agencies and income for inspectors. Because of unnecessary inspections and discretionary fee levels, the present SPS management system has a negative effect on the business climate.
- Although some SPS border procedures, in particular for import of food products, have improved in recent years, there is considerable scope for further improvements. Requests for import and export permits have to be done far in advance, waiting times are in many cases still too long, and handling costs (including informal payments) are too high. There is considerable scope to further simplify border procedures and to reach par with cost and efficiency of services in neighboring countries.
- Several of the present import requirements are insufficiently based on science and risks and as such not WTO compliant. Import controls should focus more on main risks and less on mandatory general inspections. A risk-based system should have differentiated controls that are proportionate to established or perceived risks. Controls for low-risk products could be waivered or be reduced to a small percentage of the shipment.

9.8 Financing SPS: What is Needed?

The Lao PDR Government has a clear commitment to becoming a member of WTO, to integrate in the international economy, and to promote social and economic well-being of its citizens. It realizes that more effort is needed but remains unclear to what extent the Government can depend on donor funding and to which extent Government funding is needed for staff and recurrent costs.

Main investments in capacity building are still ahead. A general observation among specialists and in neighboring countries is that the present levels of public funding are insufficient to create enough absorptive capacity for external support and for sustainability of newly created capacities. However, no assessment has been made so far of the minimum level of Government funding needed for establishing a viable SPS management system. Such an assessment should be based on public expenditure review and could make use of experiences of neighboring countries, especially Thailand and Vietnam.

9.9 Recommendations

In implementing the below recommended actions, Lao PDR will have not only satisfied its legislative agenda for WTO accession and complied with the principles in the WTO SPS Agreement but also created a system that is more suitable for serving its national economic and social interests. Table 9.1 characterizes gaps with a corresponding (abbreviated) recommendation according to relevant WTO SPS principles. The issues concerning transparency, proportionality, national uniformity, and science-based measures are the more important concerns requiring legislative and institutional reforms.

Legal and regulatory framework:

- Design and implement a unified national system of laws and regulations for management of food safety, plant health, animal health, and related use of seed, feed, pesticides, veterinary drugs and other relevant inputs in agro-food supply chains.
- Laws and decrees should clearly specify roles, mandates, and responsibilities of the lead ministries and other national and provincial agencies. The division of roles and responsibilities between PAFOs and MAF should be clarified. The legal framework should have the status of binding national law and regulation.
- Laws, decrees, and regulations should be in compliance with binding WTO SPS principles and meet criteria of international good practice.
- Laws and decrees should include adequate provisions for implementation and enforcement.

Table 9.1 Gaps and Recommendations in Context of WTO SPS Principles

WTO SPS Principles	*Gaps in capacity*	*Recommendations*
Transparency	• Legal and regulatory framework has gaps and is not sufficiently published. • Decentralization allows provincial authorities too much discretionary power.	• Additions and amendments in legal and regulatory framework to clarify institutional roles and responsibilities (especially between national and provincial offices). • Pertinent laws and regulations to be published and made available to exporters and importers (such as mandatory fees).
Proportionality	• Measures not significantly contributing to better human and agricultural health protection and are unnecessary and noncompliant.	• Amendments in legal and regulatory framework (a) to repeal redundant measures, (ib) to make measures not required by international agreement as voluntary, and (c) to modify fiscal regulations in such ways that SPS measures are not used for para-fiscal purposes.
Uniform national measures	• Discretionary powers of provincial authorities result in variances in implementation of SPS measures.	• Design and implement a unified national system of laws and regulations for food safety, plant health animal health and related use of agro-inputs. • Develop national inspection protocols. • Unify SPS controls in local and international border posts.
Science-based measures	• Certain measures are not science-based.	• Use of risk profiles, in medium-term. • Build capacity on risk management and assessment, and data gathering on hazards from both import and domestic markets and establishment or assignment of offices responsible for risk management.
Nondiscrimination	• Limited capacity to validate requirements of trading partners.	• Capacity building for validating trading partner SPS requirements.
Equivalence	• Limited capacity to propose equivalent measures.	• Capacity building for proposing equivalent measures on import requirements.
Harmonization	• SPS measures and capacities are not yet adequate to meet needs of trading partners.	• Amendments in legal and regulatory framework to be consistent with international good practices on food safety and agricultural health. • Regular bilateral consultations with neighboring countries on plant health, animal health and food safety.

Source: Authors

Obligations with regard to trading partners:

- Responsible Government services will build up the capacities to provide information about prevalence of plant pests and diseases, animal diseases, and food-borne health hazards as required by trading partners within the framework of the WTO SPS Agreement, Codex Alimentarius, IPPC, and OIE.

- The issuance of phytosanitary certificates, animal health certificates, and health certificates for food should be based on sufficient diagnostic capacities, sufficient information about the pest and disease situation, good inspection protocols, and sufficient training of inspectors. This will create the necessary confidence in the certificates in neighboring countries and the private sector.
- Develop inspection protocols and train inspectors.
- Establish and publish a simple national mandatory list of fees, which should be displayed at each border quarantine post.
- Remove discretionary powers of governors that violate international obligations under WTO SPS, Codex Alimentarius, IPPC, and OIE. The decentralization of SPS management should meet the WTO requirements.

Facilitation of trade:

- The system of SPS controls and levies should be simplified and made less time consuming and costly for exporters and importers, which in time will boost the competitiveness of exporters and reduce cost of imports.
- Repeal redundant mandatory inspections and certifications and, where needed, provide voluntary services. SPS inspections and certification services that are not required by international agreement should be made voluntary.
- Controls on agricultural inputs should be strengthened in order to enhance compliance with trading partner requirements, and reduce the risk of violations that could trigger a ban on imports.

Protection of health of consumers, plants, and animals:

- Unify regulation and implementation of SPS border controls for local and international border posts.
- In addition to and partly as alternative to SPS border controls, use monitoring and surveillance of agrochemicals, high-risk food products, and pests and diseases as tools for protection of consumers and agricultural health.

SPS trade negotiations:

- Build sufficient capacity to analyze whether trading partner's SPS import requirements such as for market access, treatment and rejection are justified under WTO SPS principles.
- Build sufficient capacity to develop proposals for equivalency on trading partner's import requirements that would increase market access or reduce cost of market access.

Regional and bilateral cooperation:

- Seek cooperation in GMS and ASEAN for a joint effort (a) to abolish SPS measures that are unnecessary from a health protection perspective, and (b) to modify measures that cause unnecessary transaction cost on cross-border trade.

- Establish new and strengthen existing bilateral working groups for plant health, animal health, and food safety with China, Thailand, and Vietnam with the aim of strengthening policy dialogue, setting a joint agenda for cooperation, and identifying priorities for technical assistance. Seek independent international expertise for professional guidance and support for developing the agenda for meetings.
- Seek sustained support for the strengthening of human capital and SPS institutions, including parts of the university system, through long-term twinning arrangements.

Funding of SPS capacities:

- Regular funding for recurrent costs of the SPS system, especially for monitoring and surveillance, should be increased in order to remove constraints on absorptive capacities for donor support and to improve sustainability of new capacities created with donor support. An assessment should be conducted to identify a minimum level of funding for staff and operational cost, by utilizing experiences from Thailand and Vietnam.
- Incentives should be modified for districts and provinces that use regulations for food safety, plant health, and animal health for para-fiscal purposes rather than for protection of health and promotion of trade.

9.10 Concluding Remarks

The recommendations above are meant to provide guidance to Lao PDR's continuing efforts towards the establishment of a food safety and agricultural health system that provides effective protection to public and agricultural health, is consistent with WTO principles, and allows the country to participate more in regional and international trade. Adoption and implementation of these actions depend primarily on available resources and capacities.

Legal and regulatory reform is key and a necessary first step for solving many of the weaknesses in SPS management in Lao PDR. Most of the recommendations in the legal field proposed here will be addressed under the Trade Development Facility. However, other work, especially on surveillance and diagnosis, will require significant support from regular budget and additional grant and lending sources.

The present technical, legal, and institutional environment should be strengthened to achieve effective health controls. Stronger capacities of the SPS authorities and national harmonization of operational rules will give trade partners more confidence in the inspection, and health and safety certifications of Lao PDR.

Adoption of WTO principles, regional economic integration, and strengthening of border control procedures necessitate a thorough change in the organization and management of food safety, plant health, and animal health in Lao PDR. Well-functioning components of an effective SPS management system — institutional capability, regulations and standards, diagnostic capacity, surveillance, inspection, and quarantine — should be put in place.

APPENDIX A PERSONS INTERVIEWED FOR STUDY

Lao PDR

Ms. Banesaty Thepavong	Deputy Director General, Foreign Trade Policy Department, Ministry of Industry and Commerce (MOIC)
Mr. Xaypladeth Choulamany	Deputy Director General, Department of Planning Ministry of Agriculture and Forestry (MAF)
Mr. Phaydy Phiaxaysarakham	Director, Plant Quarantine Division Department of Agriculture (DOA), MAF
Mrs. Khamphoui Louanglath	Director, Regulatory Division Department of Agriculture (DOA), MAF
Ms. Sivilay Naphayvong	Director, Food and Drug Department Ministry of Health (MOH)
Mrs. Souklatsamy Vongsack	Director, Food and Drug Quality Control Center (FDQCC) Ministry of Health (MOH)
Mr. Sounthone Vongthilath	Chief, Veterinary Legislation Division Department of Livestock and Fisheries (DLF), MAF
Mr. Phachone Bounma	Deputy Head, Veterinary Legislation Division Department of Livestock and Fisheries (DLF), MAF
Mr. Khuanchay Iemsouthi	Foreign Trade Policy Department, MOIC
Mr. Chen Han Gao	Economic and Commercial Counselor, Embassy of the People's Republic of China in Lao PDR

Lao-Thai Friendship Bridge, Vientiane Capital-Nongkai border post

Mr. Lasay Nouanthasing	Director, Agriculture and Forestry Office, MAF
Mr. Chanxay Vinavong	Director, Friendship Bridge Administration
Plant and Animal Quarantine officers	

Lao-Thai Friendship Bridge II, Savannakhet-Mukhadan border post

Mr. Soulaphone Inthavong	Head, Provincial Agriculture and Forestry Service (PAFO)
Mr. Chantalla Phomally	Chief Quarantine Officer
Plant Quarantine Officers	
Director	Savannakhet Produce Company, Savannakhet Province
Ms. Ratsamay Khenpanavanh	Director, Khenphanavanh Company, Savannakhet

Danesavanh-Lao Bao border post

Phonsavanh Sisavah	Deputy Chief, Lao Plant Quarantine Station, Danesavanh
Lao Plant Quarantine Officer	

Private sector

Dr. Sisaliao Svengsuksa	Co-President, Lao Farmers' Products
Mr. Thou Bountarath	Director, Lao Farmers' Products
Mr. Eric Sisombat	Sinouk Café
Mr. Boonchai Punyalerdchai	Assistant Managing Director, Lao Agro Industry Co. Ltd.
Mr. Sian Aisom	Controller, C.P. Laos Co., Ltd.
Mr. Thavisack Thavisabkounh	To Chareun Karn Kaset (To Chareun Agriculture Co. Ltd)
Mr. Phongthep Virathavone	General Manager, General Service Lao (GSL)
Mr. Souliyong Yuivanithsavong	Director General, Lao World Co. Ltd
Ms. Pissamai Hompikul	General Manager, Tang Freres Supermarket
Mrs. Birgitte Hector	Financial Director, Lao Banana Company

Vietnam

Ms. Hoang Thi Dzung	Deputy Director General, International Co-operation Department, Ministry of Agriculture and Rural Development (MARD)
Mr. Tran Dang	Director General, Vietnam Food Administration (VFA) Ministry of Health (MOH)
Mr. Dam Quoc Tru	Deputy Director General, Plant Protection Department MARD
Mr. Dau Ngoc Hao	Vice Director, Department of Animal Health (DAH) MARD
Ms. Bui Thi Cuc	Vice Chief, Planning Division, DAH, MARD
Mr. Pham Van Dong	Chief, Animal Quarantine and Inspection Division, DAH MARD
Mr. Le Ba Anh	Deputy General Director, NAFIQAD, MARD
Ms. Tran Viet Nga	Director, Foreign Relation and Integration Division, VFA MOH
Dr. Nguyen Huu Dat	Director, Post Entry Quarantine Center No. II Plant Protection Department, MARD
Mr. Nguyen Van Nga	Director, Regional Plant Quarantine Sub-Department II
Mr. Nguyen Xuan Sinh	TBT Office, Import-Export Administration Department Ministry of Industry and Trade (MOIT)
Mr. Nguyen Minh Tuan	Deputy General Director Vietnam Chamber of Commerce and Industry (VCCI)

Danesavanh-Lao Bao border post

Mr. Dao Cao Tuong	Chief, Vietnam Plant Quarantine Station, Lao Bao
Mr. Lesang Thuu Bung	Vice-Chief, Vietnam Plant Quarantine Station, Lao Bao

Private sector

Mr. Nguyen Xuan Tien	Vice-Director, Investment Department Saigon Plant Protection Joint-Stock Company
Mr. Hoang Nghia Quang	Sales Manager, Vietnam Wood Joint-Stock Trading and Production Company (Viet Go or VIGO)
Mr. Nguyen Huu Truong	Vice Director, Thai Hoa Company
Ms. Sang	Director, Ruc Sang Company
Mr. Quong	Manager, Import-Export Department, Ruc Sang Company

Thailand

Mr. Anut Visetrojana	Chief SPS Officer, National Bureau of Agricultural Commodity and Food Standard (ACFS), Ministry of Agriculture and Cooperatives (MOAC)
Mr. Wichar Thitiprasert	Director, Office of Agricultural Regulation, Department of Agriculture
Ms. Oratai Euatrakool	Expert, Plant Quarantine Group, Department of Agriculture
Ms. Chonticha Rakkrai	Plant Quarantine Research Group, Department of Agriculture
Ms. Laddawanla Ratananakorn	Department of Livestock Development
Ms. Jocelyn Naewbanij	National Food Institute (NFI) of Thailand
Ms. Carolyn Benigno	Regional Office FAO

Private sector

Mr. Panot Sirivadhanabhakdi	Assistant to CEO, TCC Land Company Ltd.
Mr. Thasanai Phiriyavityopas	Executive Vice-President, TCC Plantheon Co. Ltd.
Mr. Boonpeng Sanitwattanatam	President, Swine Producers and Processors for Exporting Association

People's Republic of China

Beijing

Mr. Zhang Baofeng	Director of WTO Affairs Division, Department of International Cooperation, General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ)
Mr. You Zhongming	D.V.M, Director of Bio-Security Division, Department for Supervision on Animal and Plant Quarantine, AQSIQ
Mr. Xu Qiang	Division of Plant Quarantine, Department for Supervision on Animal and Plant Quarantine, AQSIQ
Mr. Zhang Ming	Export-Import Food Safety Bureau, AQSIQ

Kunming

Mr. Cheng Biao	Director, International Cooperation Division Department of Finance
Ms. Cheng Yujie	International Cooperation Division, Department of Finance
Mr. Wen	GMS Coordination Unit, Yunnan Development and Reform Commission
Mr. Zhang Yingguo	Animal Disease Control Division, Department of Agriculture
Ms. Li Yongmei	Plant Protection Station, Department of Agriculture
Ms. Lu Weisong	Regulation and General Affairs Division, Yunnan Entry-Exit Inspection and Quarantine Bureau
Ms. Han Yi	International Trade and Economic Affairs Division, Deparment of Commerce
Mr. Zhang Jianwei	Deputy General Manager, Sinotrans Yunnan Co.
Ms. He Jie	Deputy General Manager, China Tobacco Yunnan Import and Export Co. Ltd.
Ms. Xie Zhiqun	China Post Logistics – Yunnan Branch
Mr. Peng Wenchang	Manager, International Trade Company, Yunnan Power Biotechnology Group

Mengla/Mohan Border Post

Mr. Liu Wenbin	Director, Mengla Entry-Exit Inspection and Quarantine Bureau of the People's Republic of China
Mr. Sang Hao	Section Head, Comprehensive Supervision, Mengla Entry-Exit Inspection and Quarantine Bureau of the People's Republic of China
Mr. He Xingshi	President and Manager, Jianfeng Rubber Development Co. Ltd.
Mr. Wang Yue	Deputy Manager, Jianfeng Rubber Development Co. Ltd.
Mr. Yao Yiwu	President and Manager, Mengla Jinggu Trading Co. Ltd.
Mr. Che Weili	Mengla Lianshun Trading Co. Ltd.

Yunnan Entry Exit Inspection and Quarantine Bureau (CIQ)

Mr. Li Xiaohui	Director, Regulation and General Affairs Division
Mr. Mu Yongmin	Director, Plant Inspection and Quarantine Division
Mr. Li Lingfeng	Director, Animal Inspection and Quarantine Division
Mr. Zhang Xiaoding	Director, Food Inspection Division
Ms. Lu Weisong	Regulation and General Affairs Division

APPENDIX B FOUR COUNTRIES' LEGISLATION

People's Republic of China

- Law of the People's Republic of China on the Entry and Exit Animal and Plant Quarantine, promulgated on October 30, 1991 and effective as of April 1, 1992
- Law of the People's Republic of China on Import and Export Commodity Inspection, promulgated on February 21, 1989, and effective as of August 1, 1989
- Regulations for the Implementation of the Law of People's Republic of China on the Entry and Exit Animal and Plant Quarantine, adopted on December 2, 1996 and effective as of January 1, 1997.
- Regulations for the Implementation of the Law of the People's Republic of China on Import and Export Commodity Inspection, adopted on August 1, 2005 and effective as of December 1, 2005.
- Food Hygiene Law of the People's Republic of China. Effective as of October 30, 1995.
- Regulation on Registration for Foreign Establishments Intended to Export Foods to China. Effective as of March 14, 2002.
- Administrative Measures for Implementation of Inspection, Quarantine and Supervision of Entry Fruits. Effective as of July 5, 2005.
- Measures on the Administration of Inspection and Quarantine of Exit-Entry Grain and Feed Products. Effective as of March 1, 2002.
- Administrative Measures on Quarantine of Entry Propagative Plant Materials. Effective as of January 1, 2000.
- Measures for Administration of and Supervision over Quarantine of Wood Packaging of Entry Goods. Effective as of January 1, 2006.
- Measures on the Administration of Inspection and Quarantine of Inward Aquatic Animals. Effective as November 1, 2003.

Lao PDR

- MAF Decision No. 0313, dated January 20, 2000, to issue the technical norms concerning management of livestock and its products in Lao PDR. Translated copy provided by DLF.
- Prime Minister's Office, Government Secretariat Notification No. 405/GS, dated March 14, 2007. Subject: Improvement in the management system of the border checkpoints. Translated for this study.
- MAF Notification No. 0131/MAF.07, dated June 10, 2007. Subject: Inspection and monitoring the importation of sapling and seed of rubber tree. Translated for this study.
- Champasak Province Notification No. 058/G.CP, dated October 6, 2006. Subject: Regulation on phytosanitary certification and the implementation on border plant quarantine. Translated for this study.
- Prime Minister's Office Decree No. 66/PM, dated July 20, 1993. "Decree on Plant Quarantine in Lao PDR". Translated for this study.

- Prime Minister's Office Decree No. 205/PMO, dated October 11, 2001. "Decree on Import and Export Management". From MOIC website: http://www.moc.gov.la/vanban.asp?org=01
- MOIC Notification No. 1376/MOIC.DIMEX, dated October 10, 2006. "Notification on list of goods subject to import-export control and prohibition." Unofficial translation from MOIC website: http://www.moc.gov.la/vanban.asp?org=01
- Regulation for the Management and Usage of Plant Protection Products in Lao PDR, No. 0886/MAF dated March 10, 2000. Unofficial translation.
- MAF Notification No. 0754/MAF.DOA.06 dated July 14, 2006. Subject: Roles, rights and duties and standards of the plant quarantine checkpoints for reference in improving working methodology on the implementation of the Decree on Plant Quarantine in Lao PDR No. 66/PM dated March 21, 1993. Translated for this study.
- MAF Notification No. 0034/MAF.04, dated January 10, 2006. Subject: Implementation of the International Standards for Phytosanitary Measures (ISPM) 15 to control the use of wood packaging materials in international trade. Translated for this study.
- MAF DOA Notification No.0053/DOA.06, dated January 23, 2006. "Technical guidelines: principles in undertaking the control of the usage of wood packaging materials in international trade". Translated for this study.
- MAF DOA Notification No. 0179/DOA.2000, dated January 31, 2000. Subject: change in fees charged on analysis of pests on agricultural products that are imported and exported, and transited to third countries. Translated for this study.
- MAF Notification No. 0350/MAF.DPL.2002, dated May 13, 2003. Subject: Collection of fees and service charges by the Agriculture and Forestry Sector. Translated for this study.

Vietnam

- MOH Decision No. 23/2007/QD-BYT dated March 29, 2007. "On the issuance of state inspection regulation on the quality, hygiene and safety of imported foods". Unofficial translation, provided by MOH.
- MARD Decision No. 34/2007/QD-BNN dated April 23, 2007. "Promulgating a list of articles subject to plant quarantine and pest risk analysis before they are imported into Vietnam". Official translation.
- MARD Decision No. 89/2006/QD-BNN dated October 2, 2006. "Promulgating the regulation on management of plant protection drugs".
- MARD Decision No. 4096/2006/QD-BNN-KHCN dated December 29, 2006. "Phytosanitary Standard No. 10 TCN 995: 2006 – Procedures for conducting pest risk assessment for imported plants and plant products". Cited in another Decision.
- MARD Decision No. 48/2007/QD-BNN dated May 29, 2007. "Regulation on procedure for the issuance of the phytosanitary import permit for articles subject to pest risk analysis before importing into Vietnam". Official translation.
- MARD Regulation No. 15/2006/QD-BNN dated March 8, 2006. "Regulations on process and procedures on animal and animal product quarantine; veterinary hygienic inspection". Translated for this study.
- MARD Decision No. 10/2006/QD-BNN dated February 10, 2006. "Regulations on procedures for the registration of production, importation, circulation of veterinary drugs,

materials for veterinary drug production, biological products, microorganisms and chemicals for veterinary use". Translated for this study.

- MARD Decision No. 49/2006/QD-BNN dated June 10, 2006. "Regulation on marking animals that are transported domestically, exported and imported". Translated for this study.
- MOFI Decision No. 15/2006/QD-BTS dated September 8, 2006. "Promulgating the regulation on management of import and export of fishery goods".
- MARD Decision No. 46/2005/QD-BNN dated July 25, 2005. "Promulgation of the list of objects under veterinary hygiene inspection; list of objects under compulsory veterinary hygiene inspection; list of objects under compulsory veterinary hygiene inspection with the application of veterinary hygiene standards".
- MARD Decision No. 45/2005/QD-BNN dated July 25, 2005. "Promulgation of the list of objects in animals and animal products under quarantine; list of animals and animal products under quarantine".
- Ministry of Finance-Ministry of Trade Joint Circular No. 54/2003/TTLT-BTC-BTM dated June 3, 2003. "Guiding the reduction of import tax on goods of Lao origin specified in the August 13, 2002 Vientiane Agreement between the Government of the Socialist Republic of Vietnam and the Government of the Lao People's Democratic Republic". (from website of Vietnam's Ministry of Trade)
- MARD Decision No. 117/2000/QD-BNN-BVTV dated November 20, 2000. "Enacting the list of plant quarantine pests". Official translation.

Thailand

- Agricultural Standards Act B.E. 2551 (2008)
- Notification of Ministry of Agriculture and Cooperatives entitled "Specification of plant pests and carriers from certain sources as prohibited articles under the Plant Quarantine Act B.E. 2507 (1964) (No 5), B.E. 2550 (2007)". Published in the Royal Gazette, Vol. 124, Part 66 Ng, dated June 1, 2007. Unofficial English translation from USDA Foreign Attaché Service GAIN report TH7073, "The Official Announcement of Three New Plant Quarantine Regulations". June 8, 2007.
- Notification of Ministry of Agriculture and Cooperatives entitled "Specification of plant pests as prohibited articles under the Plant Quarantine Act B.E. 2507 (1964) (No 6), B.E. 2550 (2007)". Published in the Royal Gazette, Vol. 124, Part 66 Ng, dated June 1, 2007. Unofficial English translation from USDA Foreign Attaché Service GAIN report TH7073"The Official Announcement of Three New Plant Quarantine Regulations". June 8, 2007.
- Notification of Ministry of Agriculture and Cooperatives entitled "Specification of plant pests and carriers from certain sources as restricted articles under the Plant Quarantine Act B.E. 2507 (1964), B.E. 2550 (2007)". Published in the Royal Gazette, Vol. 124, Part 66 Ng, dated June 1, 2007. Unofficial English translation from USDA Foreign Attaché Service GAIN report TH7073, "The Official Announcement of Three New Plant Quarantine Regulations". June 8, 2007.
- Plant Quarantine Act (No. 3) B.E. 2551 (2008): The Government Gazette, Vol. 125, Part 40a, dated March 1, B.E. 2551 (2008). Unofficial translation from USDA Foreign Attaché Service GAIN report TH8047, "The New Plant Quarantine Act (No. 3) B.E. 2551", March 18, 2008.

APPENDIX C PRODUCTION AND TRADE TABLES

Table C.1 GDP and Sectors, 2000-2006

	2000	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*
GDP (current US$, millions)	1,735	1,754	1,830	2,138	2,508	2,887	3,437
Agriculture, value-added (% of GDP)	53	51	50	48	47	44	42
Industry, value-added (% of GDP)	23	24	25	26	28	30	32
Services, etc., value-added (% of GDP)	25	25	25	25	26	26	26
GDP growth (annual %)	6	6	6	6	6	7	8
Agriculture, value-added (annual % growth)	5	4	4	2	3	2	2
Industry, value-added (annual % growth)	8	10	10	14	11	17	16
Services, etc., value-added (annual % growth)	5	6	6	7	8	7	7

Source: World Development Indicators, April 2008.

Table C.2 Production of Main Agricultural Crops, 2002-2005

	Thousand metric tons			
Products	***2002***	***2003***	***2004***	***2005***
Rice, paddy	2,417	2,375	2,529	2,350
Vegetables nes	763	663	650	660
Sweet potatoes	194	150	175	248
Sugar cane	222	308	223	230
Maize	124	143	204	210
Watermelons	83	84	60	65
Cassava	83	83	56	60

Source: World Bank Development Data Platform, FAO Agricultural Production Statistics, July 2008.

Table C.3 Direction of Total Lao PDR Trade, 2004-2007

	US$ millions			
Main trading partners	***2004***	***2005***	***2006***	***2007***
Lao PDR exports, total	**535.4**	**696.6**	**1,132.6**	**1,206.9**
1. Thailand	104.3	204.4	475.4	431.5
2. Vietnam	67.5	88.6	109.5	135.9
3. China, People's Republic	11.4	23.2	45.1	75.3
4. Taiwan, China	5.6	8.3	36.0	48.7
5. Germany	28.7	31.6	43.0	34.6
6. Malaysia	0.1	11.8	44.6	32.4
7. France	43.4	41.9	29.1	26.1
8. Korea	1.3	1.9	12.8	15.9
9. Japan	7.3	7.3	11.3	10.9
10. Belgium	13.4	15.6	16.7	10.7
Lao PDR imports, total	**1,055.7**	**1,270.2**	**1,639.3**	**2,063.8**
1. Thailand	639.5	846.2	1,125.4	1,442.8
2. China, People's Republic	108.8	115.9	185.6	176.3
3. Vietnam	75.2	76.1	94.1	116.8
4. Singapore	42.3	44.1	45.2	43.0
5. Japan	15.4	21.3	22.6	41.7
6. Germany	28.0	11.3	12.0	34.8
7. Korea, Republic of	9.9	15.3	22.5	27.9
8. Australia	18.3	19.9	20.6	25.8
9. Hong Kong, China	8.0	8.3	15.5	14.7
10. United States	6.6	10.8	7.4	14.6

Source: World Bank Development Data Platform, IMF Direction of Trade Statistics, July 2008.

Table C.4 Export Value of Agriculture Food and Forestry Products, 2001-2006

	US$ thousands					
Products and selected destinations	***2001***	***2002***	***2003***	***2004***	***2005***	***2006***
Total exports of Lao PDR (all sectors)	**328,877**	**336,017**	**366,885**	**439,890**	**607,097**	**1,081,073**
Total agriculture, food and forestry product exports	**141,517**	**153,096**	**172,899**	**188,307**	**205,812**	**252,982**
Thailand	*71,886*	*80,624*	*82,135*	*79,951*	*84,958*	*93,091*
Vietnam	*35,213*	*37,206*	*55,441*	*65,904*	*76,088*	*92,938*
China	*6,639*	*8,992*	*10,373*	*11,864*	*16,839*	*40,204*
European Union	*10,017*	*10,873*	*10,799*	*12,009*	*12,346*	*12,060*
Food & live animals	**19,579**	**23,194**	**22,623**	**33,016**	**36,552**	**41,700**
Live animals except fish	**5,406**	**5,210**	**2,535**	**4,029**	**3,905**	**3,205**
Thailand - Bovine animals, live	5,124	5,016	2,096	1,705	1,228	284
Vietnam - Live animals *	44	177	328	2,190	2,566	2,883
Meat & preparations	**25**	**44**	**3**	**47**	**1**	**13**
Dairy products & eggs	**82**	**134**	**79**	**246**	**38**	**1**
Fish/shellfish/etc.	**154**	**274**	**28**	**31**	**24**	**122**
Cereals/cereal preparation	**382**	**869**	**2,854**	**6,207**	**10,057**	**18,247**
Rice	227	262	451	1,161	3,020	4,656
Vietnam	*8*	*150*	*321*	*822*	*2,669*	*3,573*
China	*121*	*58*		*111*	*30*	*900*
Maize except sweet corn	117	52	455	2,486	3,224	11,098
Thailand	*117*	*52*	*455*	*2,486*	*2,870*	*9,404*
Vietnam					*120*	*1,104*
China					*234*	*591*
Cereal grains *	38	535	1,812	2,462	3,593	2,316
China			*14*		*174*	*1,429*
Thailand	*27*	*380*	*1,297*	*2,155*	*3,182*	*813*
Vegetables and fruit	**1,640**	**3,785**	**3,105**	**5,575**	**6,389**	**7,437**
Vegetables, frsh/chld/frz	1,002	1,599	1,988	3,826	4,213	4,468
Thailand - Cabbages etc fresh/chld	*1*	*18*	*41*	*1,217*	*1,327*	*1,060*
*Thailand - Veg prod, * fresh/dried*	*116*	*118*	*430*	*667*	*768*	*762*
China - Veg prod, fresh/dried*	*832*	*1,080*	*779*	*885*	*954*	*1,746*
Vegetable root/tuber prep/pres	244	346	547	588	808	866
United Kingdom – prep/pres veg	*241*	*330*	*452*	*461*	*549*	*699*
Fruit/nuts, fresh/dried	189	330	45	734	550	1,208
Thailand-Banana/plantain, frsh/dry			*0*	*44*	*247*	*631*
*Thailand - Fruit fresh/dried *	*6*	*80*	*8*	*29*	*200*	*231*
*Vietnam - Fruit fresh/dried *	*114*	*35*	*29*	*645*	*94*	*142*
Fruit preserved/fruit preps	190	176	444	360	767	810
European Union	*184*	*170*	*426*	*285*	*516*	*581*
Thailand	*4*	*4*	*1*	*33*	*225*	*226*
Sugar/sugar prep/honey	**0**	**1**	**13**	**33**	**19**	**75**
Coffee/tea/cocoa/spices	**11,871**	**12,623**	**13,866**	**16,658**	**16,072**	**12,511**
Coffee, not roasted	11,483	12,412	13,231	15,854	15,729	11,845
Switzerland	*2,331*	*1,420*	*2,472*	*2,928*	*3,280*	*31*
European Union	*8,254*	*9,525*	*8,841*	*9,601*	*10,462*	*10,061*
Vietnam		*156*	*1,034*	*2,108*	*771*	*1,278*
Animal feed except unmilled cereal	**13**	**10**	**138**	**189**	**38**	**20**
Misc food products	**6**	**245**	**3**	**2**	**9**	**69**

Notes: Export data are actually import data of trading partners. The lack of figures for some countries and some years more likely reflects unavailability of data rather than the absence of trade.

* – not elsewhere specified.

Source: World Integrated Trade Solutions, UN COMTRADE, SIT3 classification, May 2008.

Table C.4. Export Value of Agriculture, Food and Forestry Products, 2001-2006 (cont.)

	US$ thousands					
Products and selected destinations	***2001***	***2002***	***2003***	***2004***	***2005***	***2006***
Non-Food products	**121,938**	**129,902**	**150,276**	**155,291**	**169,260**	**211,282**
Oil seeds etc	368	1,392	755	1,163	1,839	2,242
Thailand	*215*	*1,144*	*660*	*1,128*	*1,689*	*1,950*
Natural rubber	420	1,434	2,343	1,537	4,224	12,196
China	*279*	*1,428*	*2,205*	*1,483*	*4,038*	*12,099*
Wood and wood products	116,603	124,615	144,337	149,954	160,614	194,099
China	*5,071*	*6,331*	*7,276*	*9,358*	*11,115*	*23,037*
Ireland	*771*	*630*	*667*	*1,152*		
Japan	*3,745*	*3,959*	*4,738*	*4,040*	*3,757*	*6,158*
Taiwan, China	*2,072*	*2,491*	*803*	*1,957*	*2,686*	*2,523*
Thailand	*65,772*	*73,132*	*76,135*	*68,720*	*71,699*	*76,029*
Vietnam	*34,758*	*36,179*	*52,748*	*52,823*	*69,346*	*83,449*
Nat gums/resin/etc *	1,570	1,508	1,317	1,544	1,685	1,777
France	*410*	*522*	*254*	*394*	*426*	*431*
Thailand	*823*	*768*	*899*	*1,037*	*927*	*977*
Pharmaceutical plants	2,977	953	1,524	1,093	898	968
China	*584*	*360*	*534*	*375*	*272*	*379*
Thailand	*386*	*330*	*597*	*482*	*495*	*438*
Vietnam	*1,714*	*40*	*130*	*128*		*25*

Notes: Export data are actually import data of trading partners. The lack of figures for some countries and some years more likely reflects unavailability of data rather than the absence of trade.

* – not elsewhere specified

Source: World Integrated Trade Solutions, UN COMTRADE, SITC3 classification, May 2008.

Table C.5. Export Details of Selected Agriculture, Food and Forestry Products, 2001-2006

	Export	***2001***	***2002***	***2003***	***2004***	***2005***	***2006***
Coffee, not Roasted	Value ($000)	11,483	12,412	13,231	15,854	15,729	11,845
	Quantity (mt)	14,306	18,165	14,958	17,495	14,818	8,039
	Unit price ($/kg)	0.80	0.68	0.88	0.91	1.06	1.47
Rice, milled unbroken	Value ($000)	205	215	353	1,032	2,717	3,835
	Quantity (mt)	484	583	879	2,070	5,013	6,902
	Unit price ($/kg)	0.42	0.37	0.40	0.50	0.54	0.56
Maize, except sweet corn	Value ($000)	117	52	455	2,486	3,224	11,090
	Quantity (mt)	2,620	1,117	8,440	34,696	47,782	132,917
	Unit price ($/kg)	0.04	0.05	0.05	0.07	0.07	0.08
Cabbages to Thailand	Value ($000)	1	18	41	1,217	1,327	1,060
	Quantity (mt)	12	383	416	15,506	15,144	11,236
	Unit price ($/kg)	0.045	0.047	0.099	0.078	0.088	0.094
Untreated hardwood to China	Value ($000)	4,362	3,886	5,006	7,560	8,591	16,782
	Quantity (cubic meter)	13,152	10,573	12,708	20,322	20,120	31,091
	Unit price ($/cubic meter)	332	368	394	372	427	540

Notes: Export data are actually import data of trading partners.

Source: World Integrated Trade Solutions, UN COMTRADE, SITC3 classification, July 2008.

Table C.6. Import Value of Agriculture, Food and Forestry Products, 2001-2006

	US$ thousands					
Products and origins	***2001***	***2002***	***2003***	***2004***	***2005***	***2006***
Total imports of Lao PDR (all sectors)	**646,873**	**641,501**	**721,674**	**975,346**	**1,133,192**	**1,477,508**
Total agriculture, food and forestry product imports	**56,899**	**59,448**	**63,713**	**79,188**	**101,471**	**115,576**
Food & live animals	**56,781**	**59,153**	**62,340**	**76,083**	**97,312**	**114,371**
Live animals except fish	**1,239**	**1,345**	**1,735**	**1,084**	**1,040**	**1,235**
Swine, live - Thailand	*134*	*288*	*351*	*587*	*713*	*1,032*
Meat & preparations	**1,731**	**1,180**	**1,052**	**991**	**925**	**949**
Pork fresh/chilled/frozen - Vietnam	*1,610*	*1,009*	*802*	*840*	*812*	*906*
Dairy products & eggs	**5,780**	**6,556**	**5,425**	**7,821**	**10,060**	**10,244**
Milk pr except butter/cheese - Thailand	*5,305*	*6,485*	*5,322*	*7,689*	*9,909*	*10,039*
Fish/shellfish/etc.	**1,937**	**1,491**	**2,469**	**2,853**	**2,651**	**2,665**
Thailand	*1,249*	*1,314*	*1,426*	*1,867*	*1,897*	*1,758*
Cereals/cereal preparation	**14,686**	**14,064**	**13,250**	**17,656**	**21,298**	**21,847**
Rice	2,096	3,500	1,373	1,698	2,411	3,553
Vietnam	*948*	*308*	*224*	*331*	*421*	*666*
Thailand	*1,944*	*1,021*	*1,205*	*2,072*	*1,793*	*2,069*
Malt/ malt flour – European Union	1,778	2,090	2,833	2,768	3,502	3,995
Maize except sweet corn - Thailand	1	332		63	46	1,585
Flour/meal wheat/meslin - Thailand	701	716	686	789	951	1,202
Cereal etc flour/starch - Thailand	7,773	7,754	7,529	9,638	12,175	11,139
Vegetables and fruit	**9,368**	**11,063**	**10,578**	**12,018**	**11,969**	**14,290**
Fruit fresh/dried * - Thailand	336	90	143	6,016	7,216	9,311
Fruit/vegetable juices – Thailand	932	1,159	1,754	1,814	1,629	2,391
Fruit/veg flour/meal * - Thailand	519	558	662	729	1,061	945
Garlic/leek/etc fresh/chilled - Vietnam	6,159	5,297	3,961	2,104	48	22
Sugar/sugar prep/honey	**13,871**	**9,965**	**9,067**	**11,830**	**18,981**	**26,142**
Raw solid sugar * - Thailand	10,476	5,743	3,886	5,352	11,450	19,726
Sugar confectionery * - Thailand	2,585	2,869	3,782	5,451	6,251	4,905
Coffee/tea/cocoa/spices	**1,316**	**2,792**	**3,061**	**3,653**	**5,899**	**9,358**
Coffee extract/essence - Thailand	743	2,372	2,426	3,242	4,166	7,848
Animal feed ex unmilled cereal	**2,032**	**3,169**	**4,967**	**6,077**	**8,511**	**8,894**
Animal feeds * - Thailand	1,844	3,052	3,753	5,682	7,845	8,232
Misc food products	**4,822**	**7,528**	**10,736**	**12,100**	**15,979**	**18,747**
Thailand	*3,917*	*5,212*	*9,107*	*10,333*	*14,417*	*16,442*
European Union	*633*	*1,038*	*1,091*	*1,263*	*1,373*	*1,417*
Non-Food products	**118**	**295**	**1,373**	**3,105**	**4,159**	**1,205**
Crude/synthet/rec rubber	48	231	1,212	2,181	4,148	1,132
Thailand	*3*	*112*	*1,210*	*2,164*	*3,940*	*962*
Cork and wood	70	64	161	924	11	73

Notes: Import data are actually export data of trading partners.

* – not elsewhere specified.

Source: World Integrated Trade Solutions, UN COMTRADE, SITC3 classification, September 2008.

APPENDIX D LAO PDR ALLOWED AND PROHIBITED PLANT PROTECTION PRODUCTS

The Regulation for the Management and Usage of Plant Protection Products in Lao PDR (No. 0886/MAF dated March 10, 2000) presents the plant protection products that are allowed (Table D.1) and prohibited (Table D.2) in Lao PDR. The Department of Agriculture is responsible for the supervision and updating of these lists.

Table D.1 Authorized Plant Protection Products for Use in Lao PDR

	Common name	*Trade name, formulation Strength and type*	*WHO acute toxicity Classification of a.i.*
Insecticides/Acaricides			
1	acephate	Orthene 750 SP	III
2	carbaryl	Sevin 850 WP Dicarbam850 WP	I b
3	carbofuran	Carater 030 GR Furadan 030 GR	I b
4	carbosulfan	Posse 200 EC Marshall	II
5	cartap	Padan 040 GR Padan 500 WP	I b
6	cyfluthrin	Baythroid 050 EC Baythroid 100 EC Solfac Tempo 002 GR	II
7	Lambda-cyhalothrin	Karate 025 EC Karate 050 EC	II
8	Cyfluthrin	Ripcord 250 EC Cymbush 250 EC Sherpa 250 EC	II
9	deltamethrin	Deltamethrin 030 EC	I b
10	diazinon	Basudin 600 EC	I b
11	dimethoate	? Perfecthion 400 EC	II
12	ethrofenprox	Trebon ?	III
13	endosulfan	Thiodan 350 EC Thionex 350 EC	II
14	fenitrothion	Sumithion 500 EC	II
15	Fenvalerate	Sumicidin 003 DP Sumicidin 200 EC Sumicidin 350 EC	II
16	isoprocarb	Mipcin 500 WP Etrofolan 500 WP Isso 500 WP	II
17	malathion		II
18	methamidophos	Monitor 600 SC Tamaron 600 SC	III
19	methomyl	Lannate 180 LI Lannate 400 SP Methavin 400SP	I b
Rodenticides			
20	coumatetralyl	Racumin	I b
21	Warfarin	Warfarin, Coumafene, Zoocoumarin, Coumarins	I b

	Common name	*Trade name, formulation Strength and type*	*WHO acute toxicity Classification of a.i.*
22	Zinc phosphide	Celphos, Phostoxin, Quickphos	I b
Molluscicides			
23	Baylluscide 250 EC	niclosamide	
24	Copper sulphate	Bordeaux mixture	II
25	Metaldehyde	Halzan, Metason, Mifaslug	III
Fungicides			
26	benomyl	Benlate 500WP	III
27	carbendazim	Bavistine-F1 500SC	III
28	carboxin	Culator	
29	captan	Captec, merpan, Phytocape	
30	copper oxychloride	Coppicide	III
31	edifenphos	Hinosan 300EC	I b
32	Zineb	Lanocob	
33	mancozeb	Dithane-M45	
34	maneb	Dithane-22, Mazin	
35	sulphur	Herovit	
Herbicides			
36	alachlor	Lasso , Alanex , Pillazzo	III
37	atrazine	Atrex, Atratal,Gesaprim, Vectal	
38	butachlor	Machete, Lambast, Butanex,	
39	2,4-D	Hedonal , Weeder	II
40	diuron	Craminon, Arelon,Ip50, Tolkan	
41	glyphosate	Roundup	
42	oxadiazon	Ronstar 250 EC	
43	propanil	Surcopur , Stam –F 34	III
44	Simazine	Gesatop, primatol, Aquazine	
Nematicides			
45	Ebufos	Rugby 100 GR	I a
46	ethoprophos	Mocap 100 GR	I a

Table D.2 Active Ingredients in Plant Protection Products Prohibited for Use in Lao PDR

1	2,4,5-T	14	gamma-HCH (BHC)
2	aldrin	15	heptachlor
3	binapacryl	16	heptophos
4	captafol	17	MEMC
5	chlordimeform	18	methyl bromide
6	cyhexatin	19	monocrotophos
7	daminozide	20	parathion (ethyl parathion)
8	DDT	21	parathion methyl
9	dieldrine	22	sodium arsenate
10	dinoseb	23	sodium chlorate
11	endrin	24	sodium fluoroacete
12	ethylene dibromide	25	TEPP
13	fluoroacetamide	26	toxaphene

APPENDIX E LAO PDR PLANT HEALTH LEGISLATION

The Decree on Plant Quarantine[64] aims to provide assurance that plants, agricultural produce and forestry products that are intended for exports are free from pests, in particular, those pests that are controlled in importing countries. Thus, plants and plant and forestry products for export are inspected and are provided phytosanitary certificates. Similarly, phytosanitary certificates are required for imports of plants, plant products, and forestry products.

A ministerial notification[65] provides clarifications to the "roles, rights and duties and standards of plant quarantine border checkpoints" for better compliance with IPPC standards. According to the notification, each plant quarantine checkpoint should have a plant inspection/quarantine office with basic facilities and equipment. The checkpoints should have officials trained by the Department of Agriculture in plant inspection and quarantine. The manner by which phytosanitary certificates are issued should be harmonized among the provinces according to the guidelines set in ISPM 12 (Guidelines for Phytosanitary Certificates).

Exporters intending to export plants, and plant and forestry products should request for inspection from the Department of Agriculture or the Provincial Agriculture and Forestry Office (PAFO) of the pertinent province and submit required documents such as packing list, invoice, and export permits. Authorized staff will perform inspections and, if products are found compliant with regulations, will issue a phytosanitary certificate.

Notifications and or guidelines are issued on important issues such as on ISPM 15, the new requirements on wood packing materials. There is an international standard governing the treatment of wood packaging materials with the concern that such materials might be carriers of plant pests and diseases. Suggested treatments are methyl bromide fumigation and heat treatment. This has been adopted by the Lao PDR Government with the PAFOs responsible for the monitoring and inspection of the proper implementation of the treatments.[66]

Table E.1 presents the various fees charged for the analysis of pests on agricultural products that are to be exported, transited, or imported.[67] These fees were derived based on consultations with the Science and Technology Council on Agriculture and Forestry and were first implemented in February 2000.

The overall collection of fees and service charges of the PAFOs/Ministry of Agriculture and Forestry should follow Ministry of Finance guidelines (Guidance No. 0341/MOF dated February 21, 2003, Articles 41 to 64).[68]

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[64] Decree No. 66/PM, dated July 20, 1993.

[65] Notification No. 0754/MAF.DOA.06 dated July 14, 2006.

[66] Notification No. 0034/MAF.04, dated January 10, 2006 and Notification No.0053/DOA.06, dated January 23, 2006.

[67] Notification No. 0179/DOA.2000, dated January 31, 2000.

[68] Notification No. 0350/MAF.DPL.2002, dated May 13, 2003.

Table E.1. Fees for Pest Analysis of Agricultural Products

	Items of agricultural products	*Quantity per analysis*	*Fees (Kip) per analysis (equivalent US$)*
I	Documents		9,000/sheet ($1.06/sheet)
II	Group of agricultural and forestry products		
	(a) Wood processing products		
	– Sliced wood, plywood, processed wood	1-100 m^3 101 m^3 or more	55,000 ($5.88) 90,000 ($9.63)
	– Bamboo handicraft products	One analysis	35,000 ($3.74)
	(b) Products from the forest		
	– Fiber	5-500 kg > 501 kg	35,000 ($3.74) 55,000 ($5.88)
	– Peach, cardamom	One analysis	35,000 ($3.74)
	(c) Products from agriculture		
	– Coffee	5-10 tonnes 11-100 tonnes 101 tonnes or more	35,000 ($3.74) 55,000 ($5.88) 78,000 ($8.36)
	– Maize, sesame seed, ground nuts, castor oil seed, garlic, plant produced fruit and seasonal plants that are products	One analysis	35,000 ($3.74)
	– Saplings, branches, sticks of trees	5-100 saplings 101 saplings or more	35,000 ($3.74) 55,000 ($5.88)
III	Sample of agricultural products	One analysis	10,000 ($1.07)
IV	Agricultural products transited through Lao PDR to third countries	One analysis	25,000 ($2.67)

V			*Kip (equivalent US$)*				
		Volume (m^3)	*Chemical cost*	*Labor cost*	*Hazard compensation*	*Overhead cost of equipment*	*Total*
	Rate for chemical fumigation/treatment	1	3,000 ($0.32)	6,000 ($0.64)	2,000 ($0.21)	2,000 ($0.21)	13,000 ($1.39)

Note: Equivalent dollar values in notification were updated accordingly.

APPENDIX F LAO PDR REGULATED PEST LIST

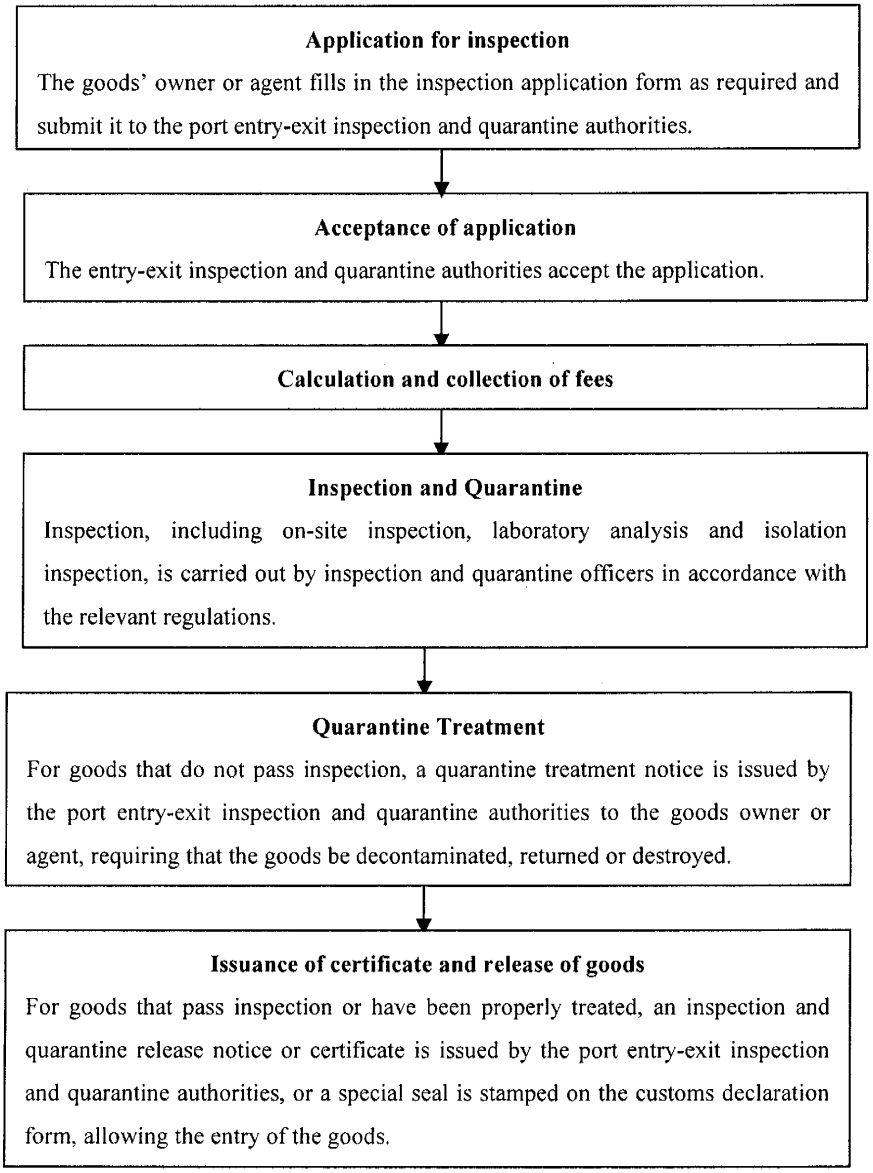
Commodity/Host Plant	*Common Name*	*Scientific Name /Causal organism*
Fresh plant products		
Fruits, vegetables, cut flowers,ornamental branches	Califonia scale	Quadraspidiotus perniciosus
	Japaneses rod scale	Lopholeucaspis japonica
Fruits and vegetables (excluding root crops)	Mediterranean fruit fly	Ceratitis capitata
	Mexican fruit fly	Anastrepha ludens
	Queensland fruit fly	Dacus tryoni
	Chinese citrus fly	Bactrocera minax
Stored products		
Grains meals etc.	Khapra beetle	Trogoderma granarium
Leguminous seeds	Broad-nosed grain weevil	Caulophilus oryzae
	Bean weevil	Acanthoscelides argillaceus
Plants		
Vegetative plant parts	Japanese beetle	Popillia japonica
	Fig wax scale	Ceroplastes rusci
Rice	White tip nematode	Aphelenchoides oryzae
	Rice stem nematode	Ditylenchus angustus
	Chlorosis of rice	Rice hoja blanca virus
	Virus	Black streaked dwarf
	Stripe diseases	Rice stripe virus
Maize	White-fringed weevil	Graphognatus leucoloma
	Broad-nosed grain weevil	Caulophilus latinasus
	Bacterial leaf blight	Erwinia stewartii
	Diplodia ear and stalk rot	Stenocarpella maydis
Groundnut	White-fringed weevil	Naupactus leucoloma Boheman
	Bean weevil	Acanthoscelides obrectus
	Groundnut chlorotic rosette	Groundnut rosette virus
Tobacco	Colorado beetle	Leptinotararsa decemlineata
	Angular tobacco leaf spot	Peronospora tabacina
Coffee	American leaf spot	Omphalia flavida
	Leaf blight	Colletotrichum coffeanum
	Coffee wilt	Gibberella xylarioides
Sugarcane	White grub	Phytalus smithi
	Leaf scald	Xanthomonus albilineans
	Stunt nematode	Tylenchorhynchus annulatus
Potato	Colorado beetle	Leptonotersa decemlineata
	Whitefringed weevil	Graphognatus leucoloma
	Potato moth	Phthorimaea operculella
	Potato cyst nematode	Globodera pallida
	Black wart	Synchytrium endobioticum

Commodity/Host Plant	*Common Name*	*Scientific Name /Causal organism*
	Bacterial ring rot	Corynebacterium sepedonicum
Cassava	Bacterial blight	Xanthomonus manihotis
	Cassava bacterial blight	Xanthomonas axonopodis
Sweet potato	Foot rot	Plenodomus destruens
	Stem rot	Fusarium oxysporum f.sp.ba
	Rust	Coleosporum ipomoeae
	Virus	Viruses
Cotton	Mexican cotton boll weevil	Anthonomus grandis
	Pink boll worm	Pectinophora gossipiella
	Whitefringed beetle	Graphognatus leucoloma
	Angular leaf spot	Xanthomonus malvacearum
	Cotton wilt	Fusarium oxysporum f.vasinf
	Cotton root rot	Phymatotrichum omnivora
Tomato	Bacterial canker	Corynebacaterium michiganense
	Bacterial leaf blight	Xanthomonas campestris pv. vesicatoria
	Bacterial speck	Pseudomonas syringae pv. tomato
	Tomato pith necrosis	Pseudomonas corrugata
	Yellow potato cyst nematode	Globodera rostochiensis
	Lycopersicon virus	Tomato bushy stunt virus
	Spindle tuber	Potato spindle tuber viroid
Onion and other Allium spp	Leek Smut	Urocystis cepulea Frost
Citrus	Mal secco disease	Deuterophoma tracheiphila
	Bud-onion decline of citrus	Citrus tristeza virus
	Virus	Citrus crinkly leaf virus
	Virus	Citrus leaf rugose virus
	Virus	Citrus ring spot virus
	Citrus exocortis	Citrus exocortis viroid
	Citrus xyloporosis	Citrus cachexia viroid
Tea	Blister blight	Exobasidium vexans
	Root lesion nematode	Pratylenchus loosi
	Root knot nematode	Meloidogyne
Coconut and other palms	Palm weevils	Rhynchophorus spp.
	Lethal yellowing	Mycoplasma-like organism
	Heart rot	Phytomonus sp.
	Red ring nematodes	Rhadinaphelenchus cocophilus
	Cadang cadang disease	Coconut cadang-cadang viroid
Banana and other Musacease	Bacterial wilt	Pseudomonus solanacearum
	Black leaf streak	Mycosphaerella fijiensis var
Rubber	South American leaf blight	Mycocyclus ulei
Papaya	Papaya ring spot virus	Virus (mild strain)

APPENDIX G INSPECTION PROCEDURES IN CHINA

Figure G.1 illustrates the inspection and quarantine procedure. First an application for inspection must be made. If accepted for inspection, the fee will be calculated and collected and the inspection and quarantine will be carried out. Upon arrival of the goods, the application for inspection should be submitted to the inspection and quarantine authorities at the port of entry on the strength of documents such as the quarantine certificates issued by the exporting country or region and the trade contracts.

Figure G.1. Procedure for SPS Inspection and Quarantine in China



Source: http://info.hktdc.com/chinaguide/3-1.htm

Goods that pass inspection and quarantine will be issued an Import Good Inspection and Quarantine Status Notice. Customs will examine and release the goods against the Import Good Clearance Slip. Goods that fail the inspection will be returned, destroyed, or receive decontamination treatment as required by the inspection and quarantine authorities.

A detailed list exists on fees to be charged by CIQ at the border. Selected items are listed in Table G.1. There are many provisions for reduced rates. For example, if the value of a consignment is less than RMB 100,000 (about US$14,000), the fee will be 70 percent of the normal rate; if the value is less than RMB 50,000 (about US$7,000), the fee will be 50 percent of the normal rate.

Table G.1. Selected Fee Rates Charged by the Chinese Border Inspection Agency

Item	*Fee*	*Remarks*
Quality inspection of goods	0.15% of total value of goods	
Clinical examination of animals, on-site inspection of plants, inspection of animal and plant products	0.12% of total value of goods	For clinical examination of animals and phytosanitary inspection of plants, if laboratory testing is required, additional fees are charged for the tests. Lab testing for animal and plant product is free of charge.
Sanitary inspection of food and food processing equipment	0.12% of total value of goods	For small consignments, the fee will be 0.4% of the goods' value
Examination of trucks and other vehicles for quarantine materials	2 RMB/vehicle (US$0.30/vehicle)	
Examination of containers for quarantine materials	4 RMB/container (US$0.60/container)	
Examination of wooden package for quarantine materials	1 RMB/unit (US$0.14/unit)	Same rate for bamboo and rattan package
Rental of quarantine space Animals: ■ Large animals (cattle, etc.) ■ Medium-sized animals (pigs, sheep, etc.) ■ Small animals Plants: ■ Greenhouse ■ Netted fields ■ Normal space	 5 RMB (US$0.68) per day per head 5 RMB (US$0.68) per day per head 5 RMB (US$0.68) per day per head 1 RMB (US$0.14) per day per m^2 0.5 RMB (US$0.07) per day per m^2 0.2 RMB (US$0.03) per day per m^2	

Source: Methods for charging inspection and quarantine fees for entry-exit goods, AQSIQ, effective as of April 1, 2004.

APPENDIX H PLANT QUARANTINE PEST LIST OF THE PEOPLE'S REPUBLIC OF CHINA

Insect

1 *Acanthocinus carinulatus* (Gebler)
2 *Acanthoscelides obtectus* (Say)
3 *Acleris variana* (Fernald)
4 *Agrilus* spp. (non-Chinese)
5 *Aleurodicus dispersus* Russell
6 *Anastrepha* Schiner
7 *Anthonomus grandis* Boheman
8 *Anthonomus quadrigibbus* Say
9 *Aonidiella comperei* McKenzie
10 *Apate monachus* Fabricius
11 *Aphanostigma piri* (Cholodkovsky)
12 *Arhopalus syriacus* Reitter
13 *Bactrocera* Macquart
14 *Baris granulipennis* (Tournier)
15 *Batocera* spp. (non-Chinese)
16 *Brontispa longissima* (Gestro)
17 *Bruchidius incarnates* (Boheman)
18 *Bruchophagus roddi* Gussak
19 *Bruchus* spp. (non-Chinese)
20 *Cacoecimorpha pronubana* (Hübner)
21 *Callosobruchus* spp. (*maculates* (F.) and non-Chinese)
22 *Carpomya incompleta* (Becker)
23 *Carpomya vesuviana* Costa
24 *Carulaspis juniperi* (Bouchè)
25 *Caulophilus oryzae* (Gyllenhal)
26 *Ceratitis* Macleay
27 *Ceroplastes rusci* (L.)
28 *Chionaspis pinifoliae* (Fitch)
29 *Choristoneura fumiferana* (Clemens)
30 *Conotrachelus* Schoenherr
31 *Contarinia sorghicola* (Coquillett)
32 *Coptotermes* spp. (non-Chinese)
33 *Craponius inaequalis* (Say)
34 *Crossotarsus* spp. (non-Chinese)
35 *Cryptophlebia leucotreta* (Meyrick)
36 *Cryptorrhynchus lapathi* L.
37 *Cryptotermes brevis* (Walker)
38 *Ctenopseustis obliquana* (Walker)
39 *Curculio elephas* (Gyllenhal)
40 *Cydia janthinana* (Duponchel)
41 *Cydia packardi* (Zeller)
42 *Cydia pomonella* (L.)
43 *Cydia prunivora* (Walsh)
44 *Cydia pyrivora* (Danilevskii)
45 *Dacus* spp. (non-Chinese)
46 *Dasineura mali* (Kieffer)
47 *Dendroctonus* spp. (*valens* LeConte and non-Chinese)
48 *Deudorix isocrates* Fabricius
49 *Diabrotica* Chevrolat
50 *Diaphania nitidalis* (Stoll)
51 *Diaprepes abbreviata* (L.)
52 *Diatraea saccharalis* (Fabricius)
53 *Dryocoetes confusus* Swaine
54 *Dysmicoccus grassi* Leonari
55 *Dysmicoccus neobrevipes* Beardsley
56 *Ectomyelois ceratoniae* (Zeller)
57 *Epidiaspis leperii* (Signoret)
58 *Eriosoma lanigerum*(Hausmann)
59 *Eulecanium gigantea* (Shinji)
60 *Eurytoma amygdali* Enderlein
61 *Eurytoma schreineri* Schreiner
62 *Gonipterus scutellatus* Gyllenhal
63 *Helicoverpa zea* (Boddie)
64 *Hemerocampa leucostigma* (Smith)
65 *Hemiberlesia pitysophila* Takagi
66 *Heterobostrychus aequalis* (Waterhouse)
67 *Hoplocampa flava* (L.)
68 *Hoplocampa testudinea* (Klug)
69 *Hoplocerambyx spinicornis* (Newman)
70 *Hylobius pales* (Herbst)
71 *Hylotrupes bajulus* (L.)
72 *Hylurgopinus rufipes* (Eichhoff)
73 *Hylurgus ligniperda* Fabricius
74 *Hyphantria cunea* (Drury)
75 *Hypothenemus hampei* (Ferrari)
76 *Incisitermes minor* (Hagen)
77 *Ips* spp. (non-Chinese)
78 *Ischnaspis longirostris* (Signoret)
79 *Lepidosaphes tapleyi* Williams
80 *Lepidosaphes tokionis* (Kuwana)
81 *Lepidosaphes ulmi* (L.)
82 *Leptinotarsa decemlineata* (Say)
83 *Leucoptera coffeella* (Guérin-Méneville)
84 *Liriomyza trifolii* (Burgess)
85 *Lissorhoptrus oryzophilus* Kuschel
86 *Listronotus bonariensis* (Kuschel)
87 *Lobesia botrana* (Denis et Schiffermuller)
88 *Mayetiola destructor* (Say)
89 *Mercetaspis halli* (Green)
90 *Monacrostichus citricola* Bezzi
91 *Monochamus* spp. (non-Chinese)
92 *Myiopardalis pardalina* (Bigot)
93 *Naupactus leucoloma* (Boheman)
94 *Neoclytus acuminatus* (Fabricius)
95 *Opogona sacchari* (Bojer)
96 *Pantomorus cervinus* (Boheman)
97 *Parlatoria crypta* Mckenzie

98 *Pharaxonotha kirschi* Reither
99 *Phloeosinus cupressi* Hopkins
100 *Phoracantha semipunctata* (Fabricius)
101 *Pissodes* Germar
102 *Planococcus lilacius* Cockerell
103 *Planococcus minor* (Maskell)
104 *Platypus* spp. (non-Chinese)
105 *Popillia japonica* Newman
106 *Prays citri* Milliere
107 *Promecotheca cumingi* Baly
108 *Prostephanus truncatus* (Horn)
109 *Ptinus tectus* Boieldieu
110 *Quadrastichus erythrinae* Kim
111 *Reticulitermes lucifugus* (Rossi)
112 *Rhabdoscelus lineaticollis* (Heller)
113 *Rhabdoscelus obscurus* (Boisduval)
114 *Rhagoletis* spp. (non-Chinese)
115 *Rhynchites aequatus* (L.)
116 *Rhynchites bacchus* L.
117 *Rhynchites cupreus* L.
118 *Rhynchites heros* Roelofs
119 *Rhynchophorus ferrugineus* (Olivier)
120 *Rhynchophorus palmarum* (L.)
121 *Rhynchophorus phoenicis* (Fabricius)
122 *Rhynchophorus vulneratus* (Panzer)
123 *Sahlbergella singularis* Haglund
124 *Saperda* spp. (non-Chinese)
125 *Scolytus multistriatus* (Marsham)
126 *Scolytus scolytus* (Fabricius)
127 *Scyphophorus acupunctatus* Gyllenhal
128 *Selenaspidus articulatus* Morgan
129 *Sinoxylon* spp. (non-Chinese)
130 *Sirex noctilio* Fabricius
131 *Solenopsis invicta* Buren
132 *Spodoptera littoralis* (Boisduval)
133 *Stathmopoda skelloni* (Butler)
134 *Sternochetus* Pierce
135 *Taeniothrips inconsequens* (Uzel)
136 *Tetropium* spp. (non-Chinese)
137 *Thaumetopoea pityocampa* (Denis et Schiffermuller)
138 *Toxotrypana curvicauda* Gerstaecker
139 *Tribolium destructor* Uyttenboogaart
140 *Trogoderma* spp. (non-Chinese)
141 *Vesperus* Latreile
142 *Vinsonia stellifera* (Westwood)
143 *Viteus vitifoliae* (Fitch)
144 *Xyleborus* spp. (non-Chinese)
145 *Xylotrechus rusticus* L.
146 *Zabrotes subfasciatus* (Boheman)

Mollusks

147 *Achatina fulica* Bowdich
148 *Acusta despecta* Gray
149 *Cepaea hortensis* Müller
150 *Helix aspersa* Müller
151 *Helix pomatia* Linnaeus
152 *Theba pisana* Müller

Fungus

153 *Albugo tragopogi* (Persoon) Schröter var. *helianthi* Novotelnova
154 *Alternaria triticina* Prasada et Prabhu
155 *Anisogramma anomala* (Peck) E. Muller
156 *Apiosporina morbosa* (Schweinitz) von Arx
157 *Atropellis pinicola* Zaller et Goodding
158 *Atropellis piniphila* (Weir) Lohman et Cash
159 *Botryosphaeria laricina* (K.Sawada) Y.Zhong
160 *Botryosphaeria stevensii* Shoemaker
161 *Cephalosporium gramineum* Nisikado et Ikata
162 *Cephalosporium maydis* Samra, Sabet et Hingorani
163 *Cephalosporium sacchari* E.J. Butler et Hafiz Khan
164 *Ceratocystis fagacearum* (Bretz) Hunt
165 *Chrysomyxa arctostaphyli* Dietel
166 *Ciborinia camelliae* Kohn
167 *Cladosporium cucumerinum* Ellis et Arthur
168 *Colletotrichum kahawae* J.M. Waller et Bridge
169 *Crinipellis perniciosa* (Stahel) Singer
170 *Cronartium coleosporioides* J.C.Arthur
171 *Cronartium comandrae* Peck
172 *Cronartium conigenum* Hedgcock et Hunt
173 *Cronartium fusiforme* Hedgcock et Hunt ex Cummins
174 *Cronartium ribicola* J.C.Fisch.
175 *Cryphonectria cubensis* (Bruner) Hodges
176 *Cylindrocladium parasiticum* Crous, Wingfield et Alfenas
177 *Diaporthe helianthi* Muntanola-Cvetkovic Mihaljcevic et Petrov
178 *Diaporthe perniciosa* É.J. Marchal
179 *Diaporthe phaseolorum* (Cooke et Ell.) Sacc. var. *caulivora* Athow et Caldwell
180 *Diaporthe phaseolorum* (Cooke et Ell.) Sacc. var. *meridionalis* F.A. Fernandez
181 *Diaporthe vaccinii* Shear
182 *Didymella ligulicola* (K.F.Baker, Dimock et L.H.Davis) von Arx
183 *Didymella lycopersici* Klebahn
184 *Endocronartium harknessii* (J.P.Moore) Y.Hiratsuka
185 *Eutypa lata* (Pers.) Tul. et C. Tul.
186 *Fusarium circinatum* Nirenberg et O'Donnell
187 *Fusarium oxysporum* Schlecht. f.sp. *apii*

Snyd. et Hans
188 *Fusarium oxysporum* Schlecht. f.sp. *asparagi* Cohen et Heald
189 *Fusarium oxysporum* Schlecht. f.sp. *cubense* (E.F.Sm.) Snyd.et Hans (Race 4 non-Chinese races)
190 *Fusarium oxysporum* Schlecht. f.sp. *elaeidis* Toovey
191 *Fusarium oxysporum* Schlecht. f.sp. *fragariae* Winks et Williams
192 *Fusarium tucumaniae* T.Aoki, O'Donnell, Yos.Homma et Lattanzi
193 *Fusarium virguliforme* O'Donnell et T.Aoki
194 *Gaeumannomyces graminis* (Sacc.) Arx et D. Olivier var. *avenae* (E.M. Turner) Dennis
195 *Greeneria uvicola* (Berk. et M.A.Curtis) Punithalingam
196 *Gremmeniella abietina* (Lagerberg) Morelet
197 *Gymnosporangium clavipes* (Cooke et Peck) Cooke et Peck
198 *Gymnosporangium fuscum* R. Hedw.
199 *Gymnosporangium globosum* (Farlow) Farlow
200 *Gymnosporangium juniperi-virginianae* Schwein
201 *Helminthosporium solani* Durieu et Mont.
202 *Hypoxylon mammatum* (Wahlenberg) J. Miller
203 *Inonotus weirii* (Murrill) Kotlaba et Pouzar
204 *Leptosphaeria libanotis* (Fuckel) Sacc.
205 *Leptosphaeria maculans* (Desm.) Ces. et De Not.
206 *Leucostoma cincta* (Fr.:Fr.) Hohn.
207 *Melampsora farlowii* (J.C.Arthur) J.J.Davis
208 *Melampsora medusae* Thumen
209 *Microcyclus ulei* (P.Henn.) von Arx
210 *Monilinia fructicola* (Winter) Honey
211 *Moniliophthora roreri* (Ciferri et Parodi) Evans
212 *Monosporascus cannonballus* Pollack et Uecker
213 *Mycena citricolor* (Berk. et Curt.) Sacc.
214 *Mycocentrospora acerina* (Hartig) Deighton
215 *Mycosphaerella dearnessii* M.E.Barr
216 *Mycosphaerella fijiensis* Morelet
217 *Mycosphaerella gibsonii* H.C.Evans
218 *Mycosphaerella linicola* Naumov
219 *Mycosphaerella musicola* J.L.Mulder
220 *Mycosphaerella pini* E.Rostrup
221 *Nectria rigidiuscula* Berk.et Broome
222 *Ophiostoma novo-ulmi* Brasier
223 *Ophiostoma ulmi* (Buisman) Nannf.
224 *Ophiostoma wageneri* (Goheen et Cobb) Harrington
225 *Ovulinia azaleae* Weiss
226 *Periconia circinata* (M.Mangin) Sacc.
227 *Peronosclerospora* spp. (non-Chinese)
228 *Peronospora farinosa* (Fries: Fries) Fries f.sp. *betae* Byford
229 *Peronospora hyoscyami* de Bary f.sp. *tabacina* (Adam) Skalicky
230 *Pezicula malicorticis* (Jacks.) Nannfeld
231 *Phaeoramularia angolensis* (T.Carvalho et O. Mendes)P.M. Kirk
232 *Phellinus noxius* (Corner) G.H.Cunn.
233 *Phialophora gregata* (Allington et Chamberlain) W.Gams
234 *Phialophora malorum* (Kidd et Beaum.) McColloch
235 *Phoma exigua* Desmazières f.sp. *foveata* (Foister) Boerema
236 *Phoma glomerata* (Corda) Wollenweber et Hochapfel
237 *Phoma pinodella* (L.K. Jones) Morgan-Jones et K.B. Burch
238 *Phoma tracheiphila* (Petri) L.A. Kantsch. et Gikaschvili
239 *Phomopsis sclerotioides* van Kesteren
240 *Phymatotrichopsis omnivora* (Duggar) Hennebert
241 *Phytophthora cambivora* (Petri) Buisman
242 *Phytophthora erythroseptica* Pethybridge
243 *Phytophthora fragariae* Hickman
244 *Phytophthora fragariae* Hickman var. *rubi* W.F. Wilcox et J.M. Duncan
245 *Phytophthora hibernalis* Carne
246 *Phytophthora lateralis* Tucker et Milbrath
247 *Phytophthora medicaginis* E.M. Hans. et D.P. Maxwell
248 *Phytophthora phaseoli* Thaxter
249 *Phytophthora ramorum* Werres, De Cock et Man in't Veld
250 *Phytophthora sojae* Kaufmann et Gerdemann
251 *Phytophthora syringae* (Klebahn) Klebahn
252 *Polyscytalum pustulans* (M.N. Owen et Wakef.) M.B.Ellis
253 *Protomyces macrosporus* Unger
254 *Pseudocercosporella herpotrichoides* (Fron) Deighton
255 *Pseudopezicula tracheiphila* (Müller-Thurgau) Korf et Zhuang
256 *Puccinia pelargonii-zonalis* Doidge
257 *Pycnostysanus azaleae* (Peck) Mason
258 *Pyrenochaeta terrestris* (Hansen) Gorenz,

Walker et Larson
259 *Pythium splendens* Braun
260 *Ramularia beticola* Fautr. et Lambotte
261 *Rhizoctonia fragariae* Husain et W.E.McKeen
262 *Rigidoporus lignosus* (Klotzsch) Imaz.
263 *Sclerophthora rayssiae* Kenneth, Kaltin et Wahl var. *zeae* Payak et Renfro
264 *Septoria petroselini* (Lib.) Desm.
265 *Sphaeropsis pyriputrescens* Xiao et J. D. Rogers
266 *Sphaeropsis tumefaciens* Hedges
267 *Stagonospora avenae* Bissett f. sp. *triticea* T. Johnson
268 *Stagonospora sacchari* Lo et Ling
269 *Synchytrium endobioticum* (Schilberszky) Percival
270 *Thecaphora solani* (Thirumalachar et M.J.O'Brien) Mordue
271 *Tilletia controversa* Kühn
272 *Tilletia indica* Mitra
273 *Urocystis cepulae* Frost
274 *Uromyces transversalis* (Thümen) Winter
275 *Venturia inaequalis* (Cooke) Winter
276 *Verticillium albo-atrum* Reinke et Berthold
277 *Verticillium dahliae* Kleb.

Prokaryotes

278 *Acidovorax avenae* subsp. *cattleyae* (Pavarino) Willems et al.
279 *Acidovorax avenae* subsp. *citrulli* (Schaad et al.) Willems et al.
280 *Acidovorax konjaci* (Goto) Willems et al.
281 Alder yellows phytoplasma
282 Apple proliferation phytoplasma
283 Apricot chlorotic leafroll phtoplasma
284 Ash yellows phytoplasma
285 Blueberry stunt phytoplasma
286 *Burkholderia caryophylli* (Burkholder) Yabuuchi et al.
287 *Burkholderia gladioli* pv. *alliicola* (Burkholder) Urakami et al.
288 *Burkholderia glumae* (Kurita et Tabei) Urakami et al.
289 *Candidatus Liberobacter africanum* Jagoueix et al.
290 *Candidatus Liberobacter asiaticum* Jagoueix et al.
291 *Candidatus* Phytoplasma australiense
292 *Clavibacter michiganensis* subsp. *insidiosus* (McCulloch) Davis et al.
293 *Clavibacter michiganensis* subsp. *michiganensis* (Smith) Davis et al.
294 *Clavibacter michiganensis* subsp. *nebraskensis* (Vidaver et al.) Davis et al.
295 *Clavibacter michiganensis* subsp. *sepedonicus* (Spieckermann et al.) Davis et al.
296 Coconut lethal yellowing phytoplasma
297 *Curtobacterium flaccumfaciens* pv. *flaccumfaciens* (Hedges) Collins et Jones
298 *Curtobacterium flaccumfaciens* pv. *oortii* (Saaltink et al.) Collins et Jones
299 Elm phloem necrosis phytoplasma
300 *Enterobacter cancerogenus* (Urosevi) Dickey et Zumoff
301 *Erwinia amylovora* (Burrill) Winslow et al.
302 *Erwinia chrysanthemi* Burkhodler et al.
303 *Erwinia pyrifoliae* Kim, Gardan, Rhim et Geider
304 Grapevine flavescence dorée phytoplasma
305 Lime witches' broom phytoplasma
306 *Pantoea stewartii* subsp. *stewartii* (Smith) Mergaert et al.
307 Peach X-disease phytoplasma
308 Pear decline phytoplasma
309 Potato witches' broom phytoplasma
310 *Pseudomonas savastanoi* pv. *Phaseolicola* (Burkholder) Gardan et al.
311 *Pseudomonas syringae* pv. *morsprunorum* (Wormald) Young et al.
312 *Pseudomonas syringae* pv. *persicae* (Prunier et al.) Young et al.
313 *Pseudomonas syringae* pv. *pisi* (Sackett) Young et al.
314 *Pseudomonas syringae* pv. *maculicola* (McCulloch) Young *et al*
315 *Pseudomonas syringae* pv. *tomato* (Okabe) Young et al.
316 *Ralstonia solanacearum* (Smith) Yabuuchi et al. (race 2)
317 *Rathayibacter rathayi* (Smith) Zgurskaya et al.
318 *Spiroplasma citri* Saglio et al.
319 Strawberry multiplier phytoplasma
320 *Xanthomonas albilineans* (Ashby) Dowson
321 *Xanthomonas arboricola* pv. *celebensis* (Gaumann) Vauterin et al.
322 *Xanthomonas axonopodis* pv. *betlicola* (Patel et al.) Vauterin et al.
323 *Xanthomonas axonopodis* pv. *citri* (Hasse) Vauterin et al.
324 *Xanthomonas axonopodis* pv. *manihotis* (Bondar) Vauterin et al.
325 *Xanthomonas axonopodis* pv. *vasculorum* (Cobb) Vauterin et al.
326 *Xanthomonas campestris* pv. *mangiferaeindicae* (Patel et al.) Robbs et al.
327 *Xanthomonas campestris* pv. *musacearum*

(Yirgou et Bradbury) Dye
328 *Xanthomonas cassavae* (ex Wiehe et Dowson) Vauterin et al.
329 *Xanthomonas fragariae* Kennedy et King
330 *Xanthomonas hyacinthi* (Wakker) Vauterin et al.
331 *Xanthomonas oryzae* pv. *oryzae* (Ishiyama) Swings et al.
332 *Xanthomonas oryzae* pv. *oryzicola* (Fang et al.) Swings et al.
333 *Xanthomonas populi* (ex Ride) Ride et Ride
334 *Xylella fastidiosa* Wells et al.
335 *Xylophilus ampelinus* (Panagopoulos) Willems et al.

Nematode

336 *Anguina agrostis* (Steinbuch) Filipjev
337 *Aphelenchoides fragariae* (Ritzema Bos) Christie
338 *Aphelenchoides ritzemabosi* (Schwartz) Steiner et Bührer
339 *Bursaphelenchus cocophilus* (Cobb) Baujard
340 *Bursaphelenchus xylophilus* (Steiner et Bührer) Nickle
341 *Ditylenchus angustus* (Butler) Filipjev
342 *Ditylenchus destructor* Thorne
343 *Ditylenchus dipsaci* (Kühn) Filipjev
344 *Globodera pallida* (Stone) Behrens
345 *Globodera rostochiensis* (Wollenweber) Behrens
346 *Heterodera schachtii* Schmidt
347 *Longidorus* (Filipjev) Micoletzky (The species transmit viruses)
348 *Meloidogyne* Goeldi (non-Chinese species)
349 *Nacobbus abberans* (Thorne) Thorne et Allen
350 *Paralongidorus maximus* (Bütschli) Siddiqi
351 *Paratrichodorus* Siddiqi (The species transmit viruses)
352 *Pratylenchus* Filipjev (non-Chinese species)
353 *Radopholus similis* (Cobb) Thorne
354 *Trichodorus* Cobb (The species transmit viruses)
355 *Xiphinema* Cobb (The species transmit viruses)

Virus

356 *African cassava mosaic virus*, ACMV
357 *Apple stem grooving virus*, ASPV
358 *Arabis mosaic virus*, ArMV
359 *Banana bract mosaic virus*, BBrMV
360 *Bean pod mottle virus*, BPMV
361 *Broad bean stain virus*, BBSV
362 *Cacao swollen shoot virus*, CSSV
363 *Carnation ringspot virus*, CRSV
364 *Cotton leaf crumple virus*, CLCrV
365 *Cotton leaf curl virus*, CLCuV
366 *Cowpea severe mosaic virus*, CPSMV
367 *Cucumber green mottle mosaic virus*, CGMMV
368 *Maize chlorotic dwarf virus*, MCDV
369 *Maize chlorotic mottle virus*, MCMV
370 *Oat mosaic virus*, OMV
371 *Peach rosette mosaic virus*, PRMV
372 *Peanut stunt virus*, PSV
373 *Plum pox virus*, PPV
374 *Potato mop-top virus*, PMTV
375 *Potato virus A*, PVA
376 *Potato virus V*, PVV
377 *Potato yellow dwarf virus*, PYDV
378 *Prunus necrotic ringspot virus*, PNRSV
379 *Southern bean mosaic virus*, SBMV
380 *Sowbane mosaic virus*, SoMV
381 *Strawberry latent ringspot virus*, SLRSV
382 *Sugarcane streak virus*, SSV
383 *Tobacco ringspot virus*, TRSV
384 *Tomato black ring virus*, TBRV
385 *Tomato ringspot virus*, ToRSV
386 *Tomato spotted wilt virus*, TSWV
387 *Wheat streak mosaic virus*, WSMV
388 *Apple fruit crinkle viroid*, AFCVd
389 *Avocado sunblotch viroid*, ASBVd
390 *Coconut cadang-cadang viroid*, CCCVd
391 *Coconut tinangaja viroid*, CTiVd
392 *Hop latent viroid*, HLVd
393 *Pear blister canker viroid*, PBCVd
394 *Potato spindle tuber viroid*, PSTVd

Weed

395 *Aegilops cylindrica* Horst
396 *Aegilops squarrosa* L.
397 *Ambrosia* spp.
398 *Ammi majus* L.
399 *Avena barbata* Brot.
400 *Avena ludoviciana* Durien
401 *Avena sterilis* L.
402 *Bromus rigidus* Roth
403 *Bunias orientalis* L.
404 *Caucalis latifolia* L.
405 *Cenchrus* spp. (non-Chinese species)
406 *Centaurea diffusa* Lamarck
407 *Centaurea repens* L.
408 *Crotalaria spectabilis* Roth
409 *Cuscuta* spp.
410 *Emex australis* Steinh.
411 *Emex spinosa* (L.) Campd.
412 *Eupatorium adenophorum* Spreng.
413 *Eupatorium odoratum* L.

414 *Euphorbia dentata* Michx.
415 *Flaveria bidentis* (L.) Kuntze
416 *Ipomoea pandurata* (L.) G.F.W.Mey.
417 *Iva axillaris* Pursh
418 *Iva xanthifolia* Nutt.
419 *Knautia arvensis* (L.) Coulter
420 *Lactuca pulchella* (Pursh) DC.
421 *Lactuca serriola* L.
422 *Lolium temulentum* L.
423 *Mikania micrantha* Kunth
424 *Orobanche* spp.
425 *Oxalis latifolia* Kubth
426 *Senecio jacobaea* L.
427 *Solanum carolinense* L.
428 *Solanum elaeagnifolium* Cay.
429 *Solanum rostratum* Dunal.
430 *Solanum torvum* Swartz
431 *Sorghum almum* Parodi.
432 *Sorghum halepense* (L.) Pers. (Johnsongrass and its cross breeds)
433 *Striga* spp. (non-Chinese species)
434 *Tribulus alatus* Delile
435 *Xanthium* spp. (non-Chinese species)

Note: Effective as of May 28, 2007

Source: AQSIQ website http://dzwjyjgs.aqsiq.gov.cn/fwdh/flfg/200706/t20070607_31809.htm

APPENDIX I PLANT QUARANTINE PEST LIST OF THAILAND

1. *Ascochyta gossypii* (Woronichin) Syd.
2. *Asperisporium caricae* (Speg.) Maubl.
3. *Balansia oryzae-sativae* Hashioka
4. *Botryotinia allii* (Sawada) W.Yamam
5. *Botryotinia fuckeliana* (de Bary) Whetzel
6. *Botryotinia porri* (J.F.H. Beyma) Whetzel
7. *Botrytis aclada* Fresen.
8. *Cephalosporium maydis* Samra, Sabet & Hingorani
9. *Cercospora elaeidis* Steyaert
10. *Cercospora zeae-maydis* Tehon & E.Y. Daniels
11. *Chalara elegans* Nag Raj & W.B. Kendr.
12. *Claviceps gigantea* S.F. Fuentes, Isla, Ullstrup & Rodriquez
13. *Claviceps purpurea* (Fr.) Tul.
14. *Claviceps sorghi* B.G.P. Kulk., Seshadri & Hegde
15. *Colletotrichum circinans* (Berk.) Voglino
16. *Colletotrichum kahawae* J.M. Waller & Bridge
17. *Crinipellis perniciosa* (Stahel) Singer
18. *Diaporthe phaseolorum* var. *meridionalis* F.A. Fern.
19. *Diaporthe vexans* Gratz
20. *Elsinoe australis* Bitancourt & Jenkins
21. *Elsinoe theae* Bitancourt & Jenkins
22. *Fusarium graminearum* Schwabe
23. *Fusarium oxysporum* f.sp. *elaeidis* Toovey
24. *Gibberella xylarioides* R. Heim & Saccas
25. *Guignardia camelliae* (Cooke) E.J.Butler
26. *Haplobasidion musae* M.B.Ellis
27. *Helminthosporium allii* Campanile
28. *Microcyclus ulei* (Henn.) Arx
29. *Moniliophthora roreri* (Cif.) H.C. Evans et al.
30. *Mycena citricolor* (Berk. & M.A. Curtis) Sacc.
31. *Mycosphaerella citri* Whiteside
32. *Nectria rigidiuscula* Berk. & Broome
33. *Phaeoramularia angolensis* (T. Carvalho & O. Mendes) P.M. Kirk
34. *Phakopsora jatrophicola* (Arthur) Cummins
35. *Phellinus noxius* (Corner) G. Cunn.
36. *Phoma foveata* Foister
37. *Phoma theiocola* Petch
38. *Phoma tracheiphila* (Petri) Kantachveli & Gikachvili
39. *Phomopsis longicolla* Hobbs
40. *Phymatotrichopsis omnivora* (Duggar) Hennebert
41. *Phytophthora boehmeriae* Sawada
42. *Phytophthora capsici* Leonian
43. *Phytophthora citricola* Sawada
44. *Phytophthora cryptogea* Pethybr. & Laff.
45. *Phytophthora hibernalis* Carne
46. *Phytophthora katsurae* W.H. Ko & H.S. Chang
47. *Phytophthora megakarya* Brasier & M.J. Griffin
48. *Phytophthora megasperma* Drechsler
49. *Phytophthora porri* Foister
50. *Plasmodiophora brassicae* Woronin
51. *Pseudocercospora jatrophae* (G.F. Atk.) A.K. Das & Chattopadh.
52. *Pyricularia setariae* Y.Nisik.
53. *Rosellinia bunodes* (Berk. & Broome) Sacc.
54. *Rosellinia pepo* Pat.
55. *Sclerospora graminicola* (Sacc.) J. Schrot.
56. *Sclerophthora macrospora* (Sacc.) Thirum., C.G. Shaw & Naras
57. *Sclerotium cepivorum* Berk.
58. *Septoria limonum* Pass.
59. *Sphaceloma manihoticola* Bitanc.& Jenkins
60. *Sphacelotheca cruenta* (J.G. Kühn) A.A. Potter.
61. *Sphacelotheca reiliana* (J.G. Kühn) Clinton
62. *Stenocarpella macrospora* (Earle) B.Sutton
63. *Synchytrium endobioticum* (Schilb.) Percival
64. *Spongospora subterranea* f.sp. *subterranea* J.A. Toml.
65. *Thecaphora solani* (Thirum & M.J. O'Brien) Mordue
66. *Uromyces musae* Henn.
67. *Verticillium albo-atrum* Reinke & Berthold
68. *Verticillium dahliae* Kleb.

Bacteria

69. *Candidatus* Liberibacter africanus (Jagoueix et al.)
70. *Candidatus* Liberibacter americanus (Teixeira et al.)
71. *Clavibacter michiganensis* subsp. *michiganensis* (Smith) Davis et al.
72. *Clavibacter michiganensis* subsp. *nebraskensis* (Vidaver & Mandel) Davis et al.
73. *Clavibacter michiganensis* subsp. *sepedonicum* (Spieckermann & Kotthoff) Davis et al.
74. *Erwinia amylovora* (Burrill) Winslow et al.
75. *Pantoea agglomerans* (Beijerinck) Gavini et al.
76. *Pantoea ananatis* Corring (Serrano) Mergaert et al.
77. *Pantoea citrea* Kageyama et al.
78. *Pseudomonas cichorii* (Swingle) Stapp.
79. *Pseudomonas corrugata* (ex Scarlett et al.) Roberts & Scarlett
80. *Pseudomonas fuscovaginae* (ex Tanii et al.) Miyajima et al.
81. *Pseudomonas glumae* Kurita & Tabei

82. *Pseudomonas rubrisubalbicans* (Christopher & Edgerton) Krasil'nikov
83. *Pseudomonas syringae* pv. *lachrymans* (Smith & Bryan) Young et al.
84. *Pseudomonas syringae* pv. *maculicola* (McCulloch) Young et al.
85. *Pseudomonas syringae* pv. *tomato* (Okabe) Young, Dye & Wilkie
86. *Pseudomonas syringae* pv. *theae* (Hori) Young et al.
87. *Pseudomonas viridiflava* (Burkholder) Dowson
88. *Xanthomonas arboricola* pv. *celebensis* (Gaumann) Vauterin et al.
89. *Xanthomonas axonopodis* pv. *citrumelo* (Gabriel et al.) Vauterin et al.
90. *Xanthomonas axonopodis* pv. *vasculorum* (Cobb) Vauterin et al.
91. *Xanthomonas campestris* pv. *armoraciae* (McCulloch) Dye
92. *Xanthomonas campestris* pv. *cassavae* (Wiehe & Dowson) Maraite & Weyns
93. *Xanthomonas campestris* pv. *theicola* Uehara, Arai, Nonaka & Sano
94. *Xanthomonas cucurbitae* (Bryan) Vauterin et al.
95. *Xylella fastidiosa* Wells et al.

Protozoa

96. *Nosema bombycis* Negali
97. *Phytomonas staheli* McGhee & McGhee

Virus

98. *African cassava mosaic virus*
99. *African cotton mosaic virus*
100. *Alfalfa mosaic virus*
101. *Andean potato latent virus*
102. *Andean potato mottle virus*
103. *Banana bract mosaic virus*
104. *Barley stripe mosaic virus*
105. *Cassava American latent virus*
106. *Cassava brown streak virus*
107. *Cassava common mosaic virus*
108. *Cassava green mottle virus*
109. *Cassava Ivorian bacilliform virus*
110. *Cassava vein mosaic virus*
111. *Cassava virus X*
112. *Citrus leaf rugose virus*
113. *Citrus leprosis virus*
114. *Citrus ringspot virus* (=*Citrus psorosis virus complex A,B*)
115. *Citrus rubbery wood virus*
116. *Citrus tatter leaf virus*
117. *Citrus variegation virus*
118. *Citrus vein enation virus*
119. *Cacao red mottle virus*
120. *Cacao swollen shoot virus*
121. *Cacao vein-clearing virus*
122. *Cacao yellow mosaic virus*
123. *Cacao yellow vein banding virus*
124. *Cocoa necrosis virus*
125. *Coconut foliar decay virus*
126. *Coconut wilt disease*
127. *Coffee ringspot virus*
128. *Cotton anthocyanosis virus*
129. *Cotton leaf crumple virus*
130. *Cotton leaf mosaic virus*
131. *Cotton leaf mottle virus*
132. *Cotton stenosis virus*
133. *Cotton terminal stunt virus*
134. *Cowpea mild mottle virus*
135. *Cucumber green mottle mosaic virus*
136. *East African cassava mosaic virus*
137. *High plains virus*
138. *Indian cassava mosaic virus*
139. *Lettuce necrotic yellow virus*
140. *Maize rayado fino virus*
141. *Maize chlorotic dwarf virus*
142. *Maize dwarf mosaic virus A*
143. *Maize mosaic virus*
144. *Papaya leaf curl virus*
145. *Papaya mosaic virus*
146. *Papaya waialua virus*
147. *Potato black ringspot virus*
148. *Potato deforming mosaic virus*
149. *Potato mop-top virus*
150. *Potato yellow dwarf virus*
151. *Potato yellow virus*
152. *Potato yellow vein virus*
153. *Rice dwarf virus*
154. *Rice hoja blanca virus*
155. *Rice stripe virus*
156. *Rice yellow mottle virus*
157. *Satsuma dwarf virus*
158. *Sorghum mosaic virus*
159. *Squash mosaic virus*
160. *Sugarcane bacilliform virus*
161. *Sugarcane streak virus*
162. *Tobacco rattle virus*
163. *Tobacco streak virus*
164. *Tomato aspermy virus*
165. *Tomato black ring virus*
166. *Tomato bushy stunt virus*
167. *Tomato ringspot virus*
168. *Tomato spotted wilt virus*

Rickettsia

169. *Papaya bunchy top* (*Rickettsia* sp.) (Davis et al.)

Viroid

170. *Avocado sunblotch viroid*
171. *Chrysanthemum chlorotic mottle viroid*
172. *Chrysanthemum stunt viroid*
173. *Citrus cachexia viroid*
174. *Citrus exocortis viroid*
175. *Coconut cadang-cadang viroid*
176. *Coconut tinangaja viroid*
177. *Columnea latent viroid*
178. *Hop stunt viroid*

179. *Mexican papita viroid*
180. *Peach latent mosaic viroid*
181. *Potato spindle tuber viroid*
182. *Tomato apical stunt viroid*
183. *Tomato chlorotic dwarf viroid*
184. *Tomato planta macho viroid*

Mycoplasma

185. *Spiroplasma citri* Saglio et al.
186. *Spiroplasma kunkelii* Whitcomb et al.

Phytoplasma

187. Banana marbling disease
188. *Cassava frog skin phytoplasma*
189. *Cassava Witches'Broom*
190. *Coconut lethal yellows phytoplasma*
191. *Grapevine flavescence doree phytoplasma*
192. *Lime Witches'Broom*
193. *Sugarcane Ramu stunt disease phytoplasma*

Insect

194. *Acrobasis pyrivorella* (Matsumura)
195. *Adoxophyes orana* (Fischer von Röslerstamm)
196. *Anarsia lineatella* Zeller
197. *Anastrepha fraterculus* (Wiedemann)
198. *Anastrepha grandis* (Macquart)
199. *Anastrepha ludens* (Loew)
200. *Anastrepha obliqua* (Macquart)
201. *Anastrepha serpentina* (Wiedemann)
202. *Anastrepha striata* Schiner
203. *Anastrepha suspensa* (Loew)
204. *Anthonomus grandis* Boheman
205. *Anthonomus vestitus* Boheman
206. *Bactrocera aquilonis* (May)
207. *Bactrocera caryeae* (Kapoor)
208. *Bactrocera cucumis* (French)
209. *Bactrocera frauenfeldi* (Schiner)
210. *Bactrocera jarvisi* (Tryon)
211. *Bactrocera kandiensis* Drew & Hancock
212. *Bactrocera kirki* (Froggatt)
213. *Bactrocera melanotus* (Coquillett)
214. *Bactrocera minax* (Enderlein)
215. *Bactrocera musae* (Tryon)
216. *Bactrocera neohumeralis* (Hardy)
217. *Bactrocera occipitalis* (Bezzi)
218. *Bactrocera passiflorae* (Froggatt)
219. *Bactrocera philippinensis* Drew & Hancock
220. *Bactrocera psidii* (Froggatt)
221. *Bactrocera trilineola* Drew
222. *Bactrocera trivialis* (Drew)
223. *Bactrocera tryoni* (Froggatt)
224. *Bactrocera tsuneonis* (Miyake)
225. *Bactrocera xanthodes* (Broun)
226. *Cacoecimorpha pronubana* Hübner
227. *Carpomya pardalina* Bigot
228. *Carposina sasakii* Matsumura
229. *Ceratitis capitata* (Wiedemann)
230. *Ceratitis cosyra* (Walker)
231. *Ceratitis rosa* Karsch
232. *Conotrachelus nenuphar* (Herbst)
233. *Cryptophlebia leucotreta* Meyrick
234. *Cydia pomonella* (Linnaeus)
235. *Dacus ciliatus* Loew
236. *Dacus demerezi* (Bezzi)
237. *Dacus frontalis* Becker
238. *Dacus solomonensis* Malloch
239. *Diatraea saccharalis* (Fabricius)
240. *Epichoristodes acerbella* (Walker)
241. *Epiphyas postvittana* (Walker)
242. *Erinnyis ello* (Linnaeus)
243. *Grapholita funebrana* Treitschke
244. *Grapholita molesta* (Busck)
245. *Grapholita packardi* Zeller
246. *Grapholita prunivora* (Walsh)
247. *Leptinotarsa decemlineata* (Say)
248. *Leptopharsa heveae* Drake & Poor
249. *Liriomyza bryoniae* (Kaltenbach)
250. *Lissorhoptrus oryzophilus* Kuschel
251. *Nemorimyza maculosa* (Malloch)
252. *Opogona sacchari* (Bojer)
253. *Oryctes boas* (Fabricius)
254. *Oryctes monoceros* (Olivier)
255. *Pantomorus cervinus* (Boheman)
256. *Phenacoccus manihoti* Matile-Ferrero
257. *Popillia japonica* Newman
258. *Rhagoletis cerasi* (Linnaeus)
259. *Rhagoletis cingulata* (Loew)
260. *Rhagoletis completa* Cresson
261. *Rhagoletis fausta* (Osten Sacken)
262. *Rhagoletis indifferens* Curran
263. *Rhagoletis mendax* Curran
264. *Rhagoletis pomonella* (Walsh)
265. *Rhynchophorus palmarum* (Linnaeus)
266. *Sacadodes pyralis* Dyar
267. *Scirtothrips aurantii* Faure
268. *Scirtothrips citri* (Moulton)
269. *Sesamia calamistis* Hampson
270. *Toxotrypana curvicauda* Gerstaecker
271. *Trioza erytreae* (Del Guercio)
272. *Trirhithrum coffeae* Bezzi

Mite

273. *Aceria guerreronis* Keifer
274. *Aculops lycopersici* (Massee)
275. *Calepitrimerus vitis* (Nalepa)
276. *Mononychellus tanajoa* (Bondar)
277. *Oligonychus peruvianus* (McGregor)
278. *Panonychus ulmi* (Koch)
279. *Petrobia latens* (Müller)
280. *Tetranychus pacificus* McGregor

Nematode

281. *Anguina agrostis* (Steinbuch) Filipjev
282. *Anguina graminis* (Hardy) Filipjev
283. *Anguina tritici* (Steinbuch) Chitwood
284. *Aphelenchoides arachidis* Bos
285. *Aphelenchoides besseyi* Christie
286. *Belonolaimus longicaudatus* Rau

287. *Bursaphelenchus xylophilus* (Steiner & Buhrer) Nickle
288. *Cactodera cacti* Filipjev & Schuurmans Stekhoven
289. *Ditylenchus destructor* Thorne
290. *Ditylenchus dipsaci* (Kuhn) Filipjev
291. *Dolichodorus heterocephalus* Cobb
292. *Globodera pallida* (Stone) Behrens
293. *Globodera rostochiensis* (Wollenweber) Behrens
294. *Heterodera avenae* Wollenweber
295. *Heterodera glycines* Ichinohe
296. *Heterodera graminis* Stynes
297. *Heterodera oryzae* Luc & Berdon Brizuela
298. *Heterodera oryzicola* Rao & Jayaprakash
299. *Heterodera punctata* (Thorne) Mulvey & Stone
300. *Heterodera schachtii* Schmidt
301. *Heterodera sorghi* Jain, Sethi, Swarup & Srivastava
302. *Heterodera trifolii* Goffart
303. *Hirschmanniella miticausa* Bridge, Mortimer & Jackson
304. *Hoplolaimus columbus* Sher
305. *Hoplolaimus indicus* Sher
306. *Longidorus sylphus* Thorne
307. *Meloidogyne brevicauda* Loos
308. *Meloidogyne camelliae* Golden
309. *Meloidogyne chitwoodi* Golden, O'Bannon, Santo & Finley
310. *Meloidogyne coffeicola* Lordello & Zamith
311. *Meloidogyne graminis* (Sledge & Golden) Whitehead
312. *Nacobbus aberrans* (Thorne) Thorne & Allen
313. *Paratrichodorus porosus* (Allen) Siddiqi
314. *Pratylenchus goodeyi* Sher & Allen
315. *Pratylenchus loosi* Loof
316. *Rhadinaphelenchus cocophilus* (Cobb) Goodey
317. *Rotylenchulus macrodoratus* (Dasgupta, Raski & Sher)
318. *Scutellonema bradys* (Steiner & Le Hew) Andrassy
319. *Trichodorus viruliferus* Hooper
320. *Xiphinema americanum* Cobb
321. *Xiphinema diversicaudatum* (Micoletzky) Thorne

Weed

322. *Ambrosia artemisiifolia* L.
323. *Amaranthus albus* L.
324. *Amaranthus blitoides* S. Wats.
325. *Alopecurus myosuroides* Huds.
326. *Asphodelus tenuifolius* Cav.
327. *Avena fatua* L.
328. *Capsella bursa-pastoris* (L.) Medik.
329. *Chenopodium album* L.
330. *Conyza canadensis* (L.) Cronq.
331. *Cirsium arvense* (L.) Scop.
332. *Cirsium vulgare* Savi (Ten.)
333. *Cuscuta campestris* Yuncker
334. *Galium aparine* L.
335. *Heliotropium europaeum* L.
336. *Hibiscus trionum* L.
337. *Lolium temulentum* L.
338. *Orobanche aegyptiaca* Pers.
339. *Orobanche cernua* Loefl.
340. *Orobanche crenata* Forskal.
341. *Orobanche ramosa* L.
342. *Parthenium hysterophorus* L.
343. *Phalaris minor* Retz.
344. *Polygonum aviculare* L.
345. *Polygonum convolvulus* L.
346. *Raphanus raphanistrum* L.
347. *Rumex acetosella* L.
348. *Rumex obtusifolius* L.
349. *Salvinia molesta* Mitchell
350. *Senecio vulgaris* L.
351. *Setaria faberi* Herrm.
352. *Solanum carolinense* L.
353. *Solanum elaeagnifolium* Cavanilles
354. *Spergula arvensis* L.
355. *Stellaria media* (L.) Vill.
356. *Striga angustifolia* (Don) Saldanha
357. *Striga densiflora* (Benth.) Benth.
358. *Striga hermonthica* (Del.) Benth.
359. *Thlaspi arvense* L.
360. *Vicia sativa* L.

Unknown Etiology

361. *Bristle top* (in coconut)
362. *Citrus blight disease*
363. *Citrus impietratura disease*
364. *Cotton blue disease*
365. *Dryout rot*
366. *Head drop*
367. *Little mottle*
368. *Socorro wilt*
369. *Tatipaka wilt*

Additions to the List

Fungi

1. Ceratobasidium cereale Murray & Burpee
2. Fusarium culmorum (W.G. Sm.) Sacco
3. Fusarium oxysporum f.sp. melonis (Leach & Currence) Snyder & Hansen
4. Fusarium oxysporum f.sp. *LILII* Imle
5. Fusarium oxysporum f.sp. narcissi Snyder & Hansen
6. Kabatiella zeae Narita & Y. Hirats.
7. Monographella nivalis (Schaffnit) E.MuII.
8. Peronospora dianthicola Barthelet
9. Phoma andigena Turkenst.
10. Puccinia asparagi DC.
11. Septoria cucurbitacearum Sacco
12. Septoria helianthi Ell. & Kellerman
13. Tilletia controversa J. G. Kuhn
14. Urocystis gladiolicola Ainsworth
15. Uromyces gladioli Henn.

Bacteria

16. Burkholderia caryophylli (Burkholder) Yabuuchi et al.
17. Curto bacterium flaccumfaciens pv.flaccumfaciens (Hedges) Collins & Jones
18. Curto bacterium flaccumfaciens pV. oortU (Saaltink & Maas Geest.) Collins & Jones
19. Pseudomonas marginalis pv. marginalis (Brown) Stevens
20. Pseudomonas putida (Trevisan) Migula
21. Pseudomonas syringae pV. atrofaciens (McCulloch) Young et al.
22. *Pseudomonas syringae* pv. *coronafaciens* (Elliott) Young et al.
23. *Rhizobium vitis* (Ophel & Kerr) Young et al.
24. *Xanthomonas axonopodis* pv. *vitians* (Brown) Vauterin et al.
25. *Xanthomonas campestris* pv. *zantedeschiae* (Joubert & Truter) Dye
26. *Xanthomonas hortorum* pv. *carotae* (Kendrick) Vauterin et al.
27. *Xylophilus ampelinus* (Panagopoulos) Willems et al.)

Virus

28. Arabis mosaic nepovirus
29. Asparagus virus-l
30. Asparagus virus-2
31. Celery mosaic virus
32. Grapevine virus A
33. Grapevine virus B
34. Hibiscus chlorotic ring spot virus
35. Impatiens necrotic spot virus
36. Impatiens necrotic virus
37. Maize chlorotic mottle virus
38. Pelargonium chlorotic ring pattern virus
39. Pelargonium line pattern carmovirus
40. Pelargonium ring spot virus
41. Pelargonium vein clearing virus
42. Pelargonium zonate spot virus
43. Pepino mosaic virus
44. Potato virus S
45. Tulip breaking virus
46. Zantedeschia mosaic virus
47. Zucchini yellow mosaic virus

Phytoplasma

48. *Grapevine yellows phytoplasmas* Seemuller et al.

Insect

49. Abgrallaspis cyanophylli (Signoret)
50. Adoxophyes honmai (Yasuda)
51. Adoxophyes privatana (Walker)
52. Archips machlopis Meyrick
53. Archips podana (Scopoli)
54. Archips xylosteanus (Linnaeus)
55. Aspidiotus nerii (Bouche)
56. Carulaspis minima Borchsenius
57. Cryptophlebia illepida (Butler)
58. Cydia fabivora (Meyrick)
59. Cydia leucostoma (Meyrick)
60. Diaspis boisduvalii Signoret
61. Fiorinia fioriniae (Targioni)
62. Fiorinia theae Green
63. Frankliniella tritici (Fitch)
64. Grapholita delineana Walker
65. Grapholita funebrana Treitschke
66. Grapholita inopinata Heinrich
67. Lopholeucaspis cockerelli (Grandpre & Charmoy)
68. Parlato ria theae Cocekrell
69. Proeulia auraria (Clarke)
70. Proeulia chrysopteris (Butler)
71. Pseudodendrothrips mori (Niwa)
72. Retithrips syriacus (Mayet)
73. Selenaspidus articulatus (Morgan)
74. Tetramoera schistaceana (Snellen)
75. Thrips fuscipennis Haliday
76. Thrips simplex (Morison)

Mite

77. Amphitetetranychus viennensis (Zacher)
78. Bryobia graminum (Schrank)
79. Bryobia lagodechiana Reck
80. Bryobia praetiosa Koch
81. Bryobia rubrioculus (Scheuten)
82. Caloglyphus mycophagus (Megnin)
83. Eutetranychus banksi (McGregor)
84. Eotetranychus carpini (Oudemans)
85. Eotetranychus lewisi (McGregor)
86. Eotetranychus uncatus Garman
87. Mononychellus planki (McGregor)
88. Oligonychus gossypii (Zacher)
89. Oligonychus grypus Baker & Pritchard
90. Oligonychus ilicis (McGregor)
91. Oligonychus indicus (Hirst)
92. Oligonychus yothersi (McGregor)
93. Rhizoglyphus setosus Manson
94. Tetranychus desertorum Banks
95. Tetranychus evansi Baker & Pritchard
96. Tetranychus lambi Pritchard & Baker
97. Tetranychus lombardinii Baker & Pritchard
98. Tetranychus mexicanus (McGregor)
99. Tyrophagus dimidiatus (Hermann)
100. Tyrophagus similis V olgin

Nematode

101. Aphelenchoides ritzembosi (Schwartz) Steiner and Buhrer
102. Ditylenchus destructor (Thorne)
103. Hoplolaimus galeatus (Cobb) Thorne

Source: WTO SPS Notification G/SPS/N/THA/151/Rev.1/Add.1 dated June 26, 2007.

APPENDIX J PLANT QUARANTINE PEST LIST OF VIETNAM

GROUP I: Pests of potential economic importance to the vegetation resources and not yet present in Vietnam

A. Insect

1. South American Fruit fly	*Anastrepha fraterculus* (Wiedemann)
2. Mexico fruit fly	*Anastrepha ludens* (Loew)
3. Mediterranean fruit fly	*Ceratitis capitata* (Wiedemann)
4. Queensland fruit fly	*Bactrocera tryoni* (Froggatt)
5. Chinensis citrus fly	*Bactrocera tsuneonis* (Miyake)
6. Natal fruit fly	*Ceratitis rosa* Karsch
7. Groundnut borer	*Pachymerus pallidus* (Olivier)
8. American white moth	*Hyphantria cunea* (Drury)
9. Japanese beetle	*Popillia japonica* (Newmann)
10. Broad - nosed grain weevil	*Caulophilus oryzae* Say
11. Khapra beetle	*Trogoderma granarium* Everts
12. Trogoderma beetle	*Trogoderma inclusum* LeConte
13. Boll weevil	*Anthonomus grandis* Boheman
14. South African citrus thrips	*Scirtothrip aurantii* Faure
15. Colorado potato beetle	*Leptinotarsa decemlineata* Say
16. Granary weevil	*Sitophilus granarius* (Linnaeus)
17. Larger grain borer	*Prostephanus truncatus* Horn
18. Mexico bean weevil	*Zabrotes subfasciatus* (Boheman)
19. California scale	*Quadraspidiotus perniciosus* (Comstock)
20. White fringed beetle	*Graphognathus leucoloma* (Boheman)
21. Rice leaf hopper	*Tagosodes orizicolus* Muir (Vector transmitted chlorosis of rice - *Rice hoja blanca virus)*
22. Paddy plant hopper	*Tagosodes cubanus* D.L. Crawford (Vector transmitted chlorosis of rice - *Rice hoja blanca virus)*

B. Diseases

23. Citrus mal secco	*Phoma tracheiphila* Petri, Kantachveli & Gikachvili
24. Texas root rot of cotton	*Phymatotrichopsis omnivora* (Duggar) Hennebert
25. South American leaf blight	*Microcyclus ulei* (Henn.) Arx
26. Wart diseases of potato	*Synchytrium endobioticum* (Schilb.) Percival
27. Karnal bunt	*Tilletia indica* Mitra
28. Coffee bacterial leaf spot	*Pseudomonas garcae* Amaral, Teixeira & Pinheiro
29. Chlorosis of rice	*Rice hoja blanca virus*
30. Coffee ring spot virus	*Coffee ringspot virus*
31. Verticillium wilt	*Verticullium albo-atrum* Reinke & Berthold
32. American leaf spot of coffee	*Mycena citricolor* (Berk. & Curtis) Sacc
33. Bacterial canker of tomato	*Clavibacter michiganensis subsp. Michiganensis* (Smith 1910) Davis

C. Nematodes

34. Potato rot nematode	*Ditylenchus destructor* Thorne
35. Pale potato cyst nematode	*Globodera pallida* (Stone) Behrens
36. Yellow potato cyst nematode	*Globodera rostochiensis* (Wollenweber) Behrens
37. Red ring nematode	*Rhadinaphelenchus cocophilus* (Cobb) Goodey
38. Pine wood nematode	*Bursaphelenchus xylophilus* (Steiner & Burher) Nickle

D. Weeds

39. Purple witchweed	*Striga hermonthica* (Del.) Benth.
40. Witchweed	*Striga densiflora* (Benth.) Benth.
41. Creeping thistle	*Cirsium arvense* (L.) Scop.
42. Scalloped broomrape	*Orobanche crenata* Forskal
43. Broomrape cernua	*Orobanche cernua* Loefl.
44. Broomrape ramo	*Orobanche ramosa* L.
45. Broomrape aegyp	*Orobanche aegyptiaca* Pers.

GROUP II: Pests of potential economic importance to the vegetation resources and not widely distributed in Vietnam

A. Insects

46. Potato moth	*Phthorimaea operculella* (Zeller)
47. Corn flea beetle	*Chaetocnema pulicaria* (Melsheimer) (Vector transmitted bacterial leaf blight of maize - *Pantoea stewartii)*
48. Japanese pine sawyer	*Monochamus alternatus* Hope (Vector transmitted Pine wood nematode - *Bursaphelenchus xylophilus)*

B. Diseases

49. Black choke	*Balansia oryzae-sativae* Hashioka
50. Groundnut stripe disease	*Peanut stripe virus*
51. Bacterial leaf blight of maize	*Pantoea stewartii (Smith 1898) Mergaert*

C. Nematodes

52. Burrowing nematode	*Radopholus similis* (Cobb) Thorne
53. Brown ring disease of hyacinth	*Ditylenchus dipsaci* (Kuhn) Filipjev

D. Weeds

54. Witchweed S.a	*Striga angustifolia* (Don.) Saldanha
55. Witchweed S. I	*Striga asiatica (L.)* Kuntze
56. Australis dodder	*Cuscuta australis* R. Br.
57. Chinensis dodder	*Cuscuta chinensis* Lam.

Note: Enacted by Decision No: 73/2005/QĐ-BNN dated November 14, 2005 of MARD.