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## **Food Safety and Agricultural Health Action Plan**

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**East Asia and Pacific Region and  
Agriculture and Rural Development Department**

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## Foreword

Increased domestic and export market access to high quality food products is critical for the diversification of Vietnam's agricultural sector and therefore essential for sustaining rural economic growth and reducing poverty. The growing importance of perishable foods requires increased attention to agricultural health and food safety issues to ensure international and domestic food market access.

Improving food safety and agricultural health is in line with the main themes of Vietnam's Comprehensive Poverty Reduction and Growth Strategy (CPRGS), as it would directly: (i) facilitate "high growth through the transition to the market economy" (theme 1); (ii) support rural economic growth, and thus directly contribute to "equitable and sustainable patterns of growth" (theme 2); and (iii) support "modern public administration, legal and governance systems" (theme 3). Within this framework, the Government of Vietnam (GOVN) has requested World Bank assistance in the preparation of an Action Plan for Food Safety and Agricultural Health.

This Action Plan is the result of a close cooperation between the Government of Vietnam, local institutions, and international donor organizations. An initial mission from the World Bank visited Vietnam in February 2004 and prepared a diagnostic report titled "Standards, the WTO and Economic Development in Vietnam: Challenges and Opportunities." This report provided a general assessment of the SPS and TBT systems in Vietnam, examined the consistency of these systems with the country's WTO obligations, and highlighted a number of urgent issues related to TBT and SPS issues to be addressed with regard to WTO accession.

In further discussions between the Ministry of Agriculture and Rural Development and the World Bank, it was decided that a more action-oriented plan would provide all stakeholders involved in cross-border trade relating to food safety and agricultural health with a concrete set of priorities for eventual policy and regulatory changes and for the public sector investments needed to increase international market access and, thus, to meet the objectives set in the Government's export-oriented development strategy, as prescribed in the 2006 – 2010 Five-Year Plan.

A scoping mission then visited Vietnam in October 2004. Its members confirmed these initial discussions and agreed that the Action Plan would cover short-term and medium-term priorities, public and private sector needs, and food safety and agricultural health issues related to imports and exports. It was acknowledged that these focus areas constitute only a part of the overall quality management and competitiveness requirements and that other measures, such as overall quality management and reliability of supply, are also critical to gain international market access. It was agreed, furthermore, that the plan's primary focus would be on fruits, vegetables, and livestock food stuffs, with some lesser attention paid to the fisheries sector, as the latter has already benefited over the last decade from extensive support, which has achieved an excellent track record.

The main mission to prepare the Action Plan took place between March 2 and March 18, 2005, and consisted of Mr. Dzong The Nguyen, as the overall task team leader, with specific responsibility for addressing institutional and general development issues; Mr. Cees de Haan, coordinator of the study and specifically responsible for issues relating to the animal health sector; Mr. Don Husnik, assessor of the plant protection sector; Ms. Clare Narrod, covering trade and risk analysis issues; Mr. Leo Hagedoorn, concentrating on the food safety sector; and Ms. Laura Ignacio, focusing on general economics and statistics.

A major consultation to review the draft Action Plan was organized on August 1, 2005, with the participation of the main stakeholders involved in the perishable food chain. Participants in this

consultation endorsed the approach and recommendations of the draft Plan, but stressing the urgency of implementing the recommendations, they requested that more attention be given to implementation issues. Important further inputs to this Action Plan were provided by specially commissioned papers from Mr. Dao The Anh, on the structure of the perishable food chain in Vietnam; from Messrs. Zhang and van Meggelen, on the institutional framework; and from Messrs. Hagedoorn, Quynh N. Vu, and Pham Q. Huy, on the regulatory gaps.

Peer reviewers who contributed valuable comments on the concept and/or the final draft of the report included, from outside the World Bank, Drs. David Orden (IFPRI), Laurian Univehr (University of Illinois), and Tom Billy (ex-Chair of CODEX) and, from inside the World Bank, Messrs. Steven Jaffee, Kees van der Meer, and Patrick Labaste. Ms. Marianne Grosclaude and Messrs. Stephen Mink, Laurent Msellati, and Rakesh Nangia provided valuable comments on the draft report. Mr. Klaus Rohland, the World Bank Country Director for Vietnam, provided valuable guidance and support throughout the preparation of this Action Plan

Throughout this process, the International Cooperation Department of the Ministry of Agriculture and Rural Development very effectively facilitated a close dialogue with all stakeholders. This included the continuous close involvement of the key food safety and agricultural health institutions, including the Department of Animal Health (DAH), the Plant Protection Department (PPD), and the Vietnam Food Administration (VFA), as well as extensive consultation with Vietnam's private production and processing sectors and with the international donor communities.

The mission benefited from multiple sources of support in addition to that of the World Bank. The RAISE-SPS Project of USAID's Economic Growth and Trade Bureau supported both the scoping and preparation missions with its expertise in public/private partnerships and plant protection, respectively; the USDA provided expertise in the area of risk analysis; the FAO contributed its knowledge of food safety; and the World Bank Netherlands Partnership Program (BNPP) contributed to the coordination of the study and to its coverage of general economics. The conclusions and recommendations are those of the preparation team, however, and do not necessarily reflect the views and strategies of these agencies.

## Abbreviations and Acronyms

AADCP	ASEAN-Australia Development Cooperation Program
ACIAR	Australian Centre for International Agriculture Research
ADB	Asian Development Bank
AFF	ASEAN Fisheries Federation
AFTA	ASEAN Free Trade Area
APEC	Asia-Pacific Economic Cooperation
APPC	Asian Plant Protection Commission
ASEAN	Association of South-East Asian Nations
ASEM	Asia Europe Meeting
ASP	Agricultural Sector Program
AusAID	Australian Agency for International Development
AVRDC	Asian Vegetable Research and Development Center
BNPP	Bank Netherlands Partnership Program
BVQI	Bureau Veritas Quality International (UK)
CABI	Centre for Applied Bioscience International
CCP	Critical control point
CEPT	Common effective preferential tariff
CIDA	Canadian International Development Agency
CIRAD	Centre de coopération internationale en recherche agronomique pour le Développement, or Agricultural Research Centre for International Development (France)
CLMV	Cambodia, Laos, Myanmar, Vietnam
Codex	Codex Alimentarius
COMECON	Council for Mutual Economic Assistance
CPRGS	Comprehensive poverty reduction and growth strategy
CSF	Classical Swine Fever
DAH	Department of Animal Health
DANIDA	Danish International Development Agency
DNV	Det Norske Veritas (Norway)
EC	European Commission
EMHPAI	Emergency Measure for HPAI
ERCN	Emergency Response Command Network
EU	European Union
EurepGAP	European Union Retailer Produce Working Group, Good Agricultural Practices
FAL	Food analysis laboratories
FAO	Food and Agriculture Organization
FDA	Food and Drug Administration
FFA	Food and Foodstuff Association
FSPS	Fishery Sector Support Program
FMD	Foot and mouth disease
FQD	Food (and agriculture products) quality development
FSM	Food-safety management
GAP	Good agricultural practices
GDP	Gross domestic product
GMP	Good manufacturing practices
GOVN	Government of Vietnam
ha	hectare



HACCP	Hazard analysis and critical control point
HCMC	Ho Chi Minh City
HPAI	Highly pathogenic avian influenza
ICD	International Cooperation Department
IEBR	Institute of Ecology and Biological Resources
IFCA	International Fisheries Coalition of Associations
IFPRI	International Food Policy Research Institute
IICA	Inter-American Institute for Cooperation on Agriculture
ILRI	International Livestock Research Institute
IPM	Integrated pest management
IPPC	International Plant Protection Convention
IQ	Intelligence quotient
ISO	International Organization for Standardization
ISPM	International Standard for Phytosanitary Measures
JAS-ANZ	Joint Accreditation System – Australia and New Zealand
kg	kilogram
MARD	Ministry of Agriculture and Rural Development
MAS	Market Access Support
MATF	Market Access and Trade Facilitation
MFN	Most favored nation
MHLW	Ministry of Health, Labor and Welfare (Japan)
MOFI	Ministry of Fisheries
MOH	Ministry of Health (Vietnam)
MOI	Ministry of Industry
MOST	Ministry of Science and Technology
MRA	Mutual recognition agreements
MRL	Maximum residue level
mt	metric ton
MUTRAP	Multilateral Trade Assistance Policy Program
NAFIQACEN	National Fisheries Inspection Quality Assurance Center
NAFIQAVED	National Fisheries Quality Assurance and Veterinary Directorate
ND	Newcastle disease
NFSL	National Food Safety Laboratory
NGO	Nongovernmental organization
NIPP	National Institute of Plant Protection
NORAD	Norwegian Agency for Development Cooperation
NPD	National Phytosanitary Database
NPPO	National Plant Protection Organization
NZAID	New Zealand Agency for International Development
OIE	Office International des Epizooties (or World Organization for Animal Health)
OECD	Organization for Economic Cooperation and Development
PAN	Pesticide Action Network
PCBP	Phytosanitary Capacity Building Project
PCE	Phytosanitary capacity evaluation
PEQ	Post-entry quarantine
PFA	Pest-free area
PP	Plant protection
PPC	Provincial People's Committees
PPD	Plant Protection Department
PPI	Plant Protection Inspector
PQ	Plant quarantine

PRA	Pest-risk analysis
PROMPEX	Peruvian Commission for Export Promotion
RA	Risk analysis
RAISE	Rural and Agricultural Incomes with a Sustainable Environment
SARS	Severe acute respiratory syndrome
SEAFDEC	Southeast Asian Fisheries Development Center
SEAFMD	OIE Subcommittee for Foot and Mouth Disease in South-East Asia
SEAPRODEX	Vietnam National Seaproducts Corporation
SEAQIP	Seafood Export and Quality Improvement Program
SECO	State Secretariat for Economic Affairs (Switzerland)
SME	Small and medium enterprise
SMTQ	Standards, metrology, testing, and quality
SOE	State-owned enterprise
SOFRI	Southern Fruit Research Institute
sp., spp.	species
SPS	Sanitary and phytosanitary
SPSCBP	SPS Capacity Building Program
STAMEQ	Directorate for Standards and Quality
STOFA	Strengthening of Fisheries Administration
SUFA	Support to Freshwater Aquaculture
SUMA	Support to Marine Aquaculture
TA	Technical assistance
TBT	Technical barriers to trade
TCP	Technical Cooperation Project
TSV	Taura syndrome virus
UK	United Kingdom
UN	United Nations
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
VASEP	Vietnam Association of Seafood Exporters and Producers
VEGETEXCO	Vietnam National Corporation of Vegetable, Fruit, and Agricultural Products
VFA	Vietnam Food Administration
VICOFA	Vietnam Coffee-Cocoa Association
VINACAFE	Vietnam Coffee Association
VINACAS	Vietnam Cashew Association
VINAFA	Vietnam Fisheries Association
VINAFIS	Fisheries Association of Vietnam
Vinafruit	Vietnam Fruit Association
VITAS	Vietnam Tea Association
VLU	Veterinary Livestock Units
VND	Vietnamese Dong
WB	World Bank
WHO	World Health Organization
WHO–RFB	WHO Regional (study on active surveillance of) Food-Borne Diseases
WSSV	White spot syndrome virus
WTO	World Trade Organization
YHV	Yellow head virus

## Executive Summary

**1. Vietnam's agricultural sector is undergoing major structural changes.** Production and trade of high-value commodities such as fruit, vegetables, meat, fish, and seafood products have grown over the last decade at a rate of approximately 4 to 6 percent per year, while those of the traditional bulk products, for example, rice, rubber, and sugar cane, stabilized. Growth in fruit, vegetables, and meat was almost entirely driven by domestic demand, however, as international market access is hampered by Vietnam's lack of competitiveness, including its difficulty in complying with the quality and sanitary and phytosanitary standards of the international markets. Provided these standards are met, high-value fruits such as litchi, mangosteen, and dragon fruit, vegetables, and meat products will be possible new products with export potential.

**2. The need to take action is urgent.** While significant progress has been made in some sectors, particularly in the fisheries export sector, additional action is required to strengthen Vietnam's capacity to manage food safety and agricultural health. Key interrelated reasons include the following:

### ***Public Health***

- *High levels of food-borne pathogens*, with poor water quality and deficient production, processing, marketing, and retailing technologies, in particular of meat and vegetable products, causing high levels of food-borne diseases. Surveys of meat for domestic consumption show one-third of all samples positive for salmonella, with particularly high figures for pork (77 percent positive). A recent survey showed 1.5 cases of diarrhea per person per year, one-fifth of which require medical attention, compared with 0.3 case of diarrhea per person per year in developed countries; and
- *High levels of toxic residues*, with food additives, pesticides, and antibiotics surpassing the maximum residue levels (MRLs) allowed in domestic or international markets. National data are not available, but anecdotal evidence from surveys undertaken in the Hanoi and Ho Chi Minh City markets shows that about 10 percent of vegetable samples exceed national standards for pesticide residue levels and 2 to 3 percent showing use of banned pesticide products. No quantitative information is available on the use of antibiotics in meat and fish products, although it is reportedly also a major problem.

### ***Agricultural Health***

- *Plant pests*, with recent introductions of alien pests due to weak border protection causing major economic losses in commodities such as the cocoa nut, rice, sugar cane, and fruit; and
- *Animal diseases*, with diseases such as Foot and Mouth Disease (FMD), Classical Swine Fever (CSF), and Highly Pathogenic Avian Influenza (HPAI) causing major losses to domestic production.

### ***Forgone International and National Markets Access***

- *Missed trade opportunities*, because the prevalence of fruit fly throughout the country prevents the export of practically all untreated fruits to Australia, Japan, New Zealand, and the United States, while FMD, HPAI, and CSF preclude export of most meat products to almost all potential markets; and

- *Increasing consumer demands for safer products in both the international and domestic market.* Moreover, the imminent entry of Vietnam into the World Trade Organization (WTO) and market liberalization under ASEAN will require the country to further reduce tariffs and export subsidies and to open its markets to producers from other countries. As a result, local producers will face increasing competition from the global marketplace and will need to increase the quality and safety of their products in a cost-efficient way to compete.

### **WTO Requirements**

- *Compliance with the SPS Agreement required for WTO accession* remains a serious challenge. Vietnam has committed itself to comply fully with the SPS requirements immediately after its accession, but the country's existing implementation capacity is still quite limited. While the National Enquiry Point and Notification Authority have been established, important discrepancies (at least for half of the regulations) still exist between national and international standards in major areas of food safety and agricultural health.

### **3. Addressing these sanitary and phytosanitary problems would reduce major losses to the national economy and contribute to rural poverty reduction.**

While it is not possible to estimate total losses to the economy with any degree of precision, it is safe to say that the human health costs of food-borne diseases, production losses from pests and diseases, and forgone markets resulting from recent pest and disease introductions, easily surpass US\$ 1 billion per year, about equally distributed between food safety (public health) and agricultural health causes.

- High-value crops and livestock production generate significantly more employment per unit area than do food staple crops. These high-value crops and livestock have particular potential for the poorest regions of the country, and their development could be an important tool in poverty reduction.
- What could be achieved if these constraints are eliminated is shown by the spectacular, export-driven growth in the coffee, cashew, spice (pepper), and fish sectors.

### **4. With this background, the ultimate objective of this Action Plan for Food Safety and Agricultural Health is to improve living standards of people in and outside of Vietnam by improving their access to safe and healthy food and by minimizing the loss in human well-being caused by food-borne diseases. The immediate objectives of this Action Plan are**

- To contribute to the improvement of the living standards of the Vietnamese people by improving their access to safe food and by minimizing losses caused by food-borne diseases;
- To maximize benefits to living standards by increasing access to international and domestic food markets;
- To reduce the incidence of emergence of plant pests and animal diseases; and
- To strengthen Vietnam's capacity to ensure effective implementation of its WTO SPS commitments.

### **5. This Action Plan provides an overview of the actions recommended to improve food safety and agricultural health management.** It emphasizes cross-border trade, as the Ministry of Health is preparing a strategy mainly treating domestic food safety issues. This Action Plan covers action for the short- (up to eighteen months), medium- (18 months to three years), and

long-term (three to five years) future. The Action Plan focuses (although not to the exclusion of other agricultural goods) on *high-value products*, excluding fish, for which well functioning, and internationally recognized SPS systems are already in place.

**6. This Action Plan follows current global thinking on the organization of agricultural health and food safety services** such as have also been implemented by Vietnam's major trading partners. This covers the following five principles:

- A *farm to table approach* focusing on the prevention of potential and current food safety and agricultural health threats throughout the entire agro-food supply chain in all stages of production, processing, marketing, and retailing;
- An *integrated agricultural health safeguarding system* integrating into one seamless, interlinking system all activities related to pest and disease management, such as the protection from alien pests and diseases, surveillance, and control and eradication intervention activities;
- A *risk analysis concept* supporting decision makers in setting strategies and priorities in light of the many needs and requirements of the supply chain. The risk analysis concept is based on (i) risk assessments estimating the probability of agricultural health and food safety risks; (ii) risk management, including cost/benefit or cost/effective analysis of the proposed measure to address those threats; and (iii) risk communication;
- An *increasing reliance on international safety and quality control systems*, such as Hazard Analysis and Critical Control Points (HACCP) and ISO standards, also as a means of shifting quality control responsibilities to the private sector; and
- A *broad-based institutional approach*, rather than a commodity specific action plan.

**7. To reach the desired levels of domestic food safety and increased international market access, this Action Plan recommends a set of interrelated actions**, which are summarized below. Table A provides an overview of the main goals, actions, and performance indicators of the Action Plan.

**Table A. Summary of Goals, Strategic Priorities, and Performance Indicators of the Action Plan for Food Safety and Agricultural Health**

<b>GOALS</b>			
<b>Reduce food-related impacts on human health in Vietnam</b>	<b>Increase exports of high-value products</b>	<b>Improve agricultural health</b>	<b>Ensure effective coordination of WTO SPS commitments</b>
<b>STRATEGIC PRIORITIES</b>			
<b>Improve coordination among key agencies</b> <b>Strengthen risk analysis capacity through enhancing skills and developing integrated databases, tailored to client countries needs</b>			
<ul style="list-style-type: none"> <li>Improve disease diagnostics, through shift to active disease surveillance systems and modernization of laboratory equipment and infrastructure, and strengthen reporting and dissemination channels</li> <li>Raise awareness among decision makers, public servants, producers, traders, and consumers</li> </ul>	<ul style="list-style-type: none"> <li>Improve business climate for private investors, in particular regarding mutual contract enforcement under vertical integration arrangements</li> <li>Develop integrated supply chain, including SPS and quality management (HACCP systems)</li> </ul>	<ul style="list-style-type: none"> <li>Improve pest/disease diagnostics, through a shift to active surveillance, modernized laboratory equipment and strengthened reporting and dissemination channels between field and national authorities</li> <li>Strengthen border control and quarantine facilities in combination with regional quarantines and surveillances</li> <li>Prepare and promote comprehensive disease and pest management strategies, with optimal combinations of prevention, control, and eradication measures</li> </ul>	<ul style="list-style-type: none"> <li>Render operational the SPS Enquiry Point and Notification Authority</li> <li>Promote active participation in Codex, IPPC, and OIE activities</li> <li>Progressively adopt international standards for SPS regulations</li> </ul>
<b>PERFORMANCE INDICATORS</b>			
<ul style="list-style-type: none"> <li>Reduced incidence of diarrhea and other food-borne diseases</li> <li>Reduced pesticide, microbial, and chemical contaminations in key vegetables and other products</li> </ul>	<ul style="list-style-type: none"> <li>Increased share of food exporters with HACCP certification</li> <li>Growth in exports of tropical fruits &amp; pork</li> <li>Decreased number of rejections by competent authorities of client countries</li> </ul>	<ul style="list-style-type: none"> <li>Reduced incidence of and production losses from emerging pest and disease threats</li> </ul>	<ul style="list-style-type: none"> <li>Achieved trade effects of WTO accession</li> </ul>

8. A summary of the recommended actions regarding institutions, regulations, infrastructure, skills, and priority commodities is provided below. More detailed descriptions, including the responsibilities, time frames, and current and expected donor support are available in the main text and recapitulated in the Appendix.

#### ***Institutions***

- Support the focus on the supply chain and public private partnerships, enhancing the current weak enforcement of contract compliance in supply chain arrangements, subcontracting producer and processor organizations in quality enhancement and

food safety control activities, and establishing joint financing mechanisms for infrastructure;

- *Strengthen regional integration and cooperation*, thus benefiting from economies of scale in regional pest and disease management systems and avoiding ineffective use of resource in border control, as throughout the ASEAN peninsula pest and disease patterns are similar on both sides of the borders. It should be noted that major markets, such as the EU, have for the same reasons also adopted regional approaches;
- *Strengthen interagency “horizontal” cooperation* by improving the coordination between the six Ministries now responsible for agricultural health and food safety management, by appointing for the short term lead agencies for, respectively, domestic and cross-border trade, and in the long term establishing an independent agency for policymaking and results monitoring on all food safety and agricultural health aspects, following current developments in most of Vietnam’s prospective client countries. This would facilitate economies of scale in the use of installations, efficient control of the supply chain, and fast information flows. As a critical first step, this Action Plan and the Food Safety Strategy being prepared by the Ministry of Health could be integrated into one document;
- *Strengthen vertical coordination and integration*, by enabling direct information and instruction flows between the grassroots and national levels without political interference to reduce the current delays in disease and pest reporting that results in high costs for control and eradication afterwards;
- *Integrate the private sector into the regulation of food safety and agricultural health* by supporting the establishment of producer and processor organizations, making a more efficient use of existing laboratory structure and capacity in the private sector, involving the private sector more in standards setting, and incorporating private individuals, such as farmers, private animal health assistants, and veterinarians, in early pest and disease alert systems; and
- *Improve aid efficiency* by enhancing the currently poor coordination of the significant number of externally funded SPS and food safety activities in Vietnam, through a government-led shift towards more donor coordination, which would also contribute to more efficient use of available human and financial resources in the public sector.

### ***Legislation***

- *Continue to harmonize national and international standards* by carrying out more detailed and additional analyses of the gaps between national and international (CODEX, IPPC, and OIE) standards, and by setting priorities on which areas should be harmonized first, as described below in the section on policy decisions.

### ***Infrastructure and integrated safeguarding systems requirements***

- In *disease and pest exclusion*, by conducting pathway analyses to assess priority quarantine facilities locations and, on that basis, by assessing the feasibility of establishing regional exclusion systems and defining and implementing the required investments in quarantine facilities;
- In *surveillance systems*, by shifting from a passive to an active surveillance system, improving the lines of communication between field and central levels, and developing early response systems;

- In *diagnostic capacity*, by improving the current relatively outdated laboratory infrastructure, to enable it to meet the increasingly stricter standards for residues and to improve the turn-around time for fresh products for the domestic markets and for certification for the export market in fish; and also by seeking economies of scale through cross-sector use of physical and human resources for the more sophisticated diagnostics;
- On *pest and disease control and eradication*,<sup>1</sup> by carefully studying and eventually implementing the establishment of disease-free zones/sites; in this area, opportunities in the livestock sector (pork) seem to be easier to seize than in the fruit and vegetables sector;
- On *certification*, by expanding the current International Organization for Standardization (ISO) certification, particularly for the laboratories dealing with human health, and by strengthening the various certification bodies; and
- On *risk analysis*, by developing skills, connectivity, and databases in each sector capable of preparing credible risk analysis that meet the requirements of international markets and to support decision making on priority investments (commodity and activity wise); furthermore, it is critical to raise awareness about food safety and agricultural health, not only among policymakers but also among the public, particularly smallholder producers and traders and consumers.

#### ***Skill gaps***

- On *training*, responding to the major need for increased skill levels in such diverse areas as risk analysis, surveillance systems, and diagnostics to more efficiently use the generally adequate numbers of staff involved in SPS activities; moreover, to make more efficient use of the scarce training resources, preparation and implementation of a consolidated training program should replace the currently fragmented training activities.

#### ***The commodity approach***

- On the *application of this Action Plan*, to test these concepts and actions on a small number of commodities with export potential, such as tropical fruit and pork.

**9. Implementation of the Action Plan will be essential if Vietnam wants to safeguard its public and agricultural health and open international markets.** For this purpose, the prioritization and institutional setting represent the next critical step sharpening this Action Plan for effective implementation. Policymakers have few alternatives available from which to choose. Required at the policy level are decisions regarding the roles of the private and public sectors, the rate and pace of institutional change, and the relative priority to be allocated to (i) the different sectors, (ii) the different elements of the system of safeguards, and (iii) the various specific diseases. More specifically, as a next step, choices must be made in the following areas:

#### ***In general terms and in food safety:***

The roles of the private and public sectors, the rate and pace of institutional change leading to improved coordination and information flows among national institutions, including deciding on a lead or an independent agency, and, almost more importantly, between the field and the national

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<sup>1</sup> With regard to pest control and eradication, the establishment of pest-free zones for fresh fruits and vegetables does not appear to be economically or operationally feasible, especially when postharvest treatments are available to meet international standards. Pest-free sites (i.e., greenhouses) for some high-value crops may be feasible, however, subject to analysis on a case-by-case basis.



level (see also paragraph 10 below regarding the relative distribution of costs between the public and private sector);

- The rate of adoption of international standards for the domestic market in view of the trade offs between resulting increased costs to the consumer and the need to meet the requirements of the harmonization clauses; priorities must be set for which national standards should be brought to international level, based on the importance of the individual standards to public health, their enforceability, and their effect on the affordability to the poor of the products affected;
- The relative emphasis to the various parts of the system (international activities, pest exclusion, pest and disease control, and so on); and
- The relative emphasis on national versus regional activities, with regional cooperation with the ASEAN countries within the same ecosystem and with China, in particular, on the best approach for avoiding the introduction of pest and disease risks from other areas.

***In plant health:***

- The relative importance of the development of a risk analysis capacity within government institutions versus reliance on outside capacity; and
- The relative importance to be placed on the development of pest-free zones.

***In animal health:***

- The rate of change from a passive to an active surveillance system, the geographical areas to be given priority in the initial expansion (main livestock areas, main potential export areas, or areas with poor smallholder farmers), and the rate of incorporation of non-public sector staff into the system; and
- The relative emphasis on specific diseases (HPAI, FMD, Newcastle Disease [ND], and CSF), with options for approaches based on national eradication or disease-free zones and on disease control.

**10. A major need exists to establish priorities among the many concerns and issues described above.** The setting of priorities is ultimately a policy decision, although the process can be helped along by quantitative approaches such as cost/benefit analyses. A preliminary, more qualitative, assessment in this Action Plan leads to a recommendation for a priority focus on animal products, with major emphasis on strengthening protection against and prevention of animal diseases (surveillance systems), improving the hygiene of animal products, and developing risk analysis skills. This recommendation is based on the high level of economic losses caused by animal diseases, the preponderant role of pathogens relating to animal foods in the occurrence of food-borne diseases, the equity effects, and the more favorable cost/benefit ratios, and enforceability of preventive actions in the animal products area.

**11. The overall implementation of the Action Plan requires the allocation of specific resources. A very preliminary calculation of the required direct public investment amounts to approximately US\$ 50 million over the five-year Action Plan period.** Incremental operating costs are even more difficult to estimate. The main costs will come from the shift in the three areas (food safety, animal health, and plant health) from passive to active surveillance systems. Incremental operating costs will not be caused by major increases in staff numbers, but rather by the increase in non-salary recurrent costs for Government staff and private sector providers to operate efficiently. These costs do not include the cost of additional support services (extension, research, and credit). Excluded as well are the investment costs needed for farmers and the agribusiness sector to improve infrastructure (cool storage and port facilities), which, of

course, is the largest cost item, and for the proposed matching funds from the public sector. In view of the estimated annual US\$ 1 billion in losses, however, if well implemented, this Action Plan will have a high economic and social return.

**12. To distribute the cost among different stakeholders requires a further clarification of the role of public and private sector, which itself requires** improvements in the quality of decision making regarding priority investments and food safety and agricultural health policies. Experience and economic theory shows that fund for food safety and agricultural health services (risk analysis, diagnostics, surveillance systems, quarantine systems, and disease/pest control and eradication) is best provided by the public sector, although a large part of these costs can be retrieved through levies and fees.

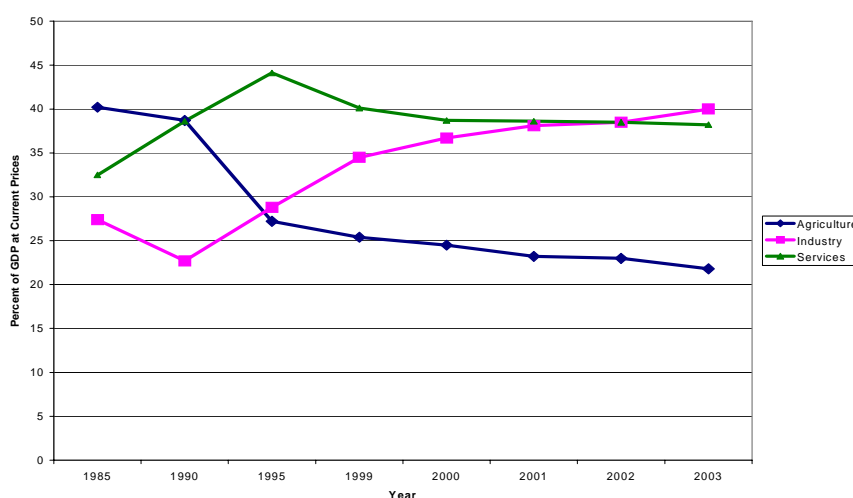
# Chapter I UNDERSTANDING THE CONTEXT

## 1. General Context

Facilitated by a strong growth of the overall economy, the high-value food subsector has become the engine of growth in Vietnam's agriculture sector. To provide a context for the Action Plan on Food Safety and Agricultural Health, this chapter summarizes the main changes in the country's economy, the main trends in the agricultural sector, in particular in the high-value perishable food chain, and the agricultural sector's role in generating employment and reducing poverty.

**Macroeconomic context** *Doi Moi* — the gradual transformation from a centrally-planned system into a market-oriented economy with a socialist orientation, inaugurated in Vietnam in 1986 — is generally recognized as a watershed in the country's economic and social development. Economic reforms accompanied by a shift from import substitution to an export orientation led to a period of significant growth. In 2004, after just under two decades, the GDP in constant price tripled, and the size of the economy reached about US\$50 billion. The annual average GDP growth was 7.5 percent in the period from 2001 to 2005, and it is expected to reach about 7.5 to 8.0 percent between 2006 and 2010, driven by the rapid expansion of the private sector (both domestic and foreign) and by increasing integration into the international economy after Vietnam's accession to WTO. As of 2003, the private sector already contributed about three-fifths of GDP and nine-tenths of employment. The strong economic growth has sustained rapid poverty reduction: the proportion of population living under an internationally comparable poverty line halved, declining from 58 percent in 1993 to 29 percent in 2002 to 24 percent in 2004.<sup>2</sup> Vietnam still remains one of the poorest countries of East Asia, however, with an average GDP per capita in 2005 of US\$600.

**Figure 1. Structure of Output (percent of GDP at current prices)**



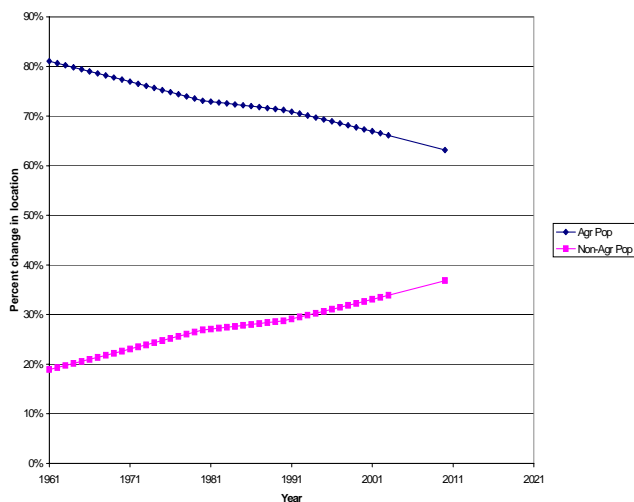
Source: Asian Development Bank, [http://www.adb.org/Documents/Books/Key\\_Indicators/2004/pdf/VIE.pdf](http://www.adb.org/Documents/Books/Key_Indicators/2004/pdf/VIE.pdf).

**Growth in agriculture.** As most of Vietnam's economic growth has come from the industry and service sectors, the share of agriculture steadily dropped from 27 percent in 1995 to

<sup>2</sup> Asian Development Bank 2005.

21 percent in 2005 (Figure 1). Agriculture still plays an important role in Vietnam's economy, however, providing the livelihood for an agricultural population of 54 million, a number still exceeding by far the rapidly growing nonagriculture population of 28 million (Figure 2).<sup>3</sup> The last decade saw strong growth in agriculture, including forestry and fisheries, by both regional and international standards: the average annual growth was 4.4 percent from 1996 to 2000 and 3.6 percent from 2001 to 2005, despite recurrent shocks such as avian influenza, poor weather conditions, the collapse of international agricultural commodity prices, and external export constraints (including quotas and antidumping cases). Vietnam's agricultural growth target in its next five-year plan is 3 to 3.2 percent. Past growth has been fueled by exports. Large shares of Vietnam's main agricultural products are exported, including rice (20 percent), fisheries (20 percent), coffee (95 percent), cashew nuts (90 percent), pepper (98 percent), and tea (75 percent). On average, agricultural exports grew 14.6 percent per annum, accounting for 27 percent of Vietnam's total export in 2005. The past growth in agriculture has been attributed to institutional reforms undertaken since 1988 (such as the equitable long-term allocation of cooperative land to households and the gradual liberalization of the agricultural market) and to the accumulation of the physical factors needed for production (such as land, labor, irrigation water, fertilizers, and pesticides). Since the inauguration of reforms, for example, the amount of agricultural land has grown from 20 percent to almost 30 percent. These sources of growth have been stretched to their limits, however, and future agricultural growth will increasingly depend on diversification, intensification, and specialization and on farmers' ability to respond to new market opportunities.

**Figure 2. Agriculture vs. Nonagricultural Population (as percentage of total population)**



Source: FAOSTAT 2005.

meat, and vegetables. The middle- to high-end consumers increasingly demand better quality and safer food. Although the consumption of safe food is still small because of its 30 to 50 percent higher cost,<sup>6</sup> an increase in consumption of such foods is likely in the future, given the trends in other countries in the region.

#### Changing consumption patterns.

Since the reforms, national food consumption (in constant 1997 US dollars) has more than doubled, increasing from US\$6.1 billion in 1988 to US\$13.6 billion in 2004. Food security has been assured at the national level. While the diet for most of the Vietnamese people is still largely rice, fish, and vegetables, as income increases, so does the consumption of fruit, vegetables, and animal-based products (Table 1). Cereal consumption has also diversified from rice to include other staples, such as wheat and maize.<sup>4</sup> In 2003, a Vietnamese household spent, on average, as much as 65 percent of its total expenditure on food,<sup>5</sup> with a strong increase from 1988 levels in consumption of seafood, pork, poultry

<sup>3</sup> FAOSTAT 2005.

<sup>4</sup> Anh et al. 2004.

<sup>5</sup> ITS report 2004.

<sup>6</sup> Son et al. 2003.

**Table 1. Food Consumption in Vietnam (kg/capita/year)**

	1970	1980	1990	2000	2002	Per annum aver. growth rate (%)
Poultry Meat	1.6	1.8	2.6	4.7	5.4	24.9
Pork	6.3	5.5	10.8	17.1	20.4	21.9
Citrus	1.7	1.5	1.7	5.2	5.2	16.4
Vegetables	45.2	42	46	74.3	80.1	11.6
Milk, Whole	1	0.9	0.9	1.1	1.4	7.1
Beef	2.1	1.9	2.5	2.4	2.5	3.3
Fish, Seafood	14.5	10.5	13.2	19	17.7	1.4
Rice (paddy equiv.)	235.2	200	232.4	254.3	253.3	1.1
Bananas	9.7	15	16.6	12.9	11.2	0.3
Cereals (excl. Beer)	183	157.7	165.2	185.8	186.7	0.0
Sweet Potatoes	22.2	38.8	24.8	6	6.5	-79.8

Source: FAOSTAT 2005.

**Changing supply patterns** Changes in demand have resulted in major structural changes in the agricultural supply sector, as output has shifted from bulk commodities, such as rice, to more profitable high-value products, such as fruit, vegetables, nuts, meat, and fisheries products. These changes were brought about in part by the economic reform process, which stimulated the production of agriculture in three ways:

- First, by raising the production and domestic availability of rice, the reforms have allowed rural households to allocate part of their land to fruits and vegetables with some assurance of being able to produce or buy the rice needed for household consumption;
- Second, by expanding domestic incomes, the reforms have increased demand for fruit, vegetables, livestock, and fish, as consumers increasingly seek diversity and safety in their diets, particularly in urban areas; and
- Third, by establishing a realistic exchange rate and liberalizing exports, the reforms have created new outlets for fruit, vegetables, and seafood processors.<sup>7</sup>

**Table 2. Percent of Area of Main Crops in Total Planted Area of Vietnam (percentage of total planted area)**

	1995	1996	1997	1998	1999	2000	2001	2002
Rice	67	66	65	65	65	64	62	61
Sugar cane	2	2	2	3	3	3	2	3
Coffee	2	2	3	3	3	5	5	4
Rubber	3	3	3	3	3	3	3	4
Cashew	2	2	2	2	2	2	2	2
Vegetables	3	3	3	4	4	4	4	4
Fruit	2	2	3	3	3	3	3	4
Others	19	20	19	17	17	16	19	18

Source: Cited in Tran Cong Thang et al. 2005.

<sup>7</sup> Goletti et al 2002.

**Production and geographical distribution** The main agriculture and food commodities produced in Vietnam are fish, rice, sugar cane, coffee, rubber, fruits and vegetables, maize, and pork. Although rice is still the major commodity produced in terms of acreage and volume of production, its share has declined, and the area for high-value agriculture products has expanded. Fruit and vegetables, for example, went from 5.3 percent of total agricultural land in 1995 to 8.8 percent in 2002, while rice decreased from 67.2 percent in 1995 to 61.2 percent in 2002 (Table 2). The use of fresh and brackish water surfaces for aquaculture increased by 6 percent and 248 percent from 1994 to 2002, respectively, and in 2002 comprised 45 percent and 77 percent of potential spaces. Commercial production areas for specific commodities have emerged in various localities throughout Vietnam. Most production of vegetables and pulses is concentrated in the Red River Delta in the north and in the Mekong River Delta in the south. Most industrial crops are produced in the southeast and in the central highlands. Although fruit and vegetable production is more widespread in the north, the degree of commercialization is higher in the south, partly as a result of the south's larger average farm size.<sup>8</sup> Most livestock production takes place in the Red River Delta and the northeast, and much of the recent growth in the poultry industry took place in these same regions. Coffee production is concentrated in the Central Highlands. Aquaculture is mainly located in Mekong River Delta and the central coastal region.

**Agriculture, employment, and poverty reduction** The agriculture sector is of central importance in meeting the Vietnam government's objective of poverty reduction, as the majorities of both the poor and the labor force remain in agriculture. In 2001, the agriculture sector provided jobs for some 24 million workers (70 percent of the labor force), including eighty percent of the 12 million rural households directly or indirectly dependent on agriculture.<sup>9</sup> The workforce, however, is attracted to the urban areas, where most of new and better paid employment occurs. In general, the rural sector remained behind in income growth, and, as a result, in 2003 about 85 percent of the poor lived in rural areas, with 80 percent of them working in agriculture.<sup>10</sup> Ethnic minorities and farmers in remote and mountainous areas are disproportionately poor.

In this context, the development of a subsector of high-value perishable food is of particular importance in reducing poverty, for the following key reasons:

- *The employment generation effect.* Detailed production costs studies<sup>11</sup> clearly show the much higher employment requirements per unit area of high-value crops, as compared with staple commodities. Fruit and vegetable production, for example, requires labor costs between VND 250,000 and VND 8,510,000 per ha, whereas rice requires between VND 470,000 and VND 790,000, with an average of VND 500,000 per ha; bulk products, such as corn and sweet potatoes, require only about VND 200,000 per ha.<sup>12</sup>
- *The geographical distribution effect.* As markets develop, out of season production will become increasingly important, and the Vietnamese uplands, characterized by the highest incidences of poverty and poverty gaps, have a significant comparative advantage in this area.

**Export** Under the government's export-oriented growth strategy, as production increased, Vietnam went from being a net food importer to being a leading exporter (Figure 3). Major food exports include rice, coffee, fruits and vegetables, cashews, pepper, tea, peanuts, and

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<sup>8</sup> Goletti et al 2002.

<sup>9</sup> Agriculture and Fisheries in Vietnam 2001.

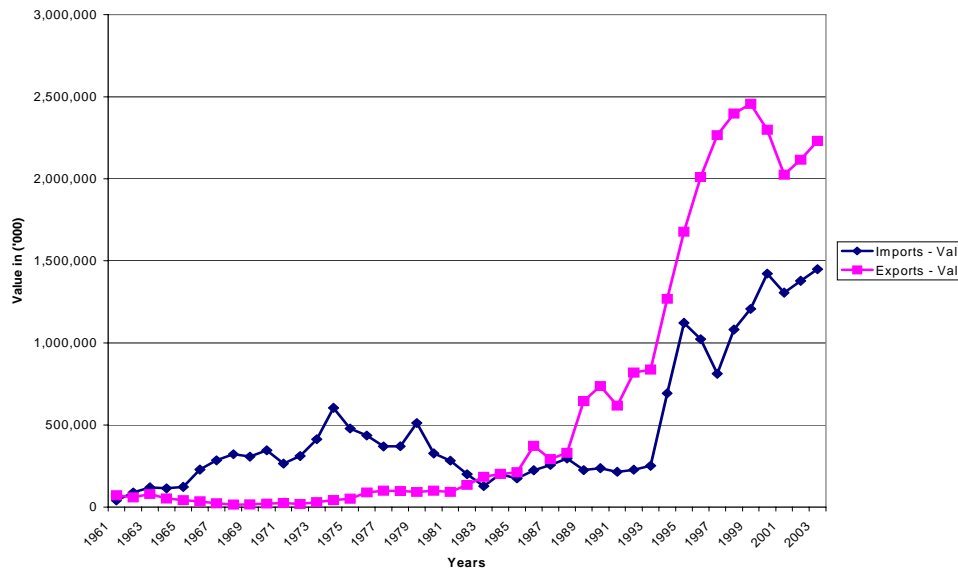
<sup>10</sup> Country Assistance Strategy, World Bank 2002.

<sup>11</sup> There is a background document with detailed data on production and trade. For more information, please contact authors.

<sup>12</sup> Goletti et al 2002.

seafood. Main agricultural imports include fertilizers (US\$628 million in 2003) and raw cotton (US\$106 million). Despite the long-term decline of agricultural prices and their collapse in the late 1990s, agricultural exports tripled in value (Figure 3). In an especially noteworthy increase, the share of agricultural processed exports within the total of agricultural exports increased from 8 percent in 1991 to 40 percent in 2000.<sup>13</sup>

**Figure 3. Value of Agriculture Trade**



Source: FAOSTAT 2005.

**Changing export markets** Before the late 1980s, most of Vietnam’s agricultural exports went to Eastern Europe, with the Soviet Union being Vietnam’s main trading partner. Since the collapse of the Council for Mutual Economic Assistance (COMECON) block, Russia’s trade with Vietnam dramatically declined, from 21 percent in 1996 to 4 percent in 2002. In the initial years after the COMECON collapse (1990), exports revolved around the repayment of Vietnam’s debt to its former allies with monetary settlements rather than with the “in-kind” trade used prior to 1990.<sup>14</sup> Moreover, many industries that had been guaranteed a market became less competitive than were those that were already competing in the world market. Since the nineties, the fruit and vegetable export sector has recovered to some extent through the opening up of new markets in Southeast Asia and elsewhere and through investments in new technology for processing facilities that meet HACCP and EurepGAP standards and thus the food safety standards of many high-income countries. This transition has been facilitated by export liberalization in Vietnam, which has allowed private exporters to seek new markets for their products. Exports to China have also been stimulated by the short distance and the long porous national border between the two countries, as well as by the lower quality and sanitary requirements of Chinese consumers and traders. (These lower quality and safety levels, however, also apply to food imports from China.) Export of perishable foods to the United States, Oceania, and the European Union is hampered by SPS and by general quality constraints.

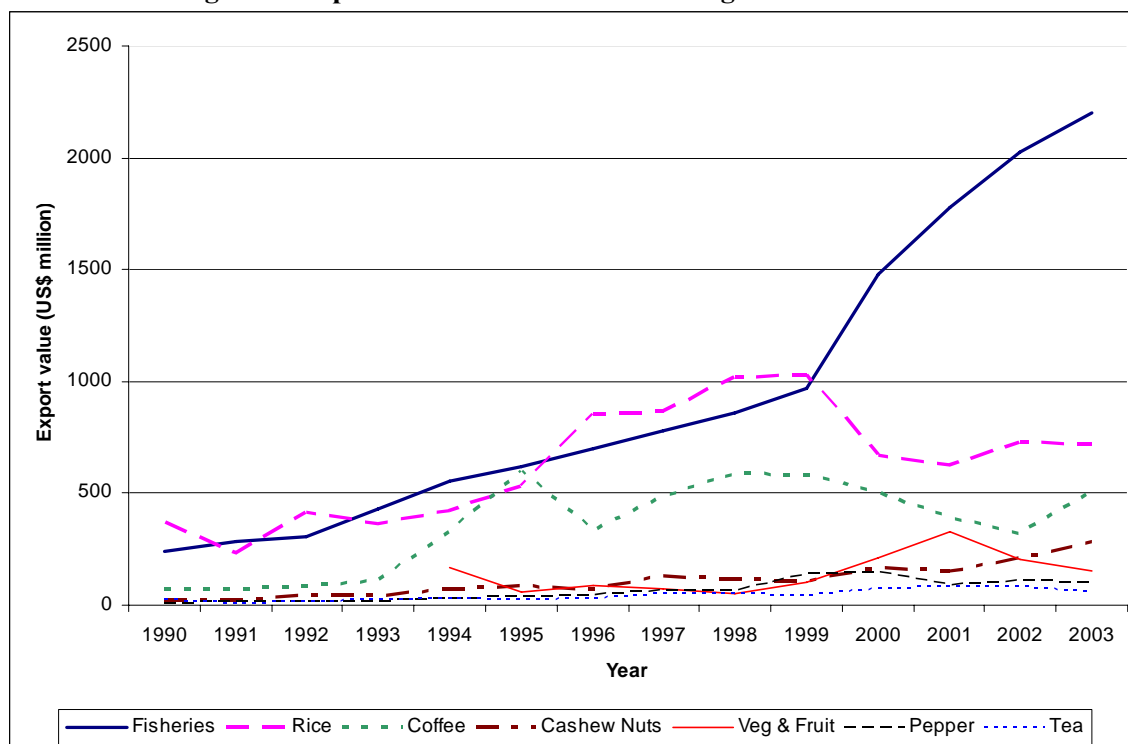
**Growth in high-value fresh product exports** Recent export trends confirm the economic potential for Vietnam of exporting high-value agricultural goods to high-income countries. By 2003, agricultural exports expanded to US\$3.7 billion, a 78 percent increase from

<sup>13</sup> VinaTradeUSA; [http://www.vietnam-ustrade.org/eng/major\\_exports.htm](http://www.vietnam-ustrade.org/eng/major_exports.htm).

<sup>14</sup> Stanton et al. 1996.

1997. The most important agriculture and food exports in terms of value are fish and crustaceans, coffee, fruits and nuts, vegetables, pepper, and cereals.<sup>15</sup> Vietnam has been particularly successful in capturing significant parts of the world market with a product of average quality in rice and coffee, but, except in fish, it has failed to capture the high-end of the market. Figure 4 shows the growth in the trade of rice versus nontraditional foods. Exports of seafood, coffee, nuts, spices, and several types of fruits and vegetables (mostly canned) have grown rapidly since the mid 1990s, while trade in traditional crops such as rice and sugar have declined or leveled off.

**Figure 4. Export of Rice and Other Main Agricultural Products**



Source: GSO, Statistical Yearbooks 2000–2005.

Several positive factors, such as favorable climate, low labor costs, and double cropping seasons, could result in a further increase in the export of nontraditional commodities to high-income countries, and Vietnam could also become competitive in tropical fruits. Because of the tropical nature of the country and of the surrounding countries, however, many pests and diseases of economic concern are endemic to Vietnam. Much of the growth in exports will depend on Vietnam's ability to offer a reliable supply of safe products. This goal is the focus of this Action Plan. Export growth potential of individual commodity sectors is assessed below.

## 2. High-Value Commodity Trade

### a. *Fruit and Vegetables*

**Exports** With the collapse of the Soviet Union, the Vietnamese markets for fruits and vegetables virtually disappeared, and the new markets sought by Vietnamese exporters had higher quality and food safety standards. The country has been reasonably successful in this search, and

<sup>15</sup> UN Harmonized Trade Data 2005.



new markets have been established in other parts of Asia and in the United States, Europe, and Canada, for a total of US\$ 415 million in fruit, vegetables, and nuts. The trend in these exports is toward higher-valued and more diversified fruit and vegetable exports, as shown by the unit value, which increased from US\$ 323 per ton in the eighties to US\$ 687 per ton in the nineties, stabilizing at around US\$ 631 in the period 2000 – 2003. Exports of fruit and vegetables were below their potential, however, as Vietnam's access to international markets is hampered by difficulties in meeting required quality and sanitary and phytosanitary standards. The following data provides highlights for specific commodities:

- **Vegetables** The main vegetables exported are cabbage, cucumber, potato, onion, tomato, beans, cauliflower, and chili (a total of US\$ 41 million in 2003, of which 90 percent is in processed form), with most going to China because of its lower quality requirements and the logistical advantages (although current regulations still require complete trans-loading of all produce from Vietnamese to Chinese trucks and vice versa) ; and
- **Fruits** The main exported fruits are pineapple, banana, mango, litchi, watermelon, longan, dragon fruit, and rambutan (US\$ 43 million in 2003), also mostly to China, and US\$ 20 million in processed fruit, mostly to China and the Netherlands.

**Imports** Vietnamese imports of fruit and vegetables are small (US\$ 14 million in 2003) compared to its exports, but they are growing.<sup>16</sup> These comprise mostly high quality and temperate type fruits from OECD countries.

**Future Plans** The Ministry of Agriculture and Rural Development foresees an expansion of Vietnam's exports of vegetables to US\$ 690 million and of fruit to US\$ 350 million per year by 2010, through expansion of research and extension services to introduce higher yield strains; provision of market information; upgrades in the transportation system and in processing and storage facilities; and provision of incentives to promote private foreign and domestic investment in fruit and vegetable production and processing for export. Investments of US\$ 408 million in the vegetable industry and of US\$ 42 million in the fruit industry are planned. Such investments will be necessary as well to meet the SPS requirements of Vietnam's trading partners.

### **b. Coffee, Tea, Nuts and Spices**

**Exports** Unlike fruit and vegetables, growth in exports of coffee, tea, and spices was rapid once the reforms were put in place. The average price per ton of coffee has declined over the years because of oversupply in the world market, productivity enhancing innovations adopted by Brazil, and massive expansion of cost-efficient Vietnamese producers.<sup>17</sup> The price remained almost constant for pepper, although with wide variations year to year. Currently, Vietnam is one of the world's largest exporters of Robusta coffee and the biggest exporter of black pepper, while tea exports currently account for only 3.5 percent of the world market. Some specifics on exports include:

- **Coffee** In the period 2001–2003, an average value of US\$ 485.3 million was exported to over sixty markets. The largest importers are the United States, Germany, and Japan, followed by other European countries.
- **Pepper** Over 95 percent of the pepper production is exported, with an average export value of US\$ 91.1 million over the period 2001–2003. The largest percentage of exports currently goes to the United States, followed by Singapore and Germany.

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<sup>16</sup> Detailed import and export data by country may be requested from the authors.

<sup>17</sup> ITS report 2004.

- **Tea** Exports of tea have increased from 9,253 mt in 1999 to 26,549 mt of tea in 2003, with an average (2001–2003) export value of US\$ 26.8 million, with most going to the Russian Federation, Germany, and India.
- **Nuts** The main exported nuts are cashew<sup>18</sup> (an average of US\$ 183 million over the period 2001–2003, of which 10 percent was imported for processing and re-export), mainly to the United States, Australia, and the Netherlands, and coconuts (US\$ 7 million annual average for 2001–2003), mostly to China.

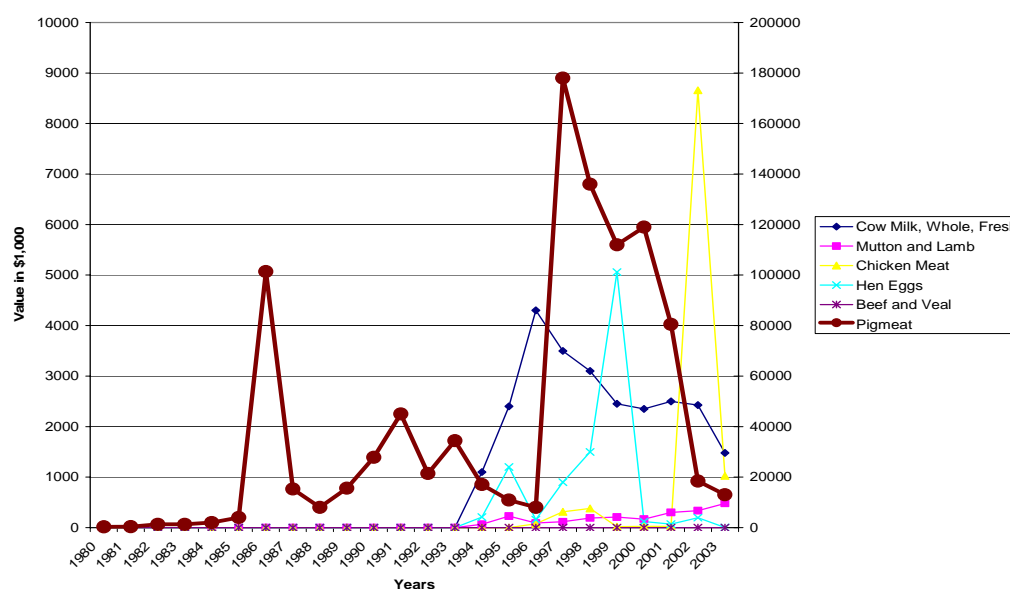
**Imports** Except for cashew for processing and re-export, the imports in this subsector are insignificant.

**Future development plans** The Prime Minister has set a cashew nut target for 2010 of harvesting 450,000 tons and processing 100,000 tons, with an export goal of US\$ 400 million. MARD has allocated VND 20 billion (US\$ 1.3 million) for growing new varieties. MARD plans to increase the planting of pepper to 40,000 to 50,000 hectares by 2010. The export target is 82,000 to 100,000 tons in 2010, earning around US\$ 250 million.<sup>19</sup> Another goal is to produce US\$ 850 million worth of coffee and US\$ 200 million worth of tea by 2010.<sup>20</sup>

### c. Livestock and Meat

**Exports** The export of livestock products has declined since 1997 with the exception of honey, as domestic demand for meat picked up (Figure 5) and the disease situation, as well as the possible weak competitiveness of Vietnam's livestock sector, precluded trade. The latter aspect requires more study, as described below.

**Figure 5. Value of Vietnamese Exports of Livestock Products (in thousands of US\$)**



Source: FAOSTAT 2005.

Former COMECON countries are now buying from more competitive markets rather than from Vietnam. There is a niche market for suckling pigs to Hong Kong and, to a lesser

<sup>18</sup> About 40,000 tons of cashews are imported from Tanzania, for processing and further export.

<sup>19</sup> Supply and Demand Survey Report on Agro-Products and Processed Foods 2001.

<sup>20</sup> Vietnam Ministry of Trade

extent, to Korea and Malaysia. The total value of animal products varied between US\$ 50 and US\$ 100 million. Poultry exports were very limited and now have ceased completely because of the HPAI outbreak. Honey is the most important export product, with a value of about US\$ 20 million exported to the United States, Germany, and Spain.

**Imports** The import of animals and animal products, in particular dairy, has increased rapidly over the last years. Milk imports were valued at about US\$ 100 million in 2000, about 90 percent of total consumption. Meat imports are relatively limited, amounting to about US\$ 2 million in the same year. Import of these products has been slow due to the lack of cool/frozen distribution channels to the consumer and the 40 percent import duty that has been imposed on most livestock products. Live animal imports have become increasingly important, with cattle stock coming primarily from Australia and New Zealand, pig stock from the United States, Denmark, and Belgium, and day-old chicks for local production coming mostly from Thailand, Malaysia, Indonesia, and France.

**Future development plans** The MARD draft plan aims to open up more marginal land for livestock production, improve livestock genetics, develop a network of modern slaughterhouses, upgrade processing standards and practices, source better quality animal and poultry feed stuffs, and improve the commercial and technical links between local farmers and the food processing industry. A goal of the Ministry of Agriculture and Rural Development is to increase dairy production to 200,000 cows producing 300,000 tons per year by 2010; pork production from 2.2 million mt in 2005 to 3.0 million mt in 2010; and poultry meat production from 330,000 mt in 2005 to 1 million mt in 2010. Most of this production will be absorbed by the domestic markets. The competitiveness of Vietnam's livestock sector needs more study. Considering the fundamental characteristics of climate and labor, Vietnam has a comparative advantage in the pig sector, but a less favorable environment for the cattle (beef, and especially dairy) sector. Recent studies by FAO<sup>21</sup> and ILRI<sup>22</sup> using modeling techniques confirm these fundamentals. The recent Livestock Strategy from MARD notes a lack of competitiveness, however, as demonstrated by the 60 percent higher cost of production for pork in Vietnam compared with Thailand. The MARD Livestock Strategy rightly stresses the need for reducing feeding costs (feed price and feed conversion) and genetic improvement.

#### **d. Seafood**

**Exports** Fish and fishery product exports have increased rapidly since the 1990s. In 2003, a volume of 333 thousand mt of fish, crustaceans, and mollusks were exported at a value of US\$ 1.6 billion, more than doubling, for example, the 1999 figures of US\$ 705 million and 134,328 mt. Sixty-seven percent of the total value of fish exports was crustaceans, followed by fillets and other fish meat (15 percent) and mollusks (12 percent). The United States, Japan, and Korea were the most important markets.

**Import** Fish and fisheries product import is also increasing, mainly in the form of cold-sea products such as salmon, canned foods, and fisheries raw materials for local processing (around 60,000 tons per year).

**Future development plans** The Government plans to invest US\$ 7.4 million in the fisheries sector, of which about US\$ 2 million from the central budget will be used for

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<sup>21</sup> Brian Perry, Alejandro Nin Pratt, Keith Sones, Christopher Stevens (2005) An appropriate level of risk: Balancing the need for safe livestock products with fair market access for the poor PPLFI Working Papers. FAO Rome.

<sup>22</sup> ILRI Socio-Economic and Policy Working Paper [No. 57]. Competitiveness and efficiency in poultry and pig production in Vietnam. Akter, S.; Jabbar, M.A. and Ehui, S.K. Nairobi, ILRI. 2003. vii. 53p.

conservation (marine protected areas) and for the development of new products (rare marine species). The rest will come from provincial budgets, mainly for local capacity building. The Ministry of Fisheries indicated it plans to increase current (2004) export of fisheries products of US\$ 2.6 billion to US\$ 4 billion in 2010.

### ***e. Priority New Areas for Medium- to Long-Term Export Expansion***

While no detailed marketing studies are available, within the perishable food subsector, two new food groups with potential for export are:

- Fresh high-value tropical fruit, such as dragon fruits, rambutans, litchi, and mangosteens, to overseas markets, provided the SPS issues, described in the next chapter, can be addressed.
- Pork, pending further competitive studies, continuing with the current niche markets of suckling pigs and enhancing the competitiveness of production, especially concerning the feed costs, and addressing the sanitary issues, in particular, the possible development of disease-free zones for Foot and Mouth Disease and Classical Swine Fever, as described in the next chapter.

**Summary** Agricultural development remains a major component of Vietnam's goals for economic growth and poverty reduction. In particular, high-value products, such as fruit, vegetables, nuts, and animal products can play an important role in this respect if the quality, food safety and agricultural health requirements of the more demanding markets are met. Table 3 provides a summary overview of the authors and literature appreciation of the key competitiveness issues facing the key export commodities.

**Table 3. Approximate Competitiveness of Some Key Perishable Food Commodities**

<b>Product</b>	<b>Comparative advantage</b>	<b>Key factors affecting competitiveness</b>	<b>SPS constraints</b>	<b>Comments</b>
Fresh tropical fruits, in particular, dragon fruit	Moderate	Transport and marketing infrastructure, cool storage	Fruit fly	Possibilities for Northern Europe and treated produce
Fresh subtropical fruits	Low	Quality, transport, and infrastructure	Fruit fly, citrus canker	
Fresh vegetables, in particular, baby corns, chilies, and mushrooms	Moderate	Quality, Postharvest infrastructure	MRLs	Regional (China) off-season markets as stepping stone
Meat, in particular, pork	Low to moderate	Genetics for quality and efficiency, feed price and quality, post harvest processing	FMD and CSF	Special niche market for suckling pigs

#### ***Short-term Action***

- *Carry out studies on the prospects in potential export markets for tropical fruit and the competitiveness for key livestock commodities, in particular, pork.*

#### ***Medium-term Action***

- *Pending the outcome of these studies, take (some of) these commodities for integrated supply chain development, including the introduction of SPS and quality management, applying, for example, HACCP.*

## Chapter II FOOD SAFETY AND AGRICULTURAL HEALTH: FROM VISION TO ACTION

### 1. A Framework for Food Safety and Agricultural Health

**Definitions** Food Safety and Agricultural Health concern two different but related categories, namely risks to consumers from potential illnesses from consuming contaminated goods and risks to producers in the form of potential damage or destruction of production capacity, respectively. Some specifics include the following:

- *Food Safety* deals mainly with maximum residue levels chemical substances (for example, pesticides, heavy metals, antibiotics, hormones, and other drug or animal feed additives), natural toxins (aflatoxins and so on), zoonotic diseases (bacterial and parasitic), food additives, decomposition of the food product, and other microbial or chemical contaminants. Food safety concerns affect both domestic and global market access. Internationally, food safety standards are defined by *Codex Alimentarius*, although increasingly private sector buyers or consortia of private buyers, such as EurepGAP, are defining protocols concerning issues other than food safety standards and sometimes have stricter standards than those of the international bodies; and
- *Agricultural Health* deals mainly with the protection of the importing country from the introduction of pests and animal diseases. Agricultural health standards include lists of pests, defined under the aegis of the International Plant Protection Convention (IPPC), and lists of diseases, defined by the World Animal Health Organization (OIE), and including contagious diseases with significant effects on international trade (the so-called the list A diseases), including Foot and Mouth Disease, Classical Swine Fever, Newcastle Disease and Avian Influenza.

**Objectives** The *ultimate* objective of this Action Plan for Food Safety and Agricultural Health is to improve the living standards of people both in and outside Vietnam by improving their access to safe and healthy food and to minimize the loss in human well-being caused by food-borne diseases. The *immediate* objectives of this Action Plan are as follows:

- a. To contribute to the improvement of the living standards of the Vietnamese people by improving their access to safe food and to minimize the loss caused by food-borne diseases;
- b. To maximize benefits from increasing access to international and domestic food markets;
- c. To reduce the incidence of emerging plant pests and animal diseases; and
- d. To strengthen Vietnam's capacity to ensure the effective implementation of its WTO SPS commitments.

Table 4 below provides an overview of the main goals and strategic priorities.

**Table 4. Summary of Goals, Strategic Priorities, and Performance Indicators of the Action Plan for Food Safety and Agricultural Health**

<b>GOALS</b>			
<b>Reduce food-related impacts on human health in Vietnam</b>	<b>Increase growth in exports of high-value products</b>	<b>Improve agricultural health</b>	<b>Ensure effective coordination of WTO SPS commitments</b>
<b>STRATEGIC PRIORITIES</b>			
<b>Improve coordination among key agencies</b> <b>Strengthen risk-analysis capacity by enhancing skills and developing integrated databases, tailored to client countries needs</b>			
<ul style="list-style-type: none"> <li>▪ Improve disease diagnostics, through shift to active disease surveillance systems and modernization of laboratory equipment and infrastructure, and strengthen reporting and dissemination channels</li> <li>▪ Raise awareness among decision makers, public servants, producers, traders, and consumers</li> </ul>	<ul style="list-style-type: none"> <li>▪ Improve business climate for private investors, in particular regarding mutual contract enforcement under vertical integration arrangements</li> <li>▪ Develop integrated supply chains, including SPS and quality management (HACCP systems)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Improve pest/disease diagnostics, through a shift to active surveillance, modernized laboratory equipment, and strengthened reporting and dissemination channels between field and national authorities</li> <li>▪ Strengthen border control and quarantine facilities in combination with regional quarantines and surveillances</li> <li>▪ Prepare and promote comprehensive disease and pest management strategies, with optimal combinations of prevention, control and eradication measures</li> </ul>	<ul style="list-style-type: none"> <li>▪ Render operational the SPS Enquiry Point and Notification Authority</li> <li>▪ Promote active participation in Codex, IPPC, and OIE activities</li> <li>▪ Progressively adopt international standards for SPS regulations</li> </ul>
<b>PERFORMANCE INDICATORS</b>			
<ul style="list-style-type: none"> <li>▪ Reduced incidence of diarrhea and other food-borne diseases</li> <li>▪ Reduced pesticide, microbial, and chemical contaminations in key vegetables and other products</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increased share of food exporters with HACCP certification</li> <li>▪ Growth in exports of tropical fruits &amp; pork</li> <li>▪ Decreased number of rejections by competent authorities of client importing countries</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduced incidence of and production losses from emerging pest and disease threats</li> </ul>	<ul style="list-style-type: none"> <li>▪ Beneficial trade effects of WTO accession</li> </ul>

This Action Plan provides an overview of the actions recommended, mainly to public sector agencies, to improve food safety and agricultural health management. The Action Plan emphasizes food safety and agricultural health issues related to the cross-border trade, as the Ministry of Health is independently preparing a plan on food safety strategy focusing on domestic food safety issues. This Action Plan focuses on the short (one year) and medium (five year) term. Similarly, it places primary emphasis on high value products exclusive of fish and nuts, as well-

functioning and internationally recognized SPS systems have already been established in these sectors.

**Basic principles** Five basic principles that currently guide the development of food safety and agricultural health strategies in many parts of the world will also be applied in Vietnam.

1. The *farm-to-table concept* for food safety focuses on the prevention of quality and food safety risks at all stages of production, marketing, processing, retailing, and consumption. This concept emphasizes the vital importance of including all players in the food chain, from the agricultural input providers and farmers to consumers.
2. The *integrated agricultural health safeguarding system concept* provides integral, seamless systems for protection of food from alien pests and diseases through exclusion, surveillance, control and eradication, and certification activities.
3. The *risk analysis concept* uses risk management, risk assessment, and risk communication to help decision makers (risk managers) decide on strategies and priorities in addressing food safety and agricultural health threats on the basis of scientific principles that consider the many needs and requirements of the supply chain, monitor and evaluate their implementation, and communicate with stakeholders to ensure that the analysis and decisions taken address the appropriate priorities.
4. The *Hazard Analysis Critical Control Point (HACCP)* concept focuses on verifiable controls of food handling processes to help decision makers take appropriate corrective actions. The use of this approach in the food industry became mandated in the EU for all supply chains, the United States for some, including juice, fish, and meat, and is increasingly required for developing countries that export food products into the former, leading to the incorporation of HACCP principles into Codex's food hygiene codes starting in 1995.<sup>23</sup> HACCP transfers the first responsibility for quality and food safety to the producers and processors. It is based on seven principles outlined in Box 3.
5. Finally, because of the sector's great diversity and dynamic changes, a *broad-based institutional approach* that seeks to improve the overall institutional and regulatory framework rather than a focus on a particular commodity or group of commodities is followed. The framework will provide stakeholders in a particular food chain with a solid foundation for coordination and development of commodity-specific efforts based on market demand, risks imposed, and the stakeholders' needs. In addition, the Action Plan also provides some specific suggestions on high-potential products, whenever appropriate.

The integrated agricultural health safeguarding system and the farm-to-table approach emphasize preventive interventions at critical control points. The farm-to-table system has a more domestic food supply focus, aiming at reducing or eliminating food-borne organisms and residues in the domestic food chain (although it is also a very important approach to improve competitiveness in export markets). The agricultural health safeguarding system is focused on protecting Vietnamese agriculture from the introduction and establishment of alien pests and diseases and reducing the economic impact of pests and diseases already established in the country. The third and fourth basic concepts, that is, the risk analysis and HACCP, require that information from the two previously discussed concepts be analyzed on a scientific basis. Risk analysis tends to work at the strategic and planning level, however, while HACCP works at the

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<sup>23</sup> L. Unnevehr and H. Jensen 1998.

operational level. The following gives a brief introduction to and justification for the application of these concepts, which are still not widely known in Vietnam.

**Rationale for using an integrated agricultural health safeguarding approach** The protection of an agricultural economy from alien agricultural pests and diseases should be a seamless integrated safeguarding system (Box 1). The system is composed of a complex network of disease and pest reduction programs, decisions, and actions focused on preventing the entry and establishment of alien agricultural pests and diseases or on reducing the economic impact of already introduced pests and diseases and utilizing a series of interventions at critical control points: international activities, ports of entry, detection/surveillance, and response (eradication/control).

#### **Box 1. Integrated Agricultural Safeguarding System**

**International Activities → Port-of-Entry/Exclusion → Detection/Surveillance → Response**

International activities and port-of-entry activities focus on preventing pests and diseases from entering the country. Detection and surveillance focus on rapid detection and diagnosis of alien pests and diseases, and response focuses on mitigating the impact of established alien pests and diseases through eradication or control programs. A strong agricultural health safeguarding system facilitates market access for fresh agricultural products by excluding alien pests and diseases or, when they do breach the borders, by detecting and responding to these invasions in a timely manner. The importing country has the authority within the SPS framework and implementing guidelines to establish measures to lower the risk of introducing alien pests and diseases.

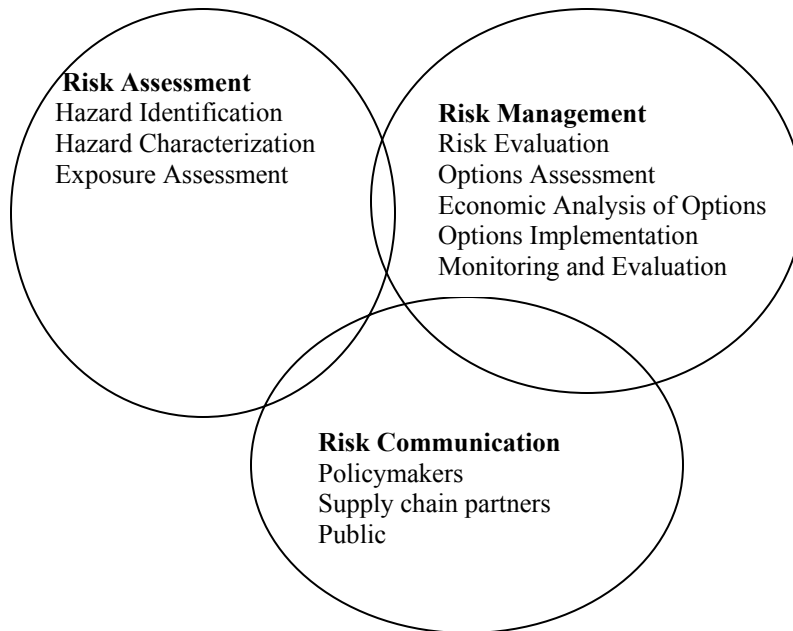
**Rationale for applying the risk analysis concept** The risk analysis process identifies the pests and diseases of concern, the risk of introduction, and the measures needed to reduce the risk to an appropriate level based on the best scientific information available. The importing country is responsible for conducting the risk analysis and establishing import requirements. The exporting country is responsible for providing up-to-date information on the pests and diseases established there. The integrated safeguarding action plan, when fully implemented, will produce this critical information. Until that time, the continued use of ad hoc targeted surveys of commodities with export potential will provide the needed data.

The risk analysis approach (Box 2) is adopted because the regulation of risk is one of the most important emerging roles of government. Food can never be 100 percent free of all pathogens or other contaminants, and quarantine and pest and disease surveillance systems can never provide full protection against the introduction of a pest or disease. Minimizing those risks, by evaluating probabilities of food safety and pest and disease threats and trade-offs between the different options for risk reduction is, therefore, the central part of any food safety/agricultural health management system. Besides, the SPS agreement very specifically mentions the risk analysis paradigm as one of the main decision tools for evaluating market access in international trade. Finally, regulatory agencies in the main OECD markets use the risk analysis approach to intervene in the global marketplace to protect the public from undue risks such as the entry and establishment of alien disease and pests. To implement the risk analysis requirements, Vietnam needs to develop its staff capacity to conduct analysis and collect the needed data. The institutional framework for risk management, and an example of the application of the approach, is presented in Chapter 4.



## Box 2. Risk Analysis Framework

The *Risk Analysis framework* has three major interrelated components: risk management, risk assessment, and risk communication.



**Risk management** is at the core of the risk analysis paradigm. The risk manager is concerned with the evaluation of the risks and the identification and implementation of strategies to control those risks, based on the scientific tolls provided by the risk assessors. The risk management process identifies the options for eliminating or reducing the hazard, their effectiveness, feasibility, and impact on various stakeholders, and the certainty of achieving expected results. In decision making, policymakers need to evaluate the risks, match the identified risks with risk reduction options, and develop a realistic operational approach that balances protection and resources. The risk manager also needs to monitor and improve the implementation of the selected risk reduction option.

**Risk assessment** is a systematic approach for organizing and analyzing scientific information for potentially hazardous activities or substances that may pose a risk to humans, animals, or plants. It identifies a hazard, gauges its potency, estimates the likelihood of occurrence, characterizes the risk, and determines the magnitude of its consequences. The output of the assessment aids policymakers (risk managers) in their decision making about alternative control options.

**Risk communication** ensures that what has been done is continuously communicated between analysts and risk managers and to the public (national and international). Stakeholder collaboration early in the process can deflect polarization, build up broad consensus and thus make the whole process much more effective.

*Source:* Adapted from FSANZ. The application of risk analysis in food control - challenges and benefits. FAO/WHO Conference Food Safety for Asia and Pacific. 2004, Malaysia

**Rationale for applying the HACCP concept** HACCP (Box 3) was developed as a private management tool for specific food processing processes, but it is increasingly applied as a public/private partnership policy tool that combines elements of process and performance standards. HACCP has been proven to be an effective way to establish good production, sanitation, and manufacturing practices that produce safe food. It is not only more cost effective

(compared with testing a product and then destroying or reworking it) but it also provides firms with some flexibility in approach. It involves identifying the hazard and the place of its occurrence in the process; defining critical control points, critical limits, and monitoring procedures for each of the critical control points; establishing corrective actions to be taken when a deviation from the limits occurs; and setting up recording keeping and system verification.

### **Box 3. Seven Critical Steps in the HACCP Process**

1. Prepare a list of steps in the process where significant hazards can occur and describe the preventive measures.
2. Identify the Critical Control Points (CCPs) in the process.
3. Establish critical limits for preventive measures associated with each identified CCP.
4. Establish CCP monitoring requirements. Establish procedures for using the results of monitoring to adjust the process and maintain control.
5. Establish corrective actions to be taken when monitoring indicates that there is a deviation from an established critical limit.
6. Establish effective record-keeping procedures that document the HACCP system.
7. Establish procedures for verification that the HACCP system is working correctly.

*Source:* <http://ts.nist.gov/ts/htdocs/210/gsig/haccp.htm>.

## **2. The Need for Urgent Action**

In addition to the remarkable potential contribution of high value commodities to economic growth and poverty reduction as described in Chapter 1, there are additional compelling problems concerning food safety and agricultural health in Vietnam that call for urgent actions.

- The deteriorating effect on domestic human health is tremendous. The direct impacts of food-borne diseases alone constitute an important drain on the economy, very tentatively estimated at US\$ 450 million.
- The impact on agricultural health, as major pest and disease outbreaks cause significant losses to agricultural productivity, is very tentatively estimated at US\$ 200 million.
- The forgone export markets, as market access for high-value, perishable products will depend to a large extent on the overall quality and competitiveness of Vietnam's produce, an important component of which is meeting the sanitary and phytosanitary standards. While it is difficult to assess, there is certainly a potential market for tropical fruit, estimated at US\$ 250 million, that is now inaccessible to Vietnam because of the fruit fly situation.
- Vietnam faces the requirement to comply with the SPS agreement from the date of its accession to WTO and must effectively implement a number of other SPS related international agreements as well. Furthermore, the opening of trade over the next two years in compliance with WTO accession and the ASEAN Free Trade Area Commitment will present Vietnam's domestic producers with a major challenge in competing with producers from elsewhere on food quality and safety.

Details of these compelling reasons for action are provided below.

### **a. Domestic Human Health Problems**

**Sources of food contamination** Food contamination from a variety of source and entry points is a major source of illness in Vietnam. The MOH estimates that the main causes of food poisoning are biological pathogens (42 percent), chemical agents (25 percent), and natural toxins (25 percent). The main entry points for microbial contamination are food processors and retailers; for example, the Hanoi Department of Animal Health (DAH) estimated that 65 percent of the meat stores in the city didn't meet hygienic standards. Chemical agents mostly come from excessive on-farm use of pesticides and antibiotics and from illegal food additives used in processing. Natural toxins come mainly from the puffer fish but include also aflatoxins.

**Microbial contamination** Few data are available on the microbial contamination of the food in Vietnam, but the few sample surveys available point to rather high pathogen loads. A survey of cooked food carried out by MOH in eight major cities in Vietnam, for example, showed that 32 to 66 percent of the food was contaminated with *E. coli*. A survey with 718<sup>24</sup> samples of retail meat and retail shrimp from six provinces of the Mekong Delta in Vietnam showed 33.8 percent to be positive for salmonella, mainly in pork (70 percent positive) and beef (49 percent positive), with somewhat lower but still significant positive samples found in chicken (21 percent) and shrimp (24 percent).

**Food-borne disease incidence** With such a high degree of contamination, it is not surprising that the incidence of food-borne diarrhea is also high, although exact quantitative information is scarce. Passive survey data from the Food Administration of the Ministry of Health on food-borne disease outbreaks in Vietnam have been collected since 2000, and a pilot active survey was carried out in 2003. Most people in Vietnam, however, do not seek medical care for their illnesses and are generally reluctant to admit they have had recent diarrhea, so data on diarrhea is not adequately captured under the current surveillance system. Moreover, these data do not distinguish between food- and water-borne contaminants. The magnitude of the underreporting of diarrhea and food-borne diseases is likely to be substantial, but a realistic estimate, emerging from the few available sources, points to an estimate of about 1.5 episodes of food-borne diseases per person per year, compared with an incidence of between 20 and 30 percent of the population (that is, 0.2 to 0.3 percent incidence) in the developed world (Table 5). Self-treatment with antibiotics is very common in Vietnam.

**Table 5. Food-Borne Disease Outbreaks**

Year	Method	Results
2000	Active surveillance	Cholera 176, Amoebic Dysentery 1,879, Typhoid fever 10,709, unspecified dysentery and acute unspecified diarrhea syndrome 149,780. Total deaths 34
2001	Passive surveillance	3,901 cases of food poisoning from 245 outbreaks
2003	Countrywide laboratory survey, a population survey and active surveillance at four sentinel sites <sup>25</sup> (WHO/ADB pilot project)	Annual burden of food-borne disease in Vietnam is estimated at 128 million episodes of diarrhea per year, of which 27 million cases had medical health care and 3.5 million had hospitalizations.

Source: Authors, compiled from documents from MOH and WHO.

<sup>24</sup> Tran Thi Phan et al. 2004.

<sup>25</sup> McGregor-Skinner 2004.

**Chemical contaminants** As agriculture intensifies, the use of pesticides for vegetal production increases. Records trace 11 percent of all poisonings in 1999 to pesticides. For the Southern provinces, incomplete data for 2004 shows that pesticide inspectors reported 33 violations of regulations on banned or restricted-use pesticides. A small data set from one province in the south consisting of 411 farm product samples showed 180 samples free of residue, 197 samples with residue levels below MRLs, and 34 samples with residue levels above MRLs. As farmers want to eradicate these pests, they usually ignore the risks and safety measures associated with pesticide and antibiotic applications.

Table 6 illustrates the problem with pesticide residue in fresh vegetable and dried green tea products in Hanoi markets. Pesticides are heavily used in rice fields, thus drastically reducing aquatic life. With the goal of increasing production and reaping the economic returns, many Vietnam producers actively apply pesticides and fungicides to intensive mandarin, mango, and longan mono-cropping systems. In the Mekong Delta, farmers generally apply more than ten fungicide and insecticide sprays per year, with some of them reporting forty sprays per year.<sup>26</sup>

**Table 6. Pesticide Residue in Fresh Vegetable and Dried Green Tea Products in Hanoi Markets, 2001**

Vegetable/tea (sample no.)	% sample having pesticide residue (sample no.)	% sample exceeding pesticide residue limit (sample no)	Distribution of residue (%)	Distribution of residue of pyrethroid (%)	% sample having banned pesticide residue (sample no.) <sup>a</sup>
Mustard (264)	41.7 (110)	4.2 (11)	33.6-62.5	90+	4.2 (11)
Kangkong (264)	31.4 (83)	6.8 (18)	20.8-50.5	90+	8.0 (21)
Cucumber (132)	2.3 (3)	0 (0)	-	-	2.3 (3)
Bean (132)	51.5 (68)	18.9 (25)	33.3-91.6	90+	2.3 (3)
Dried green tea (72)	56.9 (41)	29.2 (21)	54.2-62.5	85+	6.9 (5)
Total sample (864)	35.3 (305)	8.7 (75)	-	-	-

*Note:* <sup>a</sup> Methamidophos, except in the case of dried green tea, which was endosulfan and dicofol.

*Source:* Anh et al., AVRDC study, 2004.

In addition to immediate negative impacts on human well-being, especially among children, the above-mentioned food-diseases and contaminations often result in long-term damage to human health and working capability. Studies have shown that young children have an increased risk of getting leukemia or sarcomas if they live in a home where pesticides are often used. Childhood brain cancer has also been linked to the use of some pesticides. Exposure to a high concentration of pesticide could result in death, and long-term exposure to pesticides can lead to more serious and permanent damage including cancers, brain damage in children, lowered IQ, and permanent kidney damage. Farm workers are even more at risk. A 1995 Vietnam MOH survey found that fifteen percent of farm households store pesticides in their homes and that the use of protective clothing and respirators was virtually nonexistent, given that the hot, humid climate makes such measures unpopular. As a result, blood tests showed a high level of compounds linked to the use of organic phosphates.

This overuse of pesticides has led to an increase demand for “safe products.” The impact of such high levels of pesticides on trade is illustrated in Box 4.

<sup>26</sup> PAN 2001.

#### Box 4. How Pesticide Residues Affected Chinese Vegetable Exports to Japan

As in many emerging rural economies, the safety of fruit and vegetables in China is heavily affected by pesticide residues. There are two main causes.

- At the supplier level, the pesticide markets are insufficiently regulated, with outdated pesticides due to the backlog in the adoption of international standards and gaps in enforcement, as well as black markets sales of adulterated products, which are difficult for farmers to discern.
- At farmer level, there is a lack of knowledge of how to identify the risks of pests or diseases and of the appropriate use of pesticides, leading to misuse or overuse.

This problem affected China's export market. With low production costs, China experienced a strong growth in the 1980s and 1990s, in particular to Japan, which now imports about US\$ 400 million in fresh vegetables from China. In 2002, however, excess levels of pesticide residues were found in frozen spinach. The Ministry of Health, Labor and Welfare (MHLW) reinforced the safety inspection of Chinese vegetables at the border and advised buyers to voluntarily suspend imports of frozen spinach from China. With the efforts of AQSIQ (General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China) and of the Chinese spinach industry, MHLW in July 2004 lifted the import ban on frozen spinach processed by twenty-seven authorized Chinese companies.

Although the basic issue was addressed, Japanese consumers still have a lowered perception of the safety and quality of all imported frozen vegetables from China, as compared with most other countries of origin. Wholesale and retail prices are 25 to 40 percent lower than for comparable Japanese products. There is a marked decrease in Japanese investments in China and, consequently, of Chinese exports to Japan. Stricter requirements are being imposed by Japanese importers on Chinese producers, packers, and exporters. Moreover, many producers have been excluded from export supply chains because of the perceived risk of controlling proper use of pesticides among small farmers.

Source: C. van der Meer "China: Compliance with Food Safety Requirements for Fruits and Vegetables" World Bank. Forthcoming.

**Cost to the economy** Based on the food-borne disease incidence figures provided in Table 3, and assuming a cost from one episode of food-borne disease to amount to US\$ 2.00, one doctor's visit to US\$ 10.00, and one hospitalization to US\$ 50, the total cost to the economy is about US\$ 450 million.

#### ***b. Agricultural Health Problems***

##### **Plant Health**

**Fruit and vegetables pests** Fruit flies, which affect a wide variety of fruit and vegetable crops grown for fresh food markets, are Vietnam's most important pest. Infestation levels can reach 100 percent of the fruit in a given area of high populations. *Bactrocera dorsalis* (Hendel) has been identified as attacking over 117 hosts, for example, causing economic losses of 40 to 100 percent of a variety of tropical fruits, particularly in the Northern parts of the country. A survey program conducted at various sites throughout Vietnam during the 1999-2000 growing season identified thirty species of fruit flies, of which eight are of major concern (Table 5).<sup>27</sup>

**Spice and nut pests** Cashew yields are dictated by weather conditions and pest status. The major pest problems for cashews are red mosquito bugs, leaf eaters, shoot borers, stem borers, leaf miners, and aphids. The most serious diseases are anthracnose, agal disease, and black mildew. The main disease for pepper is root disease, causing yellow leaves, and Phthoptora Sp., and Fusarium Sp.<sup>28</sup>

<sup>27</sup> Results of Fruit Fly Project in Vietnam.

<sup>28</sup> Supply and Demand Survey Report on Agro-Products and Processed Foods 2001.

**Alien plant pest introductions via trade** Potential pest problems associated with imported products are also a matter of major concern, as imports can also bring pest problems that then affect productivity in a country. During the last ten years, several alien plant pests<sup>29</sup> with high potential for spreading and causing damage have become established in Vietnam. Recent examples include the coconut beetle (*Brontispa longissima*); Udbatta disease (*Balansia oryzae*), affecting rice; the sugar cane white grub (*Alissonotum impressicolla*); powdery scab (*Spongospora subterranea*), affecting potatoes; and a burrowing nematode (*Radopholus similis*), affecting fruit trees.

- The **coconut beetle** was first detected in Dong Thap province in 1999. The beetle attacks coconut palms and several other cultivated and wild palms. Coconut provides food and income to small-scale producers directly from coconut products and indirectly as an important component of the landscape. In the absence of natural antagonists, the coconut beetle has become a very serious and devastating pest.<sup>30</sup> By 2002, the beetle had spread to thirty provinces, infesting over 5.6 million coconut trees.<sup>31</sup> Production and tree losses in the infested areas of Vietnam are approaching 50 percent production loss and an estimated 10 million infested or dead trees.<sup>32</sup> Traditional pest management approaches and strategies based on insecticide use have not been able to stop the spread and damage. Experiences from countries in the Pacific that were invaded years earlier, as well as information from the country of origin of the insect, demonstrates that the insect can be effectively and sustainably contained using classical biological controls.
- **Udbatta disease** causes significant yield losses in areas where it is endemic, but its occurrence is generally sporadic and of minor importance. No loss data is available for Vietnam, but it could be a major disease depending on the cultivars planted and environmental conditions. Infection rates vary from 9 percent in India to 20 percent in China. In years when the infection level is severe, losses up to 11 percent are common in susceptible varieties; however, the overall economic importance is considered to be low.<sup>33</sup> It should be noted that Japan and the United States prohibit importation of paddy rice, rice hulls, and rice straw from countries with this disease.
- **Sugar cane white grub** damages sugar cane by feeding on roots and underground stems. The first symptom is a yellowing of the leaves. This is usually followed by stunted growth, dense browning, lodging, plant uprooting, and death in heavily infested areas. White grubs are considered to be serious pests in most sugar cane growing areas. The potential impact of this pest in Vietnam is unknown.
- **Powdery scab** in potatoes was reported as being observed in Vietnam during 2001-2003. Powdery scab is a soil-borne disease that seriously reduces tuber quality and marketability and is a major concern to potato growers worldwide. Spores can survive in the soil for years. Contaminated propagation material is unusable. There is no effective

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<sup>29</sup> Alien plant pests are any species, strain, or biotype of plant, animal, or pathogenic agent injurious to plants or plant products.

<sup>30</sup> Rethinam and Singh 2005.

<sup>31</sup> Waterhouse 1997.

<sup>32</sup> Personal communication with Deputy Director General, PPD, MARD.

<sup>33</sup> Crop Plant Protection Compendium, CABI.

chemical or cultural treatment, and all cultivars are susceptible to some degree.<sup>34</sup> Losses vary widely depending on potato varieties and environmental conditions.

- **Burrowing nematode** may be the most important nematode pest on fruit crops in the tropics. *R. similis* attacks 350 known hosts, including most of the banana and plantain cultivars, citrus, coconut, ginger, palm, avocado, coffee, Hibiscus sp., prayer plant, black pepper, sugar cane, tea, vegetables, ornamentals, trees, grasses, and weeds. It causes the "Blackhead" or toppling disease of bananas, in which the root system is reduced and weakened so that the tree falls under the weight of its fruit or in a wind, causing total crop loss. Reductions in citrus fruit yields in Florida have ranged from 50 to 80 percent for grapefruit and from 40 to 70 percent for oranges. Millions of black pepper trees have been lost in Indonesia (approximately 90 percent of the crop) to "Yellows disease" caused by *R. similis*.<sup>35</sup> It is likely to cause similar losses in Vietnam.

**Cost to the Economy** Losses from these recently introduced pests are difficult to quantify, but considering the losses from the coconut beetle and the likely losses from nematodes in black pepper, they can easily surpass US\$ 200 million per year.

## Animal Health

Rapid expansion of the livestock industry, the close proximity of large- and medium-scale operations to backyard household operations, consumer preference for buying live animals on traditional ("wet") markets, and the highly decentralized nature of the production, processing, and marketing sectors have created disease and food safety problems in Vietnam's livestock and meat sector.

**Disease incidence** Vietnam continues to have outbreaks of several OIE former list A diseases, the international list of the most contagious diseases with major trade implications. In 2003, Vietnam had 364 outbreaks of FMD, 16,662 outbreaks of classical swine fever, 7,000 outbreaks of highly pathogenic avian influenza, and 68,607 outbreaks of Newcastle disease. Currently the Avian Flu epidemic (HPAI, Highly Pathogenic Avian Influenza) in poultry is of major concern in Vietnam. In particular Classical Swine Fever (CSF) and Newcastle disease (ND) are endemic and serious threats to small-scale producers, while FMD is a major threat to the emerging intensive dairy sector. Overall, CSF and ND are probably of greater economic relevance than FMD, although the latter has most attention. HPAI, with outbreaks in 58 of the 64 provinces, and about 30 million chicken and 15 million waterfowl dying or being destroyed, has been a major disaster. It has affected mostly smallholders; for example, surveys in the highlands of North Vietnam<sup>36</sup> showed losses between US\$ 69 and US\$ 108 per family, which is significant in an area where 64 percent of the population earns less than US\$ 2 per day. Indirect losses are less easy to assess but include forgone production and, in particular, spillover effects on other sectors, such as tourism. These up until now have been limited, but they could become a major factor if human-to-human transmission starts to emerge. Current estimates from FAO are of a total loss of US\$ 220 million over the two-year period. Adopting a figure of about US\$ 100 million per year of losses from HPAI, and assuming a similar loss from other diseases, in particular CSF and ND, total economic losses due to diseases would be about US \$ 200 million per year.

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<sup>34</sup> Qu and Christ 2004.

<sup>35</sup> Crop Plant Protection Compendium, CABI.

<sup>36</sup> Delquigny et al. 2004.

## Aquatic Animal Health

**Diseases and food safety** The main weaknesses in Vietnam's aquatic animal sector are diseases such as white spot syndrome virus (WSSV), yellow head virus (YHV), and Taura syndrome virus (TSV) in shrimp, and red spots in catfish, which cause substantial losses in shrimp and catfish production. Staff skilled is lacking to handle fish diseases and advise fish-farmers on disease control practices, and as a result excessive doses of antibiotics are being used to try to prevent and control these diseases and eventually find their way into the food chain. Moreover, contamination with biotoxins and bacterial pathogens, such as *Salmonella* spp, and *Shigella* spp is very high.

### c. Forgone Markets

#### (i) Fruit and vegetables

Fruit fly larvae can survive in picked fruit and, therefore, are likely to be present in fruit packed for export. As fruit fly eggs are laid internally, infested fruit are not likely to be detected during sorting, packing, and inspection procedures. It is likely that fruit fly larvae would survive storage and transportation due to their ability to tolerate cold temperatures and the availability of an ample food supply. Adult flies cannot survive more than a few days without feeding and do not pose a significant phytosanitary risk. The overall probability of entry, establishment, and spread of new fruit fly species into an importing country with many suitable hosts and a climate favorable for the pest is high.

Most of the fruit flies found in Vietnam are, therefore, considered pests subject to phytosanitary measures in the major markets for fresh produce of Australia, Japan, and the United States. These countries currently will not allow unprocessed or untreated fruits within their borders. The European Union does allow importations of fresh fruit and vegetables from Vietnam based on phytosanitary certification and inspection for pests of quarantine significance. Accessing these high-valued markets will therefore require the eradication of fruit flies or treatment of fruit and vegetables in a manner acceptable to the importing countries.

**Table 7. Eight Fruit Fly Species of Most Export Concern**

<b>Fruit fly species</b>	<b>Host</b>
<i>Bactrocera dorsalis</i> (Hendel)	Annona, carambola, cashew nut, Citrus spp., Clausena lansium, custard apple, dragon fruit, fig, guava, java apple, jujube, litchi, luffa, mango, melon, papaya, peach, pear, persimmon, plum, pomelo, sapodilla, rose apple
<i>Bactrocera correcta</i> (Bezzi)	Barbados cherry, carambola, Coccinia sp., dragon fruit, guava, Java apple, jujube, luffa, mango, peach, plum, rose apple, sapodilla
<i>Bactrocera pyrifoliae</i> (Drew & Hancock)	Guava, luffa, peach, pear
<i>Bactrocera cucurbitae</i> (Coquillett)	Bitter gourd, bitter melon, Coccinia sp., cucumber, Cucurbita sp., guava, luffa, melon, pomelo, pumpkin
<i>Bactrocera tau</i> (Walker)	Bitter gourd, bitter melon, chayote, cucumber, Cucumis melo, guava, luffa, lucuma, papaya
<i>Bactrocera latifrons</i> (Hendel)	Capsicum spp., chili, eggplant, Java apple, lucuma, persimmon, Solanum spp
<i>Bactrocera carambolae</i> (Drew & Hancock)	Java apple
<i>Bactrocera calophylli</i> (Perkins & May)	Jujube

Source: ACIAR.



The most important fruit flies limiting market access are *Bactrocera dorsalis*, *B. correcta*, and *B. cucurbitae*; however, any other fruit fly specie determined during the Pest Risk Analysis (PRA) process to present an unacceptable risk to the importing country may also require mitigation measures.

## Animal Products

The animal disease situation in Vietnam is mainly a domestic agricultural health issue, but with important trade repercussions (Table 8). For the next few years, the growth in domestic demand is expected to absorb any growth in production, but any plans to enter overseas markets will be dependent on increasing competitiveness and getting the disease situation under control.

**Table 8. Livestock Diseases and Trade Implications**

Disease	Status	Common Trade Restrictions
Foot and Mouth Disease	Endemic	Live animals; fresh, chilled, and frozen beef and pork; and most beef and pork products. Suckling pig exports to Hong Kong allowed from disease-free zones (Hong Kong certified).
Classical Swine Fever	Endemic	Live animals; fresh, chilled, and frozen pork and most pork products.
Highly Pathogenic Avian Influenza (HPAI)	Recent outbreaks	Live animals; fresh and frozen poultry products. Cooked poultry products mostly allowed.
Newcastle Disease	Endemic	Live animals; fresh and frozen poultry products. Cooked products mostly allowed.
All other former List A diseases	Negative	

Source: Authors.

Among the diseases, HPAI is less important for trade, as Vietnam's poultry exports are insignificant, although, of course, it is of major importance for domestic animal and human health. Foot and Mouth Disease and Classical Swine Fever are more important barriers to global market access, in particular to the main OECD countries markets. Most countries will not accept pork or beef products from Vietnam. The exceptions are the countries with a disease situation similar to the situation of Vietnam, for example, the export of suckling piglets and pig meat to Hong Kong. Thus, the country is trying to obtain FMD disease-free status in some regions. To open markets, the eradication of FMD and CSF from pig production in specific zones in the lower Mekong and northern Vietnam could therefore be justified.

The risk of direct loss of market access facing Vietnamese food exporters is high, as indicated by the data in Table 9 from the FDA, showing that of 503 samples of food products under its responsibility (fish and processed foods), a high percentage was rejected for the presence of Salmonella and Listeria. The EU rapid alert notification system noted 67 detentions in 2002, 35 in 2003, and 59 in 2004.

Further, even when market access remains, there exists the threat of forgone market opportunities if Vietnam cannot meet increasing demand for safe and healthy food in international and domestic markets in the context of intensified competition from other suppliers. This is illustrated by the case of organic products below (Box 5).

**Table 9. FDA Rejections of Sampled Products from Vietnam, May 2004 to April 2005**

	Number	%	Adulteration	Misbranding	Unapproved
Salmonella/Listeria	130	26	X		
Filthy <sup>37</sup>	230	46	X		
No information on process	24	5	X		
Lacks firm	6	1		X	
Wrong identification	4	1		X	
Vet drugs	8	2	x		
Firm not registered as a low acid canned	26	5	x		
List ingredient	21	4		X	
Poisonous	17	3	x		
Unsafe food additives	3	1	x		
Aflatoxin	2	0	x		
Unapproved	5	1			X
Manufactured/processed or packaged under unsanitary conditions	8	2	x		
Color additive not on label	2	0		X	

**Box 5. Market for Organic Products**

The United States, Europe, and Japan are the most important organic markets. A study estimated the 2003 retail sales<sup>1</sup> in the United States at US\$12 billion, in the EU at US\$10.5 billion, and in Japan at US\$400 million, with the "green" product category, which uses some artificial inputs, at about US\$2.5 billion. Annual growth rates, however, are declining from an initial high of 20 to 30 percent in the late 1990s.

The supermarket remains the major outlet for organic fresh produce. Thus, if the potential growth of the organic fresh produce is considered within the overall retail (principally supermarket) market of food and beverages, which is reported to be stagnant,<sup>3</sup> then the sales growth of organic produce is at the expense of conventionally-grown products.

The main issue to be addressed is consumer trust. Consumers are concerned about "food miles," preferring locally-grown conventional produce to imported organic produce, and they are wary about the certification systems of exporting countries. Thus, competition is also about quality and trust, which is often difficult to capture with regulations and controls.

Source: Hallam, Liu, Lavers, Pilkauskas, Rapsomanikis and Claro. The market for non-traditional agricultural exports. FAO Commodities and Trade Technical Paper 3. FAO 2004.

<sup>1</sup> Overview of World Markets for Organic Foods and Beverages, ITC, 2002 (www.intracen.org).

<sup>2</sup> Eurofruit, 2003.

**d. WTO Accession and the SPS Agreement**

Vietnam joined ASEAN/AFTA in 1995, ASEM in 1996, and APEC in 1998. In January 1995, Vietnam applied for WTO membership and indicated that it would amend or abolish trade and investment related laws that are inconsistent with WTO rules and amend ordinances of plant and animal protection and quarantine. The amendments will lead to a greater harmonization with the policies of Vietnam's trade partners and will affect not only cross-border trade in food (as well as in other products) but also domestic food markets. In addition to Vietnam's commitment under the CEPT (Common Effective Preferential Tariff) Agreement to reduce tariff rates on goods imported from other ASEAN countries to between 0 and 5 percent by 2006, under the WTO agreement, a number of agricultural commodities such as fish, fresh fruits and vegetables, coffee, semi-processed tea, pepper, and milled products are subject to a high level of tariff cut

<sup>37</sup> The FDA Violation Code defines *filthy* as "The article appears to consist in whole or in part of a filthy, putrid, or decomposed substance or be otherwise unfit for food."

(that is, more than 50 percent compared to 2001 Most Favored Nation rates), while live animals, maize, and sugar cane are subject to the lowest tariff rates, at 1 to 10 percent. Further, the direct export subsidies that exist in various forms (for example, a premium at the rate of VND 900 per kg [US\$ 0.06] of carcass exported and VND 280 [US\$ 0.01] per kg of slaughtered suckling piglets) will have to be phased out. Appropriate production supports may be maintained, however, for infant subsectors with potential for growth but still facing difficulties such as livestock, vegetables, and fruit. As a result, the policies favoring domestic manufacturers may have little effect by the time such commitments are fully implemented. As a result, competition from foreign food producers in the domestic market will grow. In July 1998, the first round of multilateral talks with WTO's working group on trade policy transparency took place, and the WTO accession is now expected by the end 2006.

Concerning SPS aspects, currently Vietnam is a member of OIE, CODEX, and IPPC, the standard-setting bodies of the WTO. The country has appointed the Ministry of Agriculture and Rural Development as the National Enquiry Point and Notification Authority on SPS issues and has identified the International Cooperation Department as its focal point. In 2004, Vietnam dropped an earlier request for a phased-in implementation of the Sanitary and Phytosanitary (SPS) agreement and pledged to comply with it from the date of WTO accession.

The Government has made a strong commitment to meeting the requirements of the SPS agreement, and although major progress has been made, more still needs to be done. This is summarized below for the main components of the SPS Agreement.

- **Transparency**, or the “need for clarity, predictability and early and detailed information about Vietnam’s SPS policies, rules and regulations,” through the establishment of the National Enquiry Point and Notification Authority remains the sole formal SPS-related requirement for WTO accession. The Prime Minister has decided that this Office will be based in the International Cooperation Department of MARD, and detailed terms of reference were proposed for this Office in May 2005. Accordingly, the Office plays the role of an information gate for providing information on SPS-related regulations and standards in Vietnam, in close cooperation with concerned agencies.
- **Harmonization**, or “the need to base Vietnam’s sanitary or phytosanitary measures on international standards,” has been partially achieved. Detailed information is provided in the respective Food Safety and Agricultural Health sector chapters, but in summary, the Ministry of Health reports that about 48 percent of the national health standards comply with the CODEX standards. In Plant Health, Vietnam has adopted three of the twenty-four International Standards for Phytosanitary Measures (ISPM) and has nine pending and six planned. Finally, in Animal Health, quantitative information on gaps is less easily defined, but major ones do exist. The main strategic and policy decision concerns the rate of adoption of the international standards for the domestic market. The so-called “Golden Standards” of CODEX, IPPC, and OIE, while science-based, would be difficult to enforce at the national level. Their adoption would increase the cost of food (by at least 5 to 30 percent) and, as they are based on Western food preparation habits, do not always appropriately address the risk involved in food preparation habits in Vietnam. The option, therefore, would be to aim for a gradual transition to the “golden” standards. This would mean that, for the short and medium term, national standards would not necessarily be based on the international standards of CODEX, but would take account of local food preparation habits and the enforceability of these standards.
- **Equivalence**, or the need to “recognize the sanitary or phytosanitary measures of other Members as equivalent, even if these measures differ from their own or from those used by other Members trading in the same product, if the exporting Member objectively

demonstrates to the importing Member that its measures achieve the importing Member's appropriate level of sanitary or phytosanitary protection," is mainly of direct importance under bilateral trade agreements and should be pursued only for major import and export products.

- **Risk Analysis**, or the need for "assessments, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations," is probably the most challenging SPS regulation, and it receives, therefore, considerable attention in this Action Plan. To implement risk analysis, human skills for conducting the economic and probability analyses must be developed but, even more importantly, the time series of data must be collected and adequate databases established. Detailed descriptions of the key needs in diagnostic capacity, surveillance, and documentation and databases are provided under the respective food safety and agricultural health chapters.
- **Control, Inspection, and Approval Procedures**, or the need to harmonize certification documentation, is an area requiring substantial additional attention, as described in the chapters on Plant and Animal Health.

**International Support** The Multilateral Trade Assistance Policy Program (MUTRAP), a joint initiative between the European Commission and the Government of Vietnam, started in 1998 to assist Vietnam in its bid for WTO membership. The first phase, MUTRAP I, the Extension and Bridging Phases, have successfully contributed to the completed multilateral talks. MUTRAP II continues to enable the Government to meet its commitments and to strengthen the capacity of Vietnamese stakeholders to manage the impending challenges arising from trade expansion. Activities encompass training, including EU study tours on risk assessment and management skills relating to SPS/TBT databases; establishment of the TBT and SPS Enquiry Points and review of relevant legislation; and assistance in creating SPS/TBT portals and databases.

### 3. Underlying Assumptions of the Action Plan

The global marketplace has dramatically increased the risk of introducing alien plant and animal pests and diseases. For Vietnam, this has the following implications:

- Pest and disease risk mitigation at point of origin is the most viable approach to pest and disease exclusion and mitigation in the importing country. Foreign certification of high-risk plant and germplasm or of products along with inspection and preclearance of commodities at origin are examples of this preferred approach.
- Countries sharing a common ecosystem<sup>38</sup> in geographic proximity to one another and with extensive land borders to protect must work together to harmonize their sanitary and phytosanitary programs. The risk of natural migration of pests and diseases and the risk of introduction of pests and diseases from surrounding countries through people and imports is significant. Without natural barriers or a resource intensive border quarantine program, it is impossible to prevent the spread of pests and diseases across a region. The ability to protect adjoining countries from pest and disease invasions is largely contingent on the ability of the surrounding countries with a shared ecosystem to provide reliable sanitary

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<sup>38</sup> A common ecosystem is a complex of organisms and their environment interacting as a defined ecological unit (if natural or modified by human activity, it is termed an agro-ecosystem), irrespective of political boundaries. ISPM No. 3, 1996.

and phytosanitary services. Protection of a multicountry ecosystem is only as good as the weakest country's safeguarding program.

- For the CLMV countries,<sup>39</sup> significant economies of scale apply in moving to regional quarantine and surveillance systems. The current system of protecting the individual borders of each country against pest and disease threats, which are often identical on both sides of these borders, requires substantial resources while contributing little to disease and pest protection. The peninsular characteristic of the region, however, would facilitate the operation of a much lower number of quarantine facilities, which, in turn, would enable the procurement of much better equipment. The main emphasis, therefore, should be on assessing and managing the risk at the borders with China and at the ports and airports, as the chance is greatest at those points of introducing pests and diseases not already occurring in the regions. On the other hand, as trade interests are greatest with China, a mutual coordinated disease exclusion program might be preferable. It should be noted that several of the OECD countries, for the same reasons, have also adopted a regional approach to disease and pest exclusion, control, and eradication. The EU, for example, now has its plant and disease exclusion systems only at the Community borders, not at the individual country level.

#### **4. Policy Guidance and Decisions**

No reasonable alternatives can be found to the five basic principles and the main actions proposed in the Action Plan. The need exists, however, for policy guidance and decisions on the relative emphasis to be given the different components of the Action Plan and on the rate of change desirable.

- The rate of change in moving towards better inter-institutional coordination at the national level and between the field and national levels and the timing of the eventual move towards an independent agency;
- The rate of change in the harmonization of national and international standards, considering their relative importance for public health and market access, but taking account of the enforcement and equity problems that a too early introduction often entails;
- The relative emphasis on national versus regional activities, with trade-offs between significant economies of scale in pest/disease exclusion and control and a greater reliance on institutions beyond Vietnam's control;
- The relative emphasis on the various parts of the Integrated Safeguarding System (international activities, pest exclusion, and so on), which can be different by (i) sector (plant health, with a high number of introductions, might put more emphasis on pest exclusion than would the livestock sector, which has only limited import of live animals); and (ii) specific characteristics of the pest or disease. Cost-benefit ratios of the different interventions greatly differ between diseases; for example, the control of FMD, with several virus strains and multispecies impact, would be more difficult than the control of CSF;
- The relative importance of the development of a risk analysis capacity versus reliance on outside capacity through international technical assistance or private consultancies.

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<sup>39</sup> Cambodia, Laos, Myanmar, and Vietnam.

This will depend on the expected volume of products with potential international market access, currently constrained by the absence of an adequate risk analysis;

- The rate of which particular activities can be outsourced to, and funded by, the private sector, as proposed in Table 12;
- The relative importance to be given to the development of pest-free zones, compared with the other treatment technologies, whereby the preferred option tends to be treatment, as technologies are available for the treatment of the products with export potential, and it is the least costly and more sustainable option;
- The rate of change from the passive to an active surveillance systems, and, if a national expansion is not feasible, the decisions on which main areas will receive the initial expansion (main livestock area, main potential export area, or main area with poor smallholders), as well as the rate of incorporation of nonpublic sector staff into the system; and
- The relative emphasis on specific diseases (HPAI, FMD, Newcastle Disease, and CSF), with options for national eradication versus the disease-free zone approach or disease control.

**Summary** Globalization, changing domestic and international consumer demand, and increasing human and animal populations require the application of alternative approaches to food safety and agricultural health. Ensuring that the end product has been adequately disinfected and is, therefore, safe is not enough anymore; consumers want to be sure that the food they buy is safe and that the risk of contamination with pathogens is minimal. Risk analysis is necessary to provide these assurances on a sound basis. Integrated supply chains, integrated safeguarding systems, and risk analysis are therefore cornerstones of a modern food safety and agricultural health management system. In applying these concepts, this Action Plan will aim at improving the overall institutional and regulatory framework rather than focusing on a particular commodity or group of commodities.

#### ***Short-term Actions***

- *Establish the five basic principles proposed by this Action Plan as the basis for future Food Safety and Agricultural Health actions;*
- *Improve the operation of the National Enquiry Point and Notification Authority by establishing database; and*
- *Complete the gap analysis between national and international standards and set priorities for harmonization of standards, based on their importance for public health, their relevance to cross-border trade, and their enforceability.*

#### ***Medium-term Action***

- *Explore the feasibility of developing regional quarantine and pest and disease control and eradication activities, as it would be almost impossible and an inefficient use of resources to control the introduction of pests and diseases prevailing in the same ecosystems across both of Vietnam's long and porous borders. A regional approach would capture significant economies of scale.*

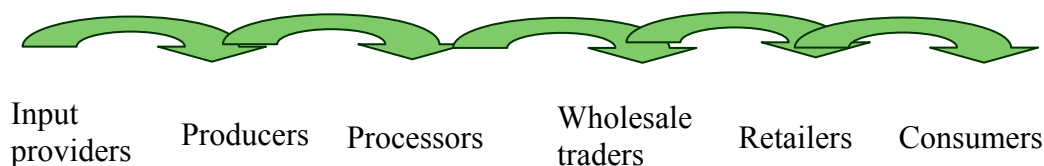
## Chapter III STRENGTHENING COORDINATION AND RISK ANALYSIS CAPACITY ACROSS SECTORS

This chapter describes in more detail the actions required across sectors following the basic concepts described in Chapter II, that is, the focus on (i) the agro-food chain, (ii) the integrated safeguarding approach, and (iii) risk analysis.

### 1. Strengthening the Agro-Food Chain

A food chain is composed of the different stakeholders – from providers of inputs (fertilizers, feed, pesticides, and agricultural and veterinary services) to consumers – which are durably linked by processes of producing, moving, and transforming food as well as by the associated generation of the value-added (Figure 6). A sustainable food chain is driven by the consumer's demand and characterized by effective coordination, constant innovation, high competitiveness, and fair benefit sharing to maintain participants' incentives<sup>40</sup>.

Figure 6. Definition of the Food Chain



**Producers** A dual system of production and marketing food exists in Vietnam: traditional and modern. The traditional system is composed of smallholders (farmers, collectors, processors, and traders) and is still the more widespread system. Most foods are produced by individual small-scale farmers with average total landholdings of about 0.5 ha per household. The fragmented and geographically diversified producer base faces many challenges, including those related to SPS. It also has some advantages, however, being less prone to climatic and phytosanitary risks than is the large-scale technology intensive system. The latter has been developed for some products, such as aquaculture products in the central and southern coastal regions, coffee in the central highlands, high-quality rice in the Red River and Mekong River Deltas, and tea in the central and northern mountainous provinces and in Lam Dong province.<sup>41</sup> The modern sector is still dominated by state-owned enterprises, although with their gradual equitization, the private sector plays an increasing role. Large-scale enterprises often contract smaller growers, largely individual farmers, for some of their supply, predominantly for exports. Such contracts specify and guarantee the price, quality, and regular delivery of supplies. In June 2002, the Prime Minister issued Decision No. 80/2002/QĐ-TTg, which encourages enterprises in all economic sectors to have contracts with farmers in order to create a stable link between farming and processing and marketing activities. Examples exist in the poultry, pig, and

<sup>40</sup> Goletti 2004.

<sup>41</sup> Vietnam's Agriculture: A Strategy Toward WTO.

pineapple and cucumber subsectors.<sup>42</sup> Contract compliance and enforcement, the responsibility of provinces and districts, remains a problem, however. Farmers are often reported for not complying with quality standards, use of inputs (pesticides, antibiotics), and delivery problems, whereas buyers (integrators) are reported to change prices or other conditions as market conditions change. Price incentives offered for safe and quality food offered by the integrators are often insufficient to meet the increased production costs incurred by farmers. Underlying causes include both the lack of suitable contract forms and of stable partnerships between participants as well as smallholders' fragmentation. Box 6 relates comparable experiences of EurepGAP suppliers in other countries.

#### **Box 6. Compliance with EurepGAP: Insights from Morocco and Peru**

A growing number of UK, Dutch, Swiss, and Scandinavian supermarkets are requiring that their suppliers be certified as being compliant with the EurepGAP's Protocol for Fresh Fruit and Vegetables, which encourages the use of "good agricultural practices," reduction in chemical applications, protection of the environment, and the enhancement of worker safety and welfare. For some suppliers, this has been a challenging and costly requirement, as their preexisting facilities and production/management practices were deficient in relation to certain EurepGAP norms. For others, relatively modest changes have been needed, and the pertinent costs have been the certification costs and the additional management time needed for the required planning documents and record keeping.

In Morocco, Aloui and Kenny (2004) report that several of the medium- and large-scale tomato grower/exporters were required to make substantial investments in facilities and equipment in order to meet the EurepGAP requirements. Many lacked storage rooms for pesticides and fertilizers and appropriate changing/washing facilities for farm workers. One farm operating with ten hectares under plastic greenhouses and a work force of sixty people, needed to invest some \$50,000 in buildings, facilities, and equipment to become EurepGAP compliant. Taking into account proper depreciation of these investments over time, the firm estimates that measures taken for EurepGAP compliance account for some 12 percent of its farm production costs and 4 percent of the FOB value of its tomato exports.

In Peru, Galdos (2004) finds that a very large proportion of interviewed growers of asparagus, citrus fruit, and avocado are in the process of implementing EurepGAP requirements or are already certified as having done so. The primary motivations or expected outcomes of these adapting farmers center on improving customer trust, farm management efficiency, and competitiveness more generally. The most commonly reported constraints in adopting the protocol related to the initial investment costs, absence of waste disposal capacities/services (for example, safe disposal of agro-chemical containers), and complications in training farm workers.

*Sources:* World Bank 2005.

**Processing and packaging** Though much of Vietnam's agricultural production is marketed fresh, the demand for processed products is growing rapidly due to the desire to reduce postharvest loss and to move up the value-added chain, although in fruit and vegetables the value added is often greater for fresh than for processed produce. In 1997, the total value added in the food processing sector was estimated to be about US\$ 2.0 billion, representing about 8.8 percent of GDP and 35.5 percent of industrial value-added. Processed foods from coffee, tea, and some fruits are exported, while processed foods from rice, wheat, soybean, sugar, meat, coconut, milk, vegetables, and fruit are usually for the local market. Small-scale processing factories, generally, make use of domestic equipment. Medium and larger food processing enterprises (and small firms producing high quality products) have imported machinery and equipment. As of 2003, Vietnam has around 260 seafood processing plants; 24 large-scale slaughterhouses and meat processing facilities, all of which are state-owned; 160 beverage manufacturers; 65 fruit and vegetable processing plants; 27 instant noodle producers; and about 23 key manufacturers of confectioneries.<sup>43</sup> In comparison with the other manufacturing industries, a study<sup>44</sup> described the

<sup>42</sup> Goletti et al 2002.

<sup>43</sup> Nguyen Houng 2004, Food processing and packaging equipment in Vietnam.  
<http://strategis.ic.gc.ca/epic/internet/inimr-ri.nsf/en/gr116876e.html>.



food processing enterprises as relatively smaller (most have fewer than ten workers), and less capital intensive. Also, the sector tends to get more foreign investment. More than half (64 percent) of the revenue in the food processing sector comes from state enterprises.<sup>45</sup> As the government program for equitization of state-owned enterprises is progressing, however, an increasing number of them take market-oriented strategies. Foreign and joint stock enterprises have 29 percent of the revenue. As mentioned above, the processors tend to form integrated supply chains with farmers by establishing procurement contracts and supplying inputs.<sup>46</sup>

Vietnam has 900 packaging producers of all sizes, although the technology used is outdated, affecting their international competitiveness.

A modern packaging industry and cold chain infrastructure are only beginning to emerge in Vietnam. Foreign and joint stock enterprises have been particularly important in export oriented subsectors, such as the fisheries, pepper, coffee, nut, and juice industries. These sectors have all faced quality issues for some time regarding their products, but have, through joint ventures with foreign investors, successfully adopted the requirements of other countries and introduced quality control systems such as HACCP and EurepGAP. In 2004, Vietnam had around 40 major companies, both foreign and domestic, specializing in cold storage services.<sup>47</sup>

**Markets** Most food in Vietnam is still marketed either directly by small farmers or through small traders in traditional open-wet markets lacking the necessary hygiene facilities, although new markets have been recently constructed in both rural and urban areas to meet the growing demand of the population, particularly of nonfarm workers. Vietnam has experienced a transition from spontaneously-emerging commune- or street-named markets to centrally planned subsidized markets (in the North from 1954 to the late 1980s), to the current *Doi Moi* era when the private sector is encouraged and the government direct involvement in trade considerably reduced.<sup>48</sup>

The organization of suppliers to the market system varies according to the type of product and the location of the production areas in relation to the market. Peri-urban zones have an important role in the supply of perishable goods (for example, vegetables, meat, eggs, and milk). Producers or collectors provide retailers small quantities (100 or 200 kilos per day) using motorbikes. Thus, marketing chains for peri-urban agriculture are short and fragmented. In addition, a long commodity channel for fruits and vegetables and, to a less extent, fish and meat, runs from specialized production areas to urban centers in the two deltas and between the north and the south. In this marketing channel, the wholesalers (buying from the collectors) control the information on supply and demand.<sup>49</sup> Those supplying the urban areas must not only supply commodities to the traditional open-air and wet-market operations but must also find ways to work with the new supermarkets.

Similar to developments elsewhere, supermarkets are emerging as the main driving forces behind the development of integrated supply channel in Vietnam, although they are distributed unevenly. There are more than forty-six supermarkets in HCMC, but, in fresh food, they represent less than 5 percent of total domestic trade in perishable foods. Chains directly linking farmers to these retailer supply chains are rare, as they are in most parts of the world. In 2003,

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<sup>44</sup> Minot 1998. The report made use of the 1995 Economic Census of the General Statistics Office.

<sup>45</sup> Minot 1998.

<sup>46</sup> Mathiew 2005.

<sup>47</sup> Nguyen Huong 2004.

<sup>48</sup> Anh, Mai Thi Phuong et al. 2004.

<sup>49</sup> Moustier 2003.

there were only three farm cooperatives (representing a total of 30 hectares) directly supplying supermarkets, restaurants, and schools in Hanoi.<sup>50</sup>

Funding of processing (in particular, slaughterhouses), cold storage, food treatment facilities, wholesale markets, and other major investment in infrastructure along the food chain to meet growing demand for safe and higher-quality food will be a major constraint. While funding of this infrastructure is mainly a private sector responsibility, the direct effect of these investments on public health, environment, and poverty reduction might justify a share of public funding (Box 7). This is especially the case with facilities with a high level of public use (such as market infrastructure and testing laboratories), low financial returns (such as slaughter facilities), and considerable innovation (such as treatment plants for plant pests). Initial government supports in the forms of initial rootstock, applied research, extension and quality management services, investment in primary production, and postharvest infrastructure are also required to develop smallholder systems capable of competing in the world marketplace, similar to the pattern followed by some other countries.<sup>51</sup> Full government funding and public management of these facilities are not automatically implied, however. Leasing or subcontracting these operations to private service providers, followed by eventual transfer to the latter, is often a better strategy.

#### **Box 7. Matching Grants for Postharvest Treatment Facilities**

Infrastructures such as cold storage and fruit treatment facilities are vital for the export of perishable agricultural products. Fresh products may be host to certain pests and require treatment prior to shipping. Cold storage is a necessity to ensure the freshness and safety of the food products, especially when shipping to distant markets. These infrastructures, however, require lumpy investments that cannot be provided by the private sector, given the limited access to financing (due to limited equity funds), nor by the government, given the scarce public funds. One financing approach for infrastructure development is the matching grant, in which complementary funding is provided by the investor/private enterprise or another donor. The approach is demand-side driven and will stimulate a competitive response from exporters/producers, who have greatest need for cold storage and/or treatment facilities. The cost-sharing feature accords a greater role and commitment to the private enterprise, requiring more accountability and responsibility for a more efficient management of the facilities' operation. The grant will not promote dependency because it is one-time start-up financing, and the income to be generated guarantees cost recovery.

In India, the Spices Board<sup>a</sup> provided grants (1997–1998 and 2001–2002) to about forty-nine spice companies to cover up to 50 percent of the costs of setting up or improving laboratory facilities. The grants were capped and the value of grant support averaged less than US\$ 10,000 per company.<sup>b</sup> As of 2004, about ninety-eight companies had their own labs.

Net benefit will likely be positive because the absence of these infrastructures is a binding constraint to export activity and market access. The benefits are greater (and so are economies of scale) if such facilities are utilized by a cooperative or industry association (that is, multiple firms making use of a cold storage facility). The success of the matching grant scheme depends on its implementation. Appropriate criteria must be determined for the eligibility of applicants. Project proposals should be supported by economic analysis (for example, cost-benefit analysis). There should be careful monitoring and evaluation at all stages. Further technical assistance could be provided to successful applicants to assist them in the efficient management and operation of the facilities.

*Source:* World Bank, "The Use of Grants to Address Market Failures: A Review of World Bank Rural Development Projects," forthcoming World Bank Discussion Paper.

*Notes:*

<sup>a</sup>The Spices Board coordinates support for and regulates spice exports (quality control and licensing).

<sup>b</sup>Estimated cost for equipping a lab for testing for pesticide residues and aflatoxin was \$100,000–125,000 in previous years.

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<sup>50</sup> Moustier 2003.

<sup>51</sup> Mathiew 2005.

**Actions** The main actions related to the supply chain are as follows:

**Short-Term Actions**

- *Assess the need for cold storage, market infrastructure, and processing technologies in the main perishable food chains and develop and adopt policy guidelines for the funding and operation of this infrastructure;*
- *Seek to enhance enforcement of contract compliance and supply chain arrangements by strengthening:*
  - *Advocacy at the national political levels regarding the need for support for contract compliance by the provincial and further decentralized levels; and*
  - *Producer and processor organizations, by subcontracting quality enhancement and food safety control activities to them.*

**Medium -Term Actions**

- *Implement infrastructure needs, where justified under joint financing between the public and private sector, under private management; and*
- *Promote farmers' cooperatives, educating members in the production of safe and quality food and strengthening their links to the larger processors, ensuring that the incentives for improved food safety and quality reflect production costs and meet market demand.*

## **2. Strengthening the Institutional Framework**

Strong institutions and, even more importantly, strong coordination between public and private institutions will be a critical element of the implementation of the integrated safeguarding system and the agro-food chain (Box 8).

### **Box 8. Peruvian Asparagus Exports: A Standards Success Story**

Once the leaders of Peru's asparagus industry and government specialists realized that it was in the best interest of the country to bring national standards in line with international norms, they started to work together. Over the past decade, Peru has become one of the world's largest exporters of asparagus. In 2002, the export revenue reached \$187 million, representing nearly 25 percent of Peru's total agricultural exports value. Peru is able to produce quality asparagus year-round; even so, it still cannot compete with inexpensive asparagus from Mexico during certain supply periods. The Peruvians, nonetheless, have continued to increase exports and gain market share during their main season by growing asparagus of consistently higher quality, which can be internationally certified with respect to GAP, GMP, and/or HACCP.

In 1997, Spanish health authorities asserted that two cases of botulism had been caused by consumption of canned Peruvian asparagus. Despite assurances from the Peruvian government and companies, press coverage of the botulism scare left an unfavorable impression among consumers in European markets, causing sales to slump in Peru's leading market. This incident motivated the industry and government to take action by reinforcing the fact that one careless (usually artisanal) exporter could disrupt an entire market. Beginning in 1998, the Peruvian Commission for Export Promotion (PROMPEX) convinced the asparagus industry to implement the Codex code of practice on food hygiene. PROMPEX specialists worked with industry leaders and production managers to ensure its proper implementation. The industry soon saw improved production and processing methods, as well as better product quality and safety.

Later, in 2001, national fresh asparagus norms were published. They provided a quality and performance baseline for the industry that allowed many firms and farms to generate the skills and experience needed to voluntarily certify under more stringent international standards. Many large exporters have reached the level where they can now be certified under the even stricter EurepGAP protocol. Looking ahead, the Peruvian asparagus industry should be well positioned to adjust to new or more stringent requirements from its trade partners, based on continued strong leadership and public-private cooperation.

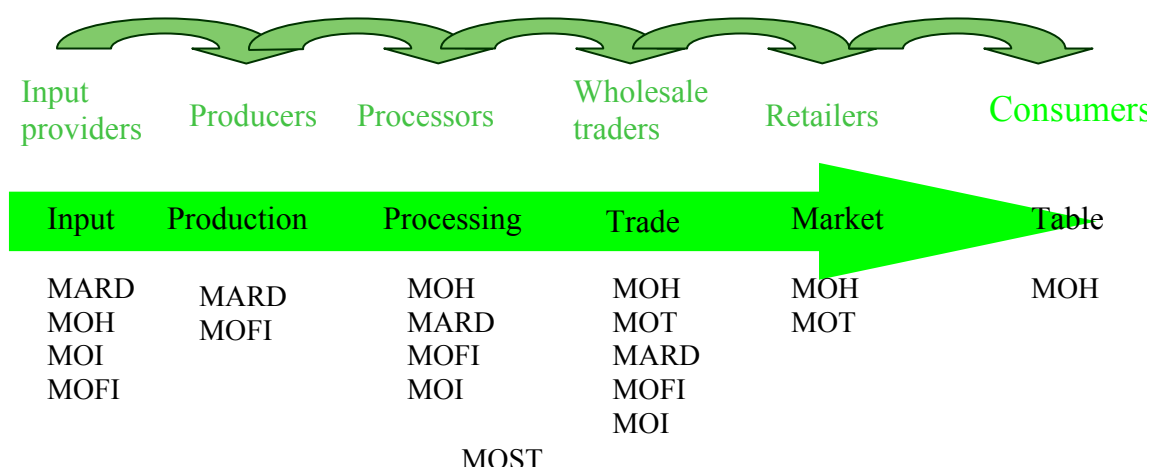
*Source:* Based on information provided by Tim O'Brien, IICA.

This section will provide first a general overview of the responsibilities of the ministries involved with food safety, current and planned donor funding, and will provide recommendations on the overall framework. More detailed description of the main specialized agencies involved with food safety and agricultural health will follow in the next chapters.

### a. National Level

**Overall framework** Six Ministries share the responsibility for food safety in Vietnam: the Ministry of Health, the Ministry of Agriculture and Rural Development, the Ministry of Fisheries, the Ministry of Industry, the Ministry of Science and Technology, and the Ministry of Trade (Figure 7). The basic legislative document defining the food safety responsibilities of these Ministries is “The Decision of the Prime Minister on the Approval of the National Program on the Control of Microbiologicals and Chemical Residues in Food to 2010,” issued in January 2003. Producer associations, such as the Fisheries Association of Vietnam (VINAFIS) and Vietnam Association of Seafood Exporters and Producers (VASEP), in fisheries, and Vietnam Coffee Association (VINACAFE), in the coffee sector, have potential influence, but they are still in the early stages of development and have yet to become effective partners to the government in terms of policy and standard setting. Increasing roles in the associations should be given to the private sector to develop their more independent and constructive voice in the future.

**Figure 7. Food Safety Responsibility: Position of Ministries Along the Food Chain**



Source: Adapted from Zhang X. and JC van Meggelen (2005).

**The Ministry of Health** acts as the national coordinator for food safety and is responsible for supervising food hygiene and safety postslaughter or postharvest through all stages of food handling, processing, preparation, and marketing to the consumer and for the safety of imported food. It is also responsible for human health measures related to production and import of food additives, chemical food ingredients, disinfecting agents, and so on, used in the food industry. Important activities are the development of a system to assess and control food contamination and of pilot models for the control of food-borne diseases. Its legislative role concerns hygiene and safety regulations and standards, hygiene guidelines and good labeling. The main implementing agency for food safety under the Ministry of Health is the Vietnam Food Administration (VFA), which assists the Minister of Health with the management of food safety. It was created in 1999 following the strong commitment made by the Government to improve the safety of the domestic food supply and following heavy media coverage of incidents of

formaldehyde lacing in the traditional Vietnamese soup, *pho*. VFA has responsibility for the preparation of a food safety policy, the compilation of food safety legislation and related communications, the coordination of risk management concerning food contamination, carrying out food safety inspection, and the organization of food safety research. It has drafted a Food Safety Strategy for the period 2001–2005. A new Food Safety Strategy, for the period 2006–2010 is still under discussion between the relevant Ministries. In March 2005, the Prime Minister created an interministerial Steering Committee to guide the Food Safety Strategy, which is mostly at the level of Vice Ministers, and a Food Safety Working Group at the director level, but the mandates and terms of reference of these bodies are still vague. This Food Safety Strategy focuses on domestic food safety issues (Box 11).

**The Ministry of Agriculture and Rural Development (MARD)** is responsible for agricultural production of animals and crops, slaughter and inspection of livestock, and postharvest handling of agricultural products. The Ministry is also in charge of production, import-export, distribution, and use of pesticides in plants and products of plants, veterinary drugs and bio-products, growth promoters, and so on. Important activities of the ministry include controlling biological contamination and chemical residues in plant products; food safety and hygiene in animal production, slaughter, and livestock products; quality, hygiene, and safety of livestock feed; the quality of fertilizer; and development of safe production zones. Its legislative role concerns regulations covering use of pesticides, antibiotics, growth promoters, animal health, and plant protection. It also hosts the SPS Notification Authority and Enquiry Point, which has the main responsibility for channeling information on changes in national regulations to the WTO member states and responding to enquiries from WTO members regarding the Vietnamese SPS regulations. The specialized plant and animal health agencies are described below.

**The Ministry of Fisheries (MOFI)** is responsible for fish capture and aquaculture and their processing for export markets. The Ministry is also responsible for fish feed, aquatic veterinary drugs, and aquatic plant protection chemicals. Its important activities include surveillance, inspection, and accreditation for having met food hygiene and safety standards of safe production zones and farms and of premises that produce or do business in aquatic products. Its legislative role concerns fisheries management and seafood processing for export. MOFI created the National Fisheries Inspection Quality Assurance Center (NAFIQACEN) to set standards, regulate seafood processors, and issue quality and health certification to Vietnamese seafood processors (Box 15). The Central Inspection Body is responsible primarily for the inspection of processing establishments. This body also develops guidelines relating to inspection and classification of facilities. The Local Inspection Body under the Department of Resource Protection of each province inspects middlemen, vessels, and aquaculture farms following the guidelines and checklists set by NAFIQACEN's Central Inspection Body.<sup>52</sup> In August 2003, the responsibilities of the NAFIQACEN were expanded to include veterinary issues for aquatic animals, including fish and shrimp disease control, and it became the National Fisheries Quality Assurance and Veterinary Directorate (NAFIQAVED), with six regional branches in key fisheries areas and networks of Fisheries Quality and Veterinary units in each province.

**The Ministry of Industry** is responsible for the production and marketing of alcohol, beer, beverages, confectionary, milk, vegetable oil, flour, starches, and bottled water products. Its important activities include controlling microbiological contamination and chemical residues during food processing and developing a food hygiene and safety control program in the food processing industry.

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<sup>52</sup> Nguyen and Huynh 2004.

**The Ministry of Science and Technology** is responsible for the development of standards (including the Codex Alimentarius), laboratory accreditation, and quality control for import and export goods. Its legislative role concerns the development of standards and the annual listing of goods requiring inspection. The Directorate for Standards and Quality (STAMEQ) is the main implementing agency for of the Ministry of Science and Technology for issues related to the setting of food safety standards. It has several responsibilities. First, it is responsible for standardization, metrology, and quality of products and goods. It has the authority to issue national standards. In case new international standards are fixed by the international standard setting bodies, such as the Codex Alimentarius, the Directorate initiates the process of harmonization of national legislation, leading eventually to new national standards, with the new international standards. The Directorate hosts the Codex Contact Point. Second, it has the authority to accredit testing and calibration of public as well as private laboratories, according to the requirements of ISO standards and guidelines, and to provide certification of validation and inspection organizations. STAMEQ joined ISO in 1977.

**The Ministry of Trade** is responsible for the trade aspects of food. Its legislative role concerns the labeling of goods, which, while less directly relevant to food safety, is of critical importance for overall quality management.

**Private Sector** The private sector has developed a remarkable capacity in areas of quality control and certification over the last decade. Vietnam, for example, has nineteen active certification bodies, although only one, Quacert, is a local company. Quacert is Vietnam's national certification body, accredited by JAS-ANZ (Australia and New Zealand Joint accreditation system) to provide certification for HACCP and ISO 9000 and 14000. In the ISO 9000 certification market share, Quacert has 34 percent, Bureau Veritas Quality International (BVQI, UK) has 31 percent, Det Norske Veritas (DNV, Norway) has 14 percent, SGS has 7 percent, and QMS Certification Services (Australia) and AFAQ (France) each have 4 percent. Further, a USAID report<sup>53</sup> noted the existence of highly qualified private laboratories that could be accredited for export use. Some of these are onsite laboratories of a number of large food processors. Considering the paucity of laboratory facilities, resulting in slow turnaround times giving rise to increased storage costs, it would benefit both public and private sectors if these laboratories could be accredited to approve products for exports. Up to now, laboratory accreditation has been under the auspice of the STAMEQ's Bureau of Accreditation, which has accredited about 110 laboratories for ISO 17025.

### ***b. Provincial and Lower Levels***

While the national institutions have mainly a normative function and are concerned with national activities, such as quarantine, most field level activities are carried out by or supported by the provincial governments and their subordinate entities. Most national agencies (except the Food Administration) are represented at the province, district, and local levels, but under the provincial administrative structure, they are governed and controlled by an elected body, the People's Council, and managed by the People's Committee, as installed by the People's Council. Provincial bodies are a valuable resource and play a crucial role in implementing and supporting pest and disease surveillance and response initiatives. They are responsible for the declaration of pest and disease outbreaks and for the payment of compensation for destroyed animals, such as those affected by HPAI. A recent tendency has been to increase the delegation of implementation responsibility from the central level to the provincial level but the further delegation to subprovincial levels has still to take place.

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<sup>53</sup> Clingman 2004.

### ***c. Producer and Processor Organizations***

Meeting Vietnam's food safety and agricultural health objectives will depend to a large degree on strengthening the cooperation among fragmented smallholders. Cooperatives exist at the commune level, operating under the Cooperative Law. They enjoy a "legal status" and access to banking services and can draw formal contracts. They are supported by the government and often serve as the channel for delivering its supports to farmers. In general, however, the formal cooperatives lack farmers' genuine interest and could play only a limited role in food safety and agricultural health. Reportedly, in 2004 there were only 8,597 agricultural cooperatives and 974 aqua-cultural cooperatives. While they are small (with about 30 members in average), only some of them deliver services related to food safety and agricultural health, for example, plant protection (61 percent of the agricultural cooperatives) and agricultural extension (47 percent). Cooperatives are much less involved in veterinary services, material supply, joint marketing, and processing agricultural products.<sup>54</sup> Reportedly, a large number of informal cooperative groups exist in various forms, from water users' groups and credit groups to mutual aid teams, bringing the proportion of farmers participating some form of cooperation to 40 to 50 percent in some surveyed provinces. The informal cooperative groups are formed by farmers themselves on the basis of genuine voluntarism and common interest. The cooperative groups may play a role in improving food safety and agricultural health, but their importance remains uncertain because of their lack of legal status and support from both the government and firms operating in food chain.<sup>55</sup>

In addition, various forms of farmers' associations occur around an enterprise (often private) based on a specific product and common market objectives, resulting in integrated supply chains from production to marketing. This form of association covers a broad range of products, for example, pork (cooperatives and federations), tropical fruits (dragon fruit association and litchi association) and perfume rice. Some of the associations even try to develop a specific brand or trademarks for their business (Box 9).<sup>56</sup>

As the private sector grows and the government commits itself to restrain from direct interventions, food producers' and processors' associations play an increasing role. Nationwide, the most influential of them are the Vietnam Associations of Seafood Exporters and Producers (VASEP), Vietnam Fisheries Association, Vietnam Coffee and Cocoa Association, Vietnam Cashew Association, Vietnam Tea Association, Vietnam Fruit Association, and Vietnam Food Association. The HCMC Food Processing Association and the Lam Son Sugar Association are examples of influential regional associations. Producer and processor organizations can help strengthen the market and the private sector by representing business interests and providing specific support to their members. Although state-owned enterprises often occupy leading positions in the associations, the latter perform fairly well, providing all members with information on concerned policies and legislation, making policy or legal recommendations to concerned authorities on behalf of their members, and organizing short-term training courses. The fisheries sector shows how important is the role of an association in facilitating the effective collaboration between the government and the private sector in developing and implementing the legal and policy framework to ensure access to overseas markets. In general, however, the associations are relatively weak at providing the services vital to a large number of small private enterprises, including technical advices and consultancy, market information, and assistance in accessing markets, both domestic and export (Box 9).

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<sup>54</sup> Chu Thi Hao 2005.

<sup>55</sup> Fforde 2001.

<sup>56</sup> Mathiew 2005.

## Box 9. Producer and Processors Organizations and Their Roles in Vietnam

Producer and processor organizations can help strengthen the market and the private sector by representing business interests and providing specific support to their members. Most, however, are limited to the provision of information, basic legal advice, and training. They lack human and financial resources. These organizations usually depend on unreliable sources of income, including the state budget, fees from service provision, membership dues, and donations. Another constraint is the fragmented and confusing legal framework in which they exist, with its complicated entry procedures and lack of incentives.

The *Food and Foodstuff Association of HCMC (FFA)* is a nongovernmental organization representing enterprises in the food, foodstuff, and beverages industry. They disseminate information on business and legal environments, markets, new technology, and management practices. With their capacity enhancement program, FFA organizes training and exhibitions. The association relays members' difficulties to relevant government offices and acts as a forum through which companies can discuss their problems and propose suggestions to authorities.

The *Vietnam Tea Association (VITAS)* promotes food safety and industrial hygiene among its members. It has development and research centers on markets, processing technology, investment, and seeds. It provides assistance with regard to tea breed, technology transfer, trading and marketing promotion, auctions, and training. It is involved with the expansion of national breeding gardens. It has 102 members located in 10 union branches and 21 tea-planting provinces.

The *Vietnam Association of Seafood Exporters and Producers (VASEP)* has 185 members that include leading Vietnamese seafood producers and exporters and companies that service the seafood sector. It provides the industry with essential market information; develops national strategies; organizes and implements trade-promotion activities and on-the-job and short-term training; and supports the business expansion of member enterprises. It provides financial and technical assistance from various sources to enable members to upgrade quality standards and add value to their seafood products. VASEP encourages investment by providing concerned international organizations and partners with information, advice, promotion strategies, and relevant support. Its members make up the majority of the 153 Vietnamese seafood establishments approved by EU. Many members have HACCP in compliance with US FDA standards allowing them to export to the United States and others countries.

The *Vietnam Fisheries Association (VINAFA)* is a socio-professional organization with people from various sectors of the fisheries industry working as volunteers. The members come from 30 enterprises, cooperatives, and state-owned enterprises. There are subassociations at various local levels in almost of the provinces and cities with fisheries. VINAFA is an official member of the ASEAN Fisheries Federation (AFF) and the International Fisheries Coalition of Associations (IFCA). With the support of the Ministry of Fisheries, VINAFA has the assistance of the Southeast Asian Fisheries Development Center (SEAFDEC) in training for fisheries conservation and management.

The *Vietnam Coffee-Cocoa Association (VICOFA)* currently has over 100 members "representing national corporations, companies, enterprises, research centers, institutes, groups and individuals engaged in production, processing, trade, export supply service, scientific and technology research and training in coffee and cocoa industries throughout the country in both Robusta and Arabica regions." The Vietnam National Coffee Corporation (VINACAFE), an SOE, is the biggest member of VICOFA, exporting more than 20 to 25 percent of the total coffee production of Vietnam.

The *Vietnam Cashew Association (VINACAS)* is a socio-professional organization made up of enterprises in the field of cashew nut production, processing, and trading (including products from cashew nuts). It assists members to coordinate trading activities, promotes production development, guarantees reasonable prices for cultivators, and assists in exportation. The association aims to raise the product quality and trading efficiency of the Vietnam cashew.

The *Vietnam Fruit Association (Vinafruit)* is a nongovernmental organization of enterprises operating in the fruit industry. To enhance the international competitiveness of the Vietnamese fruit industry, the association has initiatives in the areas of industry cooperation, branding, training, seed intellectual property protection, organic fruit development strategy, specialization of cooperatives, and postharvest technology enhancement; it has requested support from the government and assistance from international organizations and corporations to implement these initiatives successfully. Vinafruit organizes activities including information dissemination about technologies and market trends; trade promotion (fairs, study tours, and maintaining representative offices); and capacity building (training, workshops, and seminars).

### Sources:

Nguyen Phuong Quynh Trang and J. Stromseth, Business associations in Vietnam: status, roles and performance, Private Sector Discussion Paper No. 13, MPSDF, Hanoi, August 2002; [www.vasep.com.vn](http://www.vasep.com.vn); [www.vicofa.org.vn](http://www.vicofa.org.vn); [www.vinafruit.org](http://www.vinafruit.org).



#### **d. Donor Support**

Cognizant of the significant capacities Vietnam requires and its limited resources, bilateral and multilateral donor agencies have been playing an active role in developing its capacity in food safety and agricultural health, mainly to allow the country to participate in global trade and partly in response to the call for technical cooperation and assistance as emphasized in both SPS and TBT agreements. Table 10 maps on-going and planned donor interventions in the main areas defined above. The interventions focus on assisting the country in developing the SPS capacity of key counterpart agencies (for example, MOH, MARD, MOFI, STAMEQ, MOT, and selected PPCs) to ensure compliance with WTO requirements and to improve pest and disease surveillance and diagnostics. Coordination is lagging, however, resulting in overlap and the application of different approaches to various areas, such as risk analysis and product treatment standards. More detailed information on key donor activities is provided in the chapters on the individual sectors and in the Appendix.

**Table 10. Current and Tentative Future Donor Support**

	<b>WTO accession</b>	<b>Pest or disease exclusion</b>	<b>Pest or disease surveillance and diagnostics</b>	<b>Pest or disease control</b>	<b>Food safety/ inspection</b>	<b>Risk analysis</b>
<b>Food safety</b>			WHO-RFB		Bilateral-FAL CIDA-FQD NZ-FSM NORAD-MATF SECO-MAS	CIDA-FQD AADCP-Food safety
<b>Plant health</b>	EU-MUTRAP	NZ-PCBP	AusAid-SPSCBP CIDA-FQD NZ-PCBP NORAD-MATF SECO-MAS	AusAid-SPSCBP	NZ-PCBP	AusAid-SPSCBP CIDA-FQD NZ-PCBP AADCP-Plant health
<b>Animal health</b>	EU-MUTRAP	AusAid-SPSCBP	AusAid-SPSCBP CIDA-FQD FAO-TCP WB-EMHPAI NORAD-MATF SECO-MAS	FAO-TCP OIE-SEAFMD WB-EMHPAI	DANIDA-ASP DANIDA-FSP	AusAid-SPSCBP CIDA-FQD AADCP-Animal health

*Note:*

1. AusAID – SPSCBP: regional SPS Capacity Building Program ( A\$ 3.9 mill, 2004-07)
2. Bilateral – FAL: to Food Analysis Laboratories by France, Belgium, US, Australia, NZ, Netherlands and WHO
3. CIDA – FQD: Food and agriculture products Quality Development and control project with WHO (C\$ 17 million, 2005-10)
4. DANIDA – ASP: Agricultural Sector Program Support (IPM component)
5. DANIDA – FSP: Fisheries Sector Program Support (surveillance and traceability component)
6. EU – MUTRAP: Multilateral Trade Assistance Policy program, Phase II (the establishment of SPS points, policy development and capacity building)
7. FAO – TCP: Technical Cooperation Project in support of the establishment of the central HPAI technical support unit (US\$ 7.3 million over 1.5 years)
8. NORAD – MATF: Market Access and Trade Facilitation support for lower Mekong delta countries (US\$ 908,520, STAMEQ, 2003-05)
9. NZ – FSM: improving Food Safety and its Management in lower Mekong countries with FAO/WHO (US\$ 850,000, 3 years)
10. NZ-PCBP: Phytosanitary Capacity Building Project II, a three-year project for the CLMV countries

11. OIE– SEAFMD: Zoning for FMD and Animal Movement Management in the Mekong region (with FAO)
12. SECO – MAS: Market Access Support through strengthening capacities for metrology, testing and conformity with UNIDO (US\$ 985,000, STAMEQ, 2004-06)
13. WB – EMHPAI: Emergency Project to strengthen disease surveillance and diagnostic capacity and improve public awareness
14. WHO – RFB: Regional study on active surveillance of Food-borne Diseases
15. AADCP: ASEAN– Australia Development Cooperation Program has program stream components related to SPS, including food safety and animal and plant health

#### ***e. The Need for Coordination and Harmonization***

As shown above, most lines of demarcation of responsibilities are clearly defined, although there is danger of overlap as well as of neglect of some issues. With a much stronger focus on the total food chain worldwide, the coordination between different institutions has gained major importance. Some significant examples of lack of coordination among institutions that have occurred in many countries and that could also occur in Vietnam under the current institutional set-up include the following:

- *Lack of coordination and information exchange between preharvest and postharvest food-safety control institutions* Providing a safe food supply to consumers should be a total farm-to-table effort. In Vietnam, several Ministries have responsibilities for assuring a safe food supply. Clarification of roles, communications between Ministries, and coordination of effective use of laboratory capacity are challenges to a comprehensive food safety action plan. Vietnam has an adequate legislative and organizational infrastructure in place for carrying out pesticide regulatory responsibilities, but at the field level, little coordination takes place between the institutions involved in production, such as MARD and VFA. The VFA, for example, must have a clear understanding of the agricultural practices and of the main “entry points” for contaminants, and it must be informed on the use of new pesticides, feed additives, and antibiotics by the Plant Protection and Animal Health Departments if it is to be able to adapt its residue-testing program accordingly.
- *Lack of coordination in the use of infrastructure and equipment* Infrastructure and equipment, for example, for quarantine, laboratory, and other surveillance operations, is often similar and staff skill requirements are often identical. Significant economies of scale can thus be achieved if functional responsibilities are merged in single institutions.
- *Lack of coordination between animal and human health organizations* As shown by the recent outbreak of HPAI and SARS in the region, normally, the veterinary services tend to focus on animal-to-animal disease transmission and the health departments on human-to-human transmission; this leaves a gap in the surveillance and control of the animal-to-human transmission.
- *Conflict of interest between different sectors in disease and pest declarations* The official declaration of a pest or disease outbreak has major economic repercussions, not only for the sector itself, but also for other sectors, such as trade and tourism. Spreading the responsibility for pest and disease management over several institutions generally increases the chance of conflict of interest and hence causes delays and incomplete reporting of pest and disease outbreaks.
- *Conflict of interest between policy formulation, implementation, and results monitoring.* The agencies concerned with food safety and agricultural health set the standards and implement and monitor them, thus creating a vested interest in underreporting or delayed

reporting of infringements, to avoid exposing failures in implementing and enforcing the standards. Increasingly in the OECD countries, standards setting, implementation, and monitoring are therefore allocated to separate institutions.

- *Delayed reporting of pest and disease outbreaks because of bureaucratic delays in communication between field and national levels* Several activities within the animal and plant health safeguarding systems are carried out or supported by the provincial governments and their subordinate entities. Provincial, district, and local entities are units or branches within the body of the administrative structure of Vietnam. These administrative units are governed and controlled by an elected body, the People's Council, and managed by the People's Committee, as installed by the People's Council. Provincial bodies are a valuable resource and play a crucial role in implementing and supporting pest and disease surveillance and response initiatives. They are responsible for the declaration of pest and disease outbreaks and for the payment of compensation for destroyed animals, such as those affected by HPAI. This decentralized structure, however, requires effective coordination and collaboration between the national and provincial authorities for the effective implementation of national programs; this is often lacking. Resources, priorities, and the ability to exchange information and data may vary considerably between the various provinces and the PPD and DAH, in particular, in declaring disease outbreaks and imposing the required quarantine, control, and eradication measures. Such measures often need to transcend provincial barriers, and any delay in their implementation generally significantly increases the later costs of eradication. It is crucial that, as part to this Action plan, responsibilities and lines of communication are critically assessed to ensure timely and efficient interventions in case of a pest or disease outbreak.

Current trends in many of the industrialized countries (Australia, New Zealand, Canada, and the EU) are toward creating independent agencies, in particular for the policymaking and food inspection. Recent food scandals have shown the weakness and conflict of interest in situations where policy preparation, enforcement, and evaluation are left to one department, often one closely linked with the farm and processing sector rather than to consumers. The tendency is, therefore, to separate policymaking and evaluation from actual implementation, putting these tasks in the charge of an independent agency, at "arm's length" from the sector ministries. The technical implementation of policies (for example, vaccination campaigns and pest control) can be left to the responsibility of the technical agencies. Other countries, such as Japan and China, are seeking a closer cooperation of all institutions concerned by placing them under a lead agency, although such arrangements would only be advisable if accompanied by clear responsibilities and lines of command in the case of an emerging food safety crisis. Experience shows, however, that such clear lines of command are difficult to establish in many bureaucracies. Assuming that at this critical stage in Vietnam's development institutional change should be gradual and that the possibilities within the administrative structure of the public sector should be used, a short- and long-term approach is therefore proposed.

As described below, there are many short-term and long-term training needs, as food safety and agricultural health are new subjects for Vietnam, requiring specialized skills. Several of the needs are identified in the respective chapters on food safety, animal health, and plant protection. Vietnam's current approach is rather fragmented, often based on individual interests and initiatives. The preparation of a consolidated Human Development Plan, which would define the total staff needs, the specific skill requirements, and the existing skill gaps would increase the efficiency of the scarce human development resources available in the country and would help international partners in their decision making regarding training support.

### ***Short-term Actions***

- *Improve the coordination between agencies at the same level (“horizontal coordination”) by appointing **lead** agencies:*
  - *National Steering Committee and Food Safety Working Group for overall coordination and policy guidance, to be provided with clear terms of reference and a mandate that will enable these groups to make rationale decisions in the areas mentioned above;*
  - *Vietnam Food Administration, to take the lead in domestic food safety issues; and*
  - *The International Cooperation Department of MARD, and in particular the Enquiry Point and Notification Authority, to take the lead on SPS regulations concerning cross border trade issues;*
- *Improve coordination and pest/disease reporting procedures between the national and field levels by enabling direct reporting procedures without the interference of political institutions;*
- *Integrate the Food Safety Strategy being prepared by MOH and this Action Plan into one document;*
- *Prepare a Human Development Plan for Food Safety and Agricultural Health, consolidating human resource training needs for the different sectors for the short and long term; and*
- *Enhance Donor Coordination with the establishment of a working group in the Technical Ad Hoc Group on Trade under MARD-ICD.*

### ***Long-term Actions***

- *Establish a much stronger capacity at the central level for early alert and response for emerging diseases and pests; and*
- *Support the development of a central, independent food safety and agricultural health organization not linked to any technical (Health, Agriculture) line agency and with an institutional separation between responsibility for policy setting and monitoring and responsibility for implementation.*

## **3. Developing the Capacity for Risk Analysis**

Risk analysis is not only a requirement for access to foreign markets, it can be also used as a key instrument in supporting policy decisions on priority regulatory changes and investments. To implement risk analysis, Vietnam must develop the capacity to conduct analysis and collect the needed data. Detailed descriptions of the key needs in diagnostic capacity, surveillance, and documentation and databases are provided under the respective food safety and agricultural health sectors. A summary is provided below, and Box 10 provides an example of what is needed to carry out a risk analysis for exports to an FMD-free country.

***Short-term Needs*** Products with low risk for spreading disease or pests and with several years of prevalence data for which there is export potential to the United States or Australia/New Zealand (for example, dragon fruits, rambutans, litchi, or mangosteens), MARD or interested exporters could hire international consultants to conduct analysis and submit such analysis to the trading partner, while beginning to collect the needed prevalence data for other commodities.

The danger of unfocused data collection, which is costly and counterproductive, should be recognized, however, and choices should be made on the most likely export commodities and markets to tailor data collection only to those commodities and markets. Simultaneously, Vietnam needs to build up its own capacity by increasing awareness at the policy level and by developing basic skills in this area. This could be done either by sending analysts overseas for PRA training or by hiring a consultant to come to Vietnam to teach chosen analysts. Prospective

#### **Box 10. Risk Analysis: Evaluating the Risk Associated with FMD – An Example**

Risk managers of an FMD-free importing country are interested in the risk of a potential reintroduction of FMD into the exporting region and in the reliability of the various mitigation measures taken by the importing country to detect the virus in order to reduce the chance of the virus surviving in the meat entering their country to acceptable low levels.

The risk or frequency of FMD outbreak in a disease-free region depends on a variety of factors, including history of undetected prevalence of the disease in the exporting region, the prevalence of disease in adjacent areas, and the quality of border controls for animal movement.

A risk assessor would assess the probability of an introduction of FMD in his/her country or region by identifying the pathways by which introduction may occur, the probability that it might escape detection, the probability that the disease would survive transit, and the probability that FMD-tainted meat would arrive in a favorable location, contact a suitable host, and reproduce and spread. On the possible entry of the virus into the exporting country, the questions asked would be the following:

Given that an FMD outbreak occurs in the export region, is it possible that prior to detection:

- a) Infected undetected herds would provide animals for export slaughter?
- b) Infected animals would be selected from these FMD-infected herds?
- c) Virus carrying animals would be overlooked at ante-mortem and post-mortem inspections?
- d) Maturation processes and export treatments wouldn't remove the entire virus load from the products of the virus-carrying animals?
- e) FMD-infected products from virus-carrying animals would reach the importing country prior to detection of the outbreak in the exporting country?

The exporting country should be able to provide information on the following:

- *Disease situation:* Information should include data on the date of the last outbreaks in the region, the passive and active disease surveillance in the disease-free declared region, and the types of ante-mortem and post-mortem inspection done and the action taken on suspected disease cases. Information should also be provided on the results of annual serological surveys in the disease-free zone from pigs and other sentinel animals (cattle, buffalo, and goats), and the sampling approach taken.
- *Border controls:* Documentation should include information on land inspection posts and mobile inspection stations, the education and training of border control staff, passenger sanitary inspections at the disease-free ports or borders and international ports and borders (particularly if it involves transit directly from an area considered infected with FMD and/or a black market), the fate of confiscated animal products, and records on animal movement (legal and illegal).
- *Risk mitigation measures:* The documentation should include the rules and controls in place at the animal source and the conditions of the slaughter plants and information on whether all firms adopt the exporting requirements or whether the norms are only in place for those firms exporting to an importing country that requires them.
- *Human health risk mitigation measures:* Most developed countries require some equivalency agreement ensuring that the importing country's regulatory authorities have judged a potential exporting country's slaughtering system to be equivalent to their domestic system in producing safe products. The importing country evaluates the laws, regulations, and other documentation in five risk areas: sanitation controls, animal disease controls (that might affect human health), slaughter and processing controls, residue controls, and enforcement controls. Exporting countries submit a list of plants eligible to export. A plant must be certified for HACCP or another acceptable safety and quality management plan.

Source: Authors.

analysts should be either comfortable with statistics and economics and probability theory or scientists familiar with pests, diseases, or microbial pathogens. As there will be very few staff now familiar with statistics and economics, it will be necessary to start training Ministry of

Health, PPD, NIPP, and DAH professionals in the basic skills required for risk analysis, that is, analysis of probabilities and costs/benefits. The National Enquiry Point and Notification Authority could play an important coordinating role in this area, although the focus would need to be on capacity building in the respective technical departments from which, in the medium-term future, the risk analysis would be carried out. In addition, a needs assessment should determine the current status of the human resources and laboratory infrastructures in the different areas of food safety and plant and animal health, following the review already carried out by CIDA, and the requirements for integrating the local, regional, and national laboratory systems and the various national systems.

**Medium-term Needs** The medium-term emphasis should be on setting up programs at the technical departments to conduct analysis and aid in domestic decision making regarding the control of disease, pest, or food safety and to identify optimal control measures for export-oriented firms. A more in-depth training program, probably at a small number of universities, on how to conduct risk assessments and economic analysis would need to be started. At field level, the currently mostly passive surveillance systems should be expanded and intensified to more active systems targeting pests and diseases of economic and quarantine importance, as well as covering larger areas than are currently covered. In addition, the gaps identified in the diagnostic capacity (human skills and laboratory equipment and infrastructure) would need to be addressed. Improvements in the current fragmented and incomplete databases and documentation systems would be required, with emphasis on the priority areas of pesticide use, plant pests, and animal diseases. Finally, it is critical to raise the now limited awareness among the general public, particularly smallholder producers and traders and their customers, about agricultural health and food safety issues.

**Long-term Needs** With increased capacity at the level of the technical departments, the strategy could be either to continue analysis at the Ministries or increasingly to contract out to qualified national institutions (universities, research think tanks, or consultants). As in the area of food safety controls, so too in the area of risk analysis the danger exists of conflict of interest in giving the responsibility for the analysis to a technical sector agency. Asking the Ministry of Agriculture, for example, to assess the risk of using certain pesticides or feed additives could bias the recommendations towards the producers. An independent agency can be an attractive solution. Analyses would need to be linked to economic analysis so decision makers (risk managers) understand the impact of the decisions on all size producers, and the earlier risk analysis could be expanded to include different size producers and domestic consumption. Finally, the capacity should be established to alter and update analyses under emergency circumstances, such as a disease outbreak, to identify optimal control measures and emergency responses. Finally, emergency response systems should be developed.

#### **Short-term Actions**

- *Select key commodities and markets and collect prevalence data on diseases and pests required for those commodities and those markets; and*
- *Build up capacity for risk analysis by increasing awareness at the policy level and by developing basic skills.*

#### **Medium-Term Actions**

- *Set up programs at specialized agencies of VFA, PPD, and DAH to conduct analysis and establish comprehensive data systems accessible to all stakeholders;*
- *Establish university programs on risk assessment and economic analysis; and*

- *Raise the awareness of smallholder producers and traders and customers concerning agricultural health and food safety.*

***Long-Term Actions***

- *Expand the application of RA to include different size producers and domestic consumption;*
- *Consider the establishment of an independent risk analysis agency; and*
- *Create capacity to alter or update analyses under emergency circumstances to identify optimal control measures.*

## Chapter IV IMPROVING FOOD SAFETY

**Overall Framework** Under the Food Safety and Hygiene Ordinance, the Ministry of Health has been assigned responsibility for assuring the hygienic status of fresh and processed foods, with the Vietnam Food Administration (VFA) as the implementing agency (Prime Minister's Decision No. 14/1999/QĐ-TTg (April 2, 1999)). Within the VFA, the Registration and Certification Division manages the application for and announcement of product standards, and health certificates and monitors the management of import and export foods. The Information and Education Communication Division is responsible for risk communication and serves as a platform to provide information, educate consumers, and communicate with the media regarding food safety. Furthermore, the office provides training on a district level. The Integration and Development Division is MOH's contact point for international organizations on issues such as SPS.

The Food Administration has 41 staff members, all of whom are university graduates (four with PhDs and five with MScs). Its annual budget is about VND 500 million, of which 80 percent goes to staff salary costs, leaving a limited resource for operational activities. VFA does not have direct control over any other field staff, although the governmental administration at all levels together have a huge network. There are about 700 staff at the provincial Health Service Department and 2,000 staff in the Health Service Division at district levels. Depending on the size of the commune, numbers of staff can vary between 2 and 15 people in a commune health station. As there are about 10,000 communes in Vietnam, this could lead to a total of several tens of thousands of clinic workers in the Health Stations at commune levels.

**Overall Strategy** The overall strategic thrust of the food safety program (Box 11) is the provision of safe and healthy food at affordable prices to the Vietnamese consumer.

### Box 11. Key Policy Thrusts of the Food Safety Program Prepared by MOH

The outline of the current Draft Strategy for Food Safety prepared by MOH has as its overall goal the development of safe food markets serving domestic and export markets. It has the following implementation principles:

- (1) The FVA takes the leading role in enhancing food safety, strictly aligned with the local social-economic development of the country and supported by the other MOH institutions.
- (2) Education of all stakeholders throughout the food chain, including households, producers, and processor organizations, is a critical component.
- (3) Regular supervision, monitoring, and timely provision of incentive/treatment constitute other key elements.

The main approaches to be followed include active surveillance systems, with specialized inspection services and increased investments in HACCP, quick food testing, and early alert systems.

*Source:* Draft MOH Strategy presented at Final Consultation of the Action Plan.

This MOH Food Safety Strategy seems to focus on the domestic market and the safety of the end product. It strongly emphasizes education and public awareness, in which it already has a strong track record. It, therefore, complements this MARD-sponsored Action Plan, which is more focused on the entire food chain, with a strong cross-border trade emphasis. Still, as mentioned above on page 40, a compelling need exists for a very close collaboration between the different stakeholders to ensure that the threats to the food chain (for example, pesticides and animal diseases) are known by all stakeholders; this will ensure benefits from economies of scale



and avoid problems caused by individual sectors' vested interests. An integration of the two documents should therefore be considered.

## 1. Legislation

Vietnam's most important legislative document on food safety is the Ordinance on Food Safety and Hygiene, which took effect November 1, 2003. The ordinance seeks to ensure the safety and hygiene of foodstuffs during the process of their manufacture and trading and the prevention and remedy of poisonous foodstuffs and contagion via foodstuffs. All Vietnamese and foreign organizations and individuals must satisfy the business conditions prescribed in the ordinance for manufacturing and selling fresh and raw foodstuffs, processing foodstuffs, storing and transporting foodstuffs, and importing and exporting foodstuffs in Vietnam. For "high-risk" foodstuffs, state certification of satisfaction of business conditions is required. The ordinance also regulates the proclamation of food standards and the advertising and labeling of foodstuffs.

**Implementation of the ordinance** Decree 163-2004-ND-CD of the Government, effective September 29, 2004, provides detailed regulations for implementing the ordinance and specifically identifies and regulates in detail ten food products vulnerable to breaches of food safety and hygiene standards. Decree 163 includes detailed provisions on the conditions for manufacture and trading of foodstuffs and import of foodstuffs, as well as the State management responsibilities of ministries, branches, and people's committees for the implementation of foodstuffs hygiene, safety standards, and inspection of safety and hygiene practices, as well as the prevention of poisonous foodstuffs and contagions. Decree 163 also details the authority and procedures for the issuance of certificates of satisfaction of foodstuffs' hygiene and safety. Of interest, foodstuffs may not be imported into Vietnam if the remaining period of use is less than 66.6 percent of the period of use stamped on the label. Unprocessed foodstuffs derived from animals and vegetables must be granted a certificate of quarantine by competent State agencies. All materials and chemicals used in processing of foodstuffs, packaging directly touching foodstuffs, imported additives for food, and imported foodstuffs must be inspected.

**Enforcement** Currently, many pieces of food legislation seek to control the food business in Vietnam. Concerns remain, however, about inconsistent and inadequate surveillance and enforcement and rent seeking by the inspectors. Within provincial, district, and commune settings there are problems of insufficient re-sourcing and widely differing enforcement practices and priorities. In the framework of Technical Assistance Agreement between the Asian Development Bank (ADB) and the Government of Vietnam<sup>57</sup> and coordinated by the WHO, the existing food legislation was carefully reviewed. Updating and harmonization of legislation, started during this project, has been under intensive elaboration and still continues. The Ministry of Health, with support of the WHO, is currently undertaking an inventory of all Vietnamese food standards and their comparison with Codex standards. In the first phase, the inventory focuses on chemical contaminants and food additives; in the second phase, on microbiological parameters. As of March 2005, comparisons had only been made between Vietnamese standards and Codex standards on pesticide residues, for which MRLs have been defined, showing that, compared with the standard's 132 values, Vietnam had defined values for 99.

## 2. Integrated Food Safeguarding System

**International activities: Compliance with Codex** Forty-eight percent of Vietnam's food standards is harmonized with Codex standards (as of March 2005). For the remaining standards, priority should be given to standards that are essential to the protection of public health, easy to enforce, and unlikely to increase the price of food excessively to the extent of

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<sup>57</sup> Report December 2002

taking the food out of reach of poor consumers. Vietnam takes an active role in the international standards setting process, although the preparation of national positions in the country itself for Codex committee meetings is often weak, affecting Vietnam's ability to play an effective role internationally in the process of standards setting.

#### ***Short-term Actions***

- *Complete the analysis of the gaps between national and international (Codex) standards and identify the priority actions to be harmonized, considering their effect on public health, affordability of food to the poor, and enforceability; and*
- *Integrate this Action Plan with the Food Safety Action Plan being prepared by the Ministry of Health.*

**Detection and surveillance** As seen in Chapter II, quantitative data on the safety of Vietnam's food supply is scarce, with few independent, critical assessments of the integrity or validity of the published information available and little information as well on the analytical methods used in the sampling and analysis of foodstuffs. The lack of information is exacerbated by the inadequate passive food-borne disease surveillance system in Vietnam, which doesn't provide for timely outbreak detection and response at national, provincial, district, and communal levels. With support from WHO, VFA has set up a pilot surveillance system in five provinces to monitor food safety.

#### ***Short-term Action***

- *Increase awareness and training among medical professionals of appropriate diagnostic techniques and continue improvements in laboratory methods. These will increase the capacity to detect and investigate diarrhea outbreaks. Training would be, by preference, undertaken by two separate task forces for the central policymaking level, one focusing on risk assessment of chemical contaminants and the other on risk assessment of microbiological contaminants.*

#### ***Medium-term Action***

- *Expand the current active surveillance system in some provinces to an enhanced active surveillance system that integrates into the present weekly reports of the communicable disease surveillance systems that monitor cholera and typhoid rather than creating a separate surveillance. These active surveillance systems should be launched in all provinces, with upgraded outbreak investigation skills and training of local outbreak investigation groups.*

**Diagnostic capacity** The National Food Safety Laboratory (NFSL) network is the main diagnostic arm of MOH. It consists of laboratory units working at regional, provincial, and district levels. Four laboratories in the different regions of Vietnam are under the direct control of MOH. They are (i) The National Institute of Nutrition in Hanoi for twenty-eight northern provinces; (ii) the Institute of Hygiene and Public Health in Ho Chi Minh City for eighteen southern provinces; (iii) the Pasteur Institute in Nha Trang for eleven coastal provinces; and (iv) the Institute of Hygiene and Epidemiology in Da Lat for four provinces in the Central Highlands. In addition to conducting food analysis, the key task of the regional laboratories is to provide guidance, standardization, and training for provincial laboratories. According to the regulation Nr. 1845/1999/QD-BYT, issued June 17, 1999 by the Ministry of Health, the regional laboratories are also responsible for the food safety control of imported food.

The NFSL network is not yet fully functional, however. The four regional laboratories are underutilized, and none of these laboratories has been accredited internationally according to

the ISO/EN 17025 standard. With regard to chemical parameters, differences exist between the regional laboratories in their capacity to analyze the vast array of chemical hazards and quality parameters important in food safety control (that is, antibiotic and drug residues, hormone residues, pesticide residues, herbicide residues, heavy metals, nutritional composition, food additives, mycotoxins, environmental pollutants). With regard to microbiological parameters, the scope of competence in three regional laboratories is approximately at the same level, compared with the highly differing skills in chemical analysis. Three of the laboratories are currently capable of analyzing more than 80 percent of twenty-one of the microbiological parameters reviewed in the survey. Donors have been important in supporting these laboratories. France and Belgium support of the Pasteur Institute, while the United States, Australia, New Zealand, the Netherlands, and the WHO support the Hygiene and Public Health Institute.

Provincial food safety laboratories working under the technical guidance of regional laboratories belong to the Preventive Medicine Centers in all of the sixty-four provinces. Provincial laboratories usually consist of chemical and microbiological units. The tasks of provincial laboratories are to: (i) analyze food and water samples according to the request of the Food Administration, using basic techniques; (ii) provide supervision on food and water hygiene and safety issues at provincial markets on a regular basis; (iii) screen and identify the causes of food-borne diseases; and (iv) collect and store samples for solving food-borne disease outbreaks and, when needed, forward them to regional food laboratories. Although a large number of the provincial laboratories are now being equipped with new instrumentation, the equipment is often not in fully effective use mainly due to lack of accessories, standard chemicals, and skilled staff. Routine control of food safety has been one of the main tasks of provincial laboratories. At present, their capability is often limited to two to five parameter groups (for example, nutritional composition and food additives).

***Short-term Action***

- *Prepare a detailed assessment of the current laboratory capacities and the requirements to bring at least four laboratories up to ISO 17025.*

***Medium-term Action***

- *Provide the required inputs to bring at least four laboratories up to ISO 17025 and to bring local laboratory capacity in line with the needs of a national active surveillance system.*

**Information management capacity** Current data systems are fragmented due to a lack of connectivity both vertically, between the national and provincial systems, and horizontally, between food safety and agricultural health agencies.

***Short-term Action***

- *Develop the software and prepare the requirements for an integrated database on food safety.*

***Medium-term Action***

- *Develop an integrated database and information management system for surveillance and contaminant data and supply policymakers with the baseline data required for a risk assessment of chemical and microbiological hazards in food.*

**Residues in the food chain** The key constraint in reducing the high levels of pesticides and antibiotics in the domestic food supply (Chapter II) is the enforcement of the existing regulations. A weak monitoring capacity leads to extensive use of pesticide residues above the

permitted limit. The availability of rapid field tests, sufficient laboratory capacity to conduct chemical tests, and an adequate number of trained personnel are major constraints to a creditable pesticide enforcement program at the farm level.

#### ***Medium-term Action***

- *Develop a database on pesticide use, violations, and so on, using Quick Test technology in the production areas, backed up by more precise laboratory analysis;*
- *Develop a program with the main buyers to implement Quick Test technology; and*
- *Strengthen enforcement of maximum residue levels, in particular in partnership with private buyers.*

### **3. Risk Analysis**

VFA's capacity to carry out risk analysis, in particular regarding biological and chemical pollution, is weak. It therefore requires the following actions:

#### ***Short-term Actions***

- *Raise greater awareness on the potential role risk analysis can play in decision making on a more efficient allocation of resources; and*
- *Train a small number of VFA staff in the basic concepts of risk analysis.*

### **4. Communication**

The VFA has the important responsibility of raising public awareness in general and, in particular, of educating customers on the health implications of unsafe food. As shown in Box 12, its recent performance has been good, and should be strengthened.

#### **Box 12. The MOH's Experience in Raising Public Awareness**

In 2002, with support from the WHO and ADB, the Office for Communication, Education, and Network Management was established within the Food Administration. The office presents information, education, and communication on food hygiene and safety in many forms, for example, media articles, reports on food poisoning cases (including news on television, in newspapers, and on national and provincial radio). It keeps a close relationship with newspapers and magazines, with meetings every three months. Communication activities have also been undertaken either as a regular campaign, such as the Action Month for Food Quality, Hygiene, and Safety, or focused on important events during the year, for example, the Vietnam New Year's (Tet) holiday. At the provincial level, communication and education work relies on staff of the Provincial Preventive Medicine Centers, and at the district level, on the District Health Centre. From each district, information is also communicated to residents of communes through local radio. The Office for Communication, Education, and Network Management trains personnel to act as communicators in the districts. The training focuses on developing communication plans and communication skills. The work is executed in relation with other Ministries and organizations such as the Ministry of Education and Training, the Ministry of Police, the Women's Union, and the Customers' Protection Organization.

The Center for Communication and Health Education is a unit within the Ministry of Health responsible for the Ministry's health education and communication activities. It undertakes some minor food hygiene and safety activities, including provision of printed material and reporting of events through the media. Considerable information on food hygiene and safety is also published by the Ministry of Health through its newspaper "Health and Life".

### ***Short-term Action***

- *Continue to strengthen VFA communication office.*

## **International support**

The New Zealand Agency for International Development (NZAID) is funding the Food Safety Project,<sup>58</sup> a three-year program to be implemented by FAO/WHO that will develop a science-based food control system in Cambodia, Lao PDR, and Vietnam. The important areas will include legal and regulatory framework for food safety, food control management, inspection and laboratories, improved hygiene/manufacturing practices and quality assurance, consumer awareness, and food-borne disease surveillance.<sup>59</sup> For Vietnam, the project aims to rationalize the country's various regulations and standards into a comprehensive Food Safety Code; to upgrade the scientific, technical, and managerial capability of food laboratories and inspection services to improve monitoring, compliance, and enforcement activities; and to expand the sentinel food-borne disease surveillance program to an additional three provinces.

The ASEAN Australia Development Cooperation Program (AADCP), funded jointly by the Australian Agency for International Development (AusAID) and ASEAN, has a program stream component on food safety, the Strengthening Risk Assessment Capability to Support Food Safety Measures Project. It will include training courses on risk assessment and the eventual compilation of a directory of ASEAN risk assessors and risk managers.

A joint undertaking by Vietnam and Canada is the Food Quality Development and Control Initiative. The project aims to define needs for technical assistance by undertaking a national survey with systematic food products sampling and analysis at various wholesale and retail distribution points; to develop a core team of HACCP lecturers/trainers from the staff of MARD Veterinary and Plant Protection Departments, the Food Administration, and STAMEQ who then could provide technical assistance to the industry; to increase and upgrade existing laboratory equipment and capacities; to promote the adoption of quality grades and standards as a basis for payment, thereby promoting and sustaining good/best practices and product quality in the food production and processing industries; and to provide assistance to primary producers and processors toward improving production and manufacturing practices.

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<sup>58</sup> FAO/WHO/Government Cooperative Program, October 2004.

<sup>59</sup> Project Document, September 15, 2004.

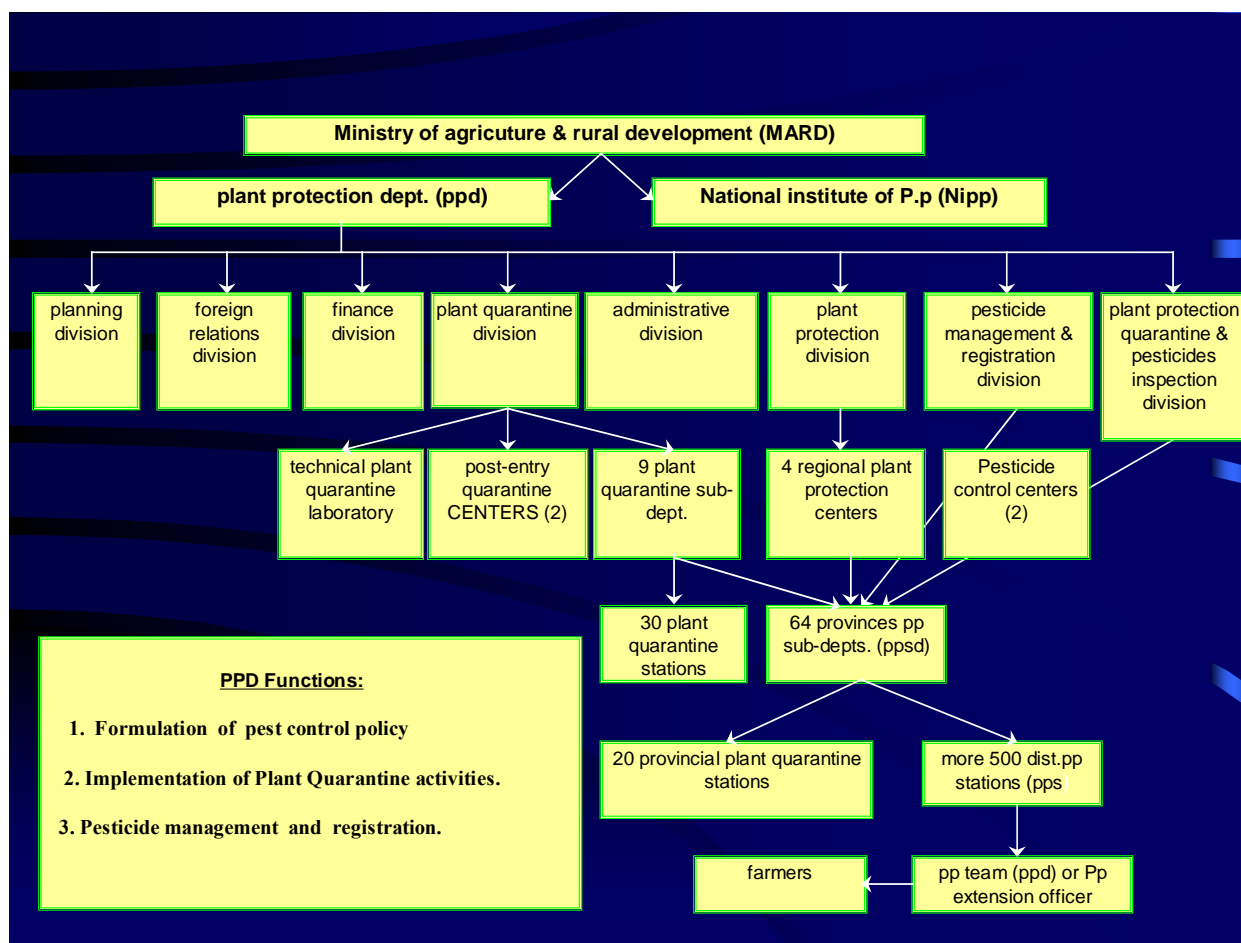
## Chapter V STRENGTHENING PLANT PROTECTION

**Overall framework** Vietnam's Plant Protection Department (PPD) is the National Plant Protection Organization (NPPO) responsible for carrying out the functions specified in the International Plant Protection Convention (IPPC) and for overseeing the agricultural plant safeguarding system. The PPD has developed the following draft mission statement:<sup>60</sup>

To become a highly effective, efficient and professional NPPO with the capacities and competencies to protect the nation's plant health status and biodiversity and promote market access for plant and plant products in compliance with international agreements and standards.

Plant health functional responsibilities in Vietnam are delegated to two primary PPD Divisions: the Plant Quarantine (PQ) Division and the Plant Protection (PP) Division (see Figure 8).

**Figure 8. Institutional Arrangements for Plant Protection**



Source: Plant Protection Department, MARD.

<sup>60</sup> Phytosanitary Capacity Development Strategic Plan 2004-2009.

**International activities** Vietnam has been a contracting party to the IPPC since February 2005. In operating a plant health safeguarding system, the NPPO has a number of responsibilities. These responsibilities are identified in Articles IV, V, and VII of the IPPC relating to imports and exports and include surveillance, inspection, issuance of phytosanitary certificates, disinfestation or disinfection, the conduct of pest risk analysis, and training and development of staff. These responsibilities involve related functions in areas such as administration; audit and compliance checking; action taken on noncompliance; emergency action; authorization of personnel; and settlement of disputes. In addition, contracting parties may assign to the NPPO other responsibilities, such as regulatory development and modification. Additional requirements are for international and national liaison, documentation, communication, and review.

PPD has been actively involved in various IPPC Committees and working groups and the Asian Plant Protection Commission (APPC). Ongoing ASEAN subregion (Cambodia, Laos, Myanmar, and Vietnam, CLMV) capacity building programs with the assistance of AusAID and NZAID, regional phytosanitary harmonization efforts and bilateral agreements, and pre-clearance programs, are indicative of international pest mitigation efforts.

## 1. Legislation

**Overview** The overarching international regulatory framework consists of a set of International Standards for Phytosanitary Measures (ISPMs) adopted by contracting parties to the IPPC through the Interim Commission on Phytosanitary Measures. ISPMs are the standards, guidelines, and recommendations recognized as the basis for phytosanitary measures applied by members of the World Trade Organization under the SPS Agreement. Thus far, contracting parties to the Convention have adopted twenty-four ISPMs and more are in the developmental process. ISPMs are primarily directed at the international movement of plants and plant products and have little or no direct impact on domestic trade.

**Ordinance** Basic plant health enabling legislation is contained in the Ordinance on Plant Protection and Quarantine and Decree No. 58/2002/ND-CP, of June 3, 2002, promulgating the Regulation on Plant Protection, the Regulation on Plant Quarantine, and the Regulation on Management of Plant Protection Drugs. Vietnam's legislative framework is generally consistent with the requirements of the IPPC and international standards. Authority to prohibit high-risk plants and plant products based on scientific evidence and authority and procedures to enable PPD to respond rapidly to newly detected alien pests is unclear and weak, however. Potential deficiencies are noted below. A more thorough review of current legislation by the FAO is planned.

**Implementation** Current policy of the PPD is to adopt ISPMs to the extent possible as Vietnam's national standards. Table 11<sup>61</sup> provides the current understanding of the degree of implementation of the different ISPMs (Box 14). Vietnam has adopted three ISPMs, expects to adopt another three in the near future, and will review the remaining standards over the next three years. While full adoption is justified in the long term, an assessment of Vietnam's implementation capacity and of the costs and benefits of domestic adoption would be recommended as a future policy decision. Such a prudent policy of adopting standards, similar to the one recommended under the food safety standards — restricting new standards to those that

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<sup>61</sup> Three additional ISPMs were adopted in April-June 2005 that are not included in Table 11.

can be enforced and are economically justified — would avoid weak implementation with the potential pitfalls of rent seeking, loss of credibility of the services, and hurting poor consumers.

**Priority gaps to be addressed** Special weaknesses in the enabling legislation supporting the application of the ISPMs, which need to be addressed as part of this Action Plan, include the following:

- The authority to prohibit high risk plants and plant products based on scientific evidence and supporting pest risk analysis (ISPM No.20). Currently, PPD must actually observe a quarantine pest on a commodity to take action. Some pests of importance to Vietnam cannot be found through inspection. Consignments' phytosanitary security stipulations are also lacking.
- The authority to require an import permit for unprocessed plants and plant products (ISPM No.20). Import conditions, however, for example, import permits, restrictions, and prohibitions, and required phytosanitary treatments are to be stipulated.
- The authority to establish pest-free areas in compliance with IPPC Article IV 2(e) (ISPM No.8 and ISPM No.10). Criteria for the establishment of pest-free areas are yet to be developed, however.
- The authority to control the importation of genetically modified organisms (ISPM No.3).
- The designation of the NPPO with the responsibility for reporting to the Secretariat of IPPC (IPPC Article IV 4).
- The codification of the concept of minimum impact when implementing phytosanitary measures (ISPM No.1).
- The authority for the national government to take emergency phytosanitary measures, including eradication programs, against newly established alien pests.

<b>Table 11. Adoption of ISPMs by Vietnam</b>		
ISPM No.	TITLE	STATUS
1	Principles of Plant Quarantine	A
2	Pest Risk Analysis	A
3	Exotic Biological Control Agents	X
4	Establish Pest-Free Areas	P
5	Glossary of Phytosanitary Terms	A
6	Guidelines for Surveillance	P
7	Export Certification System	PL
8	Pest Status in an Area	P
9	Pest Eradication Programs	PL
10	Pest-Free Places of Production	P
11	PRA for Quarantine Pests	P
12	Phytosanitary Certificates	P
13	Notification of Noncompliance	P
14	Systems Approach for Risk Mgt	PL
15	Wood Packing Material	PL
16	Regulated Non-quarantine Pests	PL
17	Pest Reporting	P
18	Irradiation	X
19	List of Regulated Pests	P
20	Import Regulatory System	PL
21	PRA for Regulated Non-quarantine Pests	PL
<i>Note:</i> Status codes: A: adopted; P pending adoption; PL planning adoption; X cannot comply at this time.		

### Box 13. Progress in Implementing Pest Risk Analysis

Conducting pest risk analysis has been identified as a strategic need in MARD. ISPM No. 2, *Guidelines for Conducting Pest Risk Analysis*, has been adopted by Vietnam as a national standard. Training of fourteen senior PPD officials has been completed. Training of pest risk assessors by donors is in the planning stages or already underway. A number of evaluations have already been done on the risk of imported seeds and some products for export to the United States and Japan. Operational guidelines, computer software, and access to scientific literature and databases still need to be developed.



In 2001, MARD/PPD, with the assistance of New Zealand Agency for International Development (NZAID), undertook a Phytosanitary Capacity Evaluation (PCE) to provide the PPD with a long-term direction for plant protection, using the computer-based FAO Phytosanitary Capacity Evaluation tool. The tool is based largely on the capacity of the NPPO to carry out provisions of the SPS Agreement and the IPPC. The tool identified capacity gaps that established the basis for identifying key strategic issues in support of a PPD strategic planning effort. A strategic action plan, consisting of goals, objectives, and activities, was developed.<sup>62</sup> The PCE assessment and subsequent needs assessments on diagnostic capacity<sup>63</sup> provide a sound basis for moving forward with specific capacity building initiatives. The capacity gaps identified in this intensive assessment effort are recharacterized in this Action Plan in the context of the plant health safeguarding system approach. Several of the activities identified in the action plan are underway with the assistance of donor agencies.

## **2. Port-of-Entry Pest Exclusion and Quarantine**

**Overview** Vietnam currently lists sixty-one insects, diseases, nematodes, and weeds of economic importance that do not occur or are not widely distributed in the country and are the focus of the exclusion program. The Plant Quarantine Division (Figure 9) consists of a network of three plant health technical centers, nine regional plant health subdepartments and over thirty Plant Quarantine stations located at twenty-one land border crossings, two airports, five seaports, and two railroad crossings. The PQ network is a direct-line organization with approximately three hundred headquarters and field employees responsible for the importation and exportation of plants and plant products. Each of the field stations is staffed with three to five Plant Protection Inspectors (PPI). PPIs hold basic university degrees in plant protection or related disciplines. The national network also provides guidance, training, and general oversight to employees of the sixty-four provincial subdepartments, which perform plant quarantine duties at lower risk locations, mainly land border crossings. The PQ network is compliant with provisions of the IPPC, especially as they relate to the issuance of phytosanitary certificates. Their main inspection responsibilities are the inspection of imported germplasm and inspection of plants and plant products for import and export.

**Germplasm imports** Significant amounts of seed and other plant material for propagation are imported. PEQ Station 1 tests only about 300 to 350 varieties annually, which is at the level of some of the small countries of the EU. Personal communications indicate that higher volumes of plant material are imported through PEQ Station 2, but quantitative data on importations and pests found was not available. Vietnam requires virus-free certification from accredited foreign laboratories for importation of certain types of high-risk germplasm. Imported seed and other plant material for propagation are subject to inspection based on small samples and post-entry quarantine. An in-depth assessment is needed of the entire process for handling imported plant material for propagation from the PRA supporting the import permit decision to final release of the material for field planting.

**Export certification** The purpose of the phytosanitary certificate is to expedite the entry of plants or plant products into a foreign country. The NPPO certifies to the foreign plant protection service that the shipment has been inspected and was found to conform to the phytosanitary import requirements of that country. In addition, the NPPO attests that the shipment is free from quarantine plant pests and is practically free from other injurious pests. Not all countries, for example the United States, require phytosanitary certificates for all commodities

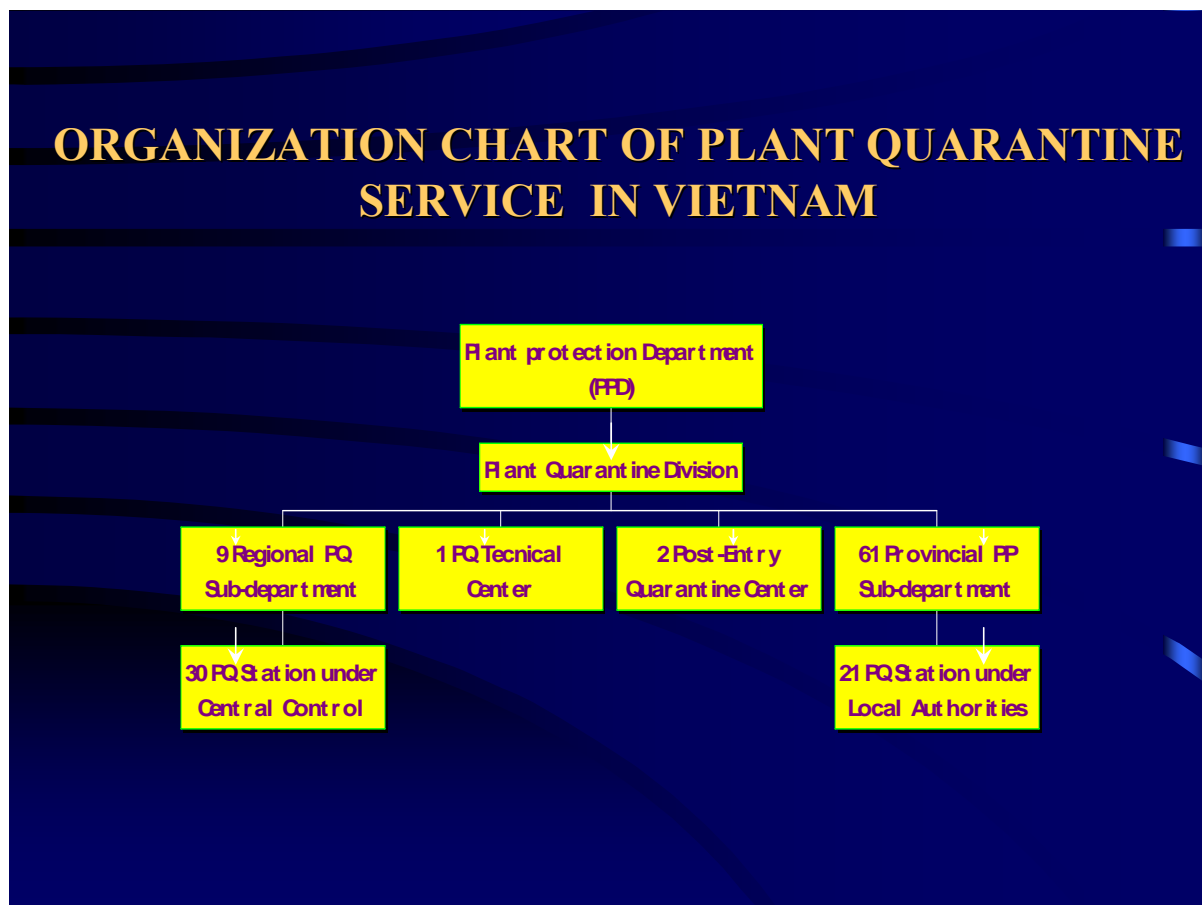
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<sup>62</sup> Phytosanitary Capacity Development Strategic Plan 2004-2009.

<sup>63</sup> AusAID 2002a and 2002b.

as a condition of entry. For some types of lower risk products, the United States relies on inspection at the port of entry. Phytosanitary certification is not mandatory, but it is a service provided by the NPPO. PPD issues over 200,000 phytosanitary certificates annually. PPD officials indicated that some certified fresh vegetable shipments to the European Community were found infested with live pests. It is difficult to determine the reason for these breakdowns. They could be attributed to faulty inspections by PPD, exporters substituting a different product for an inspected product, or a combination of the two. Nevertheless, these situations reduce the creditability of Vietnam's phytosanitary inspection and certification activity and could result in destruction of the product, increased costs to the exporter, or the loss of an export market.

**Figure 9. Plant Quarantine Service**



Source: Plant Protection Department, MARD

Creditable import and export inspection is contingent on the inspector performing the inspection knowing what pests to inspect for and how to inspect for them, having the necessary tools to inspect for them, and knowing what to do when they find a pest. Imported plant material is inspected based on a relatively small sample taken by the inspector and examined in the Plant Quarantine laboratory. It is not known if the rate of sampling and the type of sampling is adequate to provide an appropriate level of quarantine security based on perceived risk. The capacity to conduct high-quality inspections is critical at all inspection points and especially critical at the two post-entry stations inspecting high-risk germplasm and post-entry plant material for propagation.

Since local trade in agricultural products across land borders is considered by PPD to present a low risk for introducing alien pests, the emphasis should be on the potential threats of more distant ecosystems, which may harbor different pests; therefore the likelihood of alien pests entering Vietnam from China should be a high priority for pathway analysis.<sup>64</sup> In the absence of local skills, Technical Assistance might be required to do these analyses. A major need exists to evaluate current phytosanitary measures regarding national quarantine installations and procedures, their specific pests focus, and the feasibility of regional coordination.

#### ***Short-term Actions***

- *Carry out an in-depth assessment of the entire process for handling imported plant material for propagation from the PRA supporting the import permit decision to final release of the material for field planting;*
- *Implement the recently issued ISPM No. 20, “Guidelines for a Phytosanitary Import System,” and ISPM No. 21, “Pest Risk Analysis for Regulated Non-quarantine Pests,” which, respectively, describe the essential components of phytosanitary import regulatory program at ports of entry and the guidelines for conducting pest risk analysis for regulated non-quarantine pests;*
- *Carry out an assessment of inspection procedures, training, and equipment and facility needs at port-of-entry Plant Quarantine Stations, ensuring adequate inspection areas with suitable tables and lighting; minimum equipment, including computers, inspection manuals, and pest identification references, stereo and compound microscopes, illuminated magnifiers, fumiscopes (for monitoring fumigations), and safety equipment; and*
- *Initiate pathway analyses on the threat posed by local traffic at land border crossings, with special attention given to the northern crossings.*

#### ***Medium-term Actions***

- *Conduct PRA on all currently regulated plant pests to technically justify the need to regulate them and to validate current phytosanitary measures; and*
- *Assess the feasibility of developing regional approaches for clearing high-risk germplasm in view of the cost of a high-security facility, the expertise needed, and the high cost of state of the art testing equipment. Collaboration with scientists from Australia, New Zealand, or the United States would help identify what is needed, but the CLMV countries would have to agree.*

#### ***Long-term Action***

- *Upgrade the capacity of the regional or national level (depending on the short feasibility study mentioned above) port-of-entry quarantine stations to process high-risk germplasm and plant materials for propagation including climate controlled greenhouses, screen houses, seed X-rays, incubators, fumigation chambers, camera microscopes, vapor heat chambers (import and postharvest treatments), and virus testing equipment and methodologies.*

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<sup>64</sup> A pathway analysis is a risk analysis assessing the channels by which new pests and diseases may enter the country.

### 3. Pest Detection and Surveillance

**Overview** The Plant Protection (PP) Division has the functional responsibility for conducting pest detection and surveillance activities, providing monitoring and forecasting services, guiding the control of major plant pests, and, in cooperation with provincial authorities, proposing to the Minister of MARD to issue or cancel decisions on plant pest outbreaks. PP operates through four Regional Plant Protection Centers, and its functions are integrated into the 64 provincial plant health stations and 534 plant protection stations. PP has direct supervisory authority over approximately 100 employees and provides technical guidance to about 3,500 employees working in the provincial administrative structure. PP provides policy guidance, coordinated national planning, and continuity to their functional areas. PP does not have direct supervisory control over pest surveillance and emergency response activities within the provinces and subordinate entities.

**Pest surveillance capacity** Historically, pest surveillance programs have mainly focused on supporting Integrated Pest Management (IPM) programs for a relatively small number of readily observable endemic pests. Most of the data collected is used to monitor pest population levels to determine appropriate interventions. The survey requirements contained in ISPM No.6, “Guidelines for Surveillance,” are significantly different, requiring a much higher level of planning and coordination, survey methodologies, diagnostic skills, and data collection, storage, and retrieval. The infrastructure developed for IPM programs can be used to capture pest information to meet international standards for pest status determinations. PPD and provincial decision makers, however, need to understand that the resources and training required to meet the international standards for pest surveillance operations are substantial and that a concerted effort must be made to optimize and integrate the operations of all entities.

Effective pest survey programs serve a number of functions: providing up-to-date information on pest status in the country (including distribution, prevalence, and economic significance), providing a means of detecting new pests introduced early enough that prompt action can be taken on eradication or control, and providing basic input into the pest risk assessment process. A nationally coordinated plant pest surveillance program increases the probability of detecting and controlling alien pests before their populations reach an unmanageable size.

Detection of alien plant pest incursions may occur by two disparate means, passive detection and active surveillance. Passive detection of invasive plant pests occurs during other scientific field work, such as crop surveys, population studies, faunal or biodiversity surveys, endemic species inventories, incidental reports from the general public, and other such activities. Passive surveys establish presence only. Active surveillance documents the presence or absence of pest species, generates information that assists international trade, and provides input into the risk analysis process.<sup>65</sup> The SPS Agreement stipulates that scientific means must be employed to establish pest-free status. Exporting countries claiming freedom from a pest must provide the necessary evidence regarding geographic distribution, epidemiology, eradication or control programs, inspection, sampling, and testing methods to objectively demonstrate these claims to the importing country.

Only active surveillance using scientifically valid methods produces results that can be used to statistically infer the absence of pests. Active surveillance is target-specific and requires basic knowledge of invasive plant pest threats and pathways, as well as an effective detection

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<sup>65</sup> ISPM No. 6, Guidelines for Surveillance FAO 1996.

methodology. An extensive pest surveillance action plan<sup>66</sup> has been developed by PPD. Implementing an effective national surveillance program is a major initiative and very resource-intensive over the long term. Regardless of the long-term nature of this initiative, however, several of the action items should continue in the short term as identified in the PPD action plan. PPD identified the need for a concept or background paper for formulating a national project on strengthening plant pest surveillance systems in Vietnam. The concept paper should include the need for a comprehensive review of the plant pest surveillance systems and Vietnam's capabilities and strategic options for meeting international standards. Also, to meet PRA data needs in support of market access requests, PPD should continue to design and implement commodity specific surveys.

**Pest surveillance needs** A clearly defined, comprehensive, and coordinated alien plant pest detection program within Vietnam is of the utmost importance to its agricultural industries and to the nation as a whole. Early detection of alien plant pests that pass through exclusion barriers increases the likelihood of timely eradication, if feasible, or the launching of cost-effective mitigation measures. AusAID SPS and ACIAR are currently leading an initiative to develop the document "Survey Toolbox for Plant Pests – A Practical Manual for Surveillance of Agricultural Crops and Forests." Coordinated detection initiatives at the provincial and national levels are essential to assure that detection objectives are properly defined and executed in a timely manner. The PCE assessment provided clear recommendations on tools and surveillance strategies.

#### ***Short-term Actions***

- *Conduct a comprehensive review of Vietnam's plant pest surveillance systems and capabilities and develop strategic options for meeting national and international standards;*
- *Continue development of the survey tool box for current survey activities; and*
- *Design and implement commodity-specific surveys to meet PRA data needs in support of market access requests.*

#### ***Medium-term Action***

- *Design and implement a clearly defined, comprehensive, and coordinated national plant pest surveillance program. Phase in implementation based on high priority crops for export and in limited geographic areas.*

**Pest diagnostics** The NPPO has some capacity to undertake pest diagnosis in most disciplines except virology and weed science. The technical staffs employed by the NPPO are largely holders of basic degrees who work mainly in entomology. Further advanced training is required for staff in most disciplines, especially in the use of modern rapid diagnostic methods. This is particularly true when inspecting high-risk plant material imported for propagation at the two post-entry quarantine stations. A follow-up needs assessment by AusAID concluded that a high level of skill in the technical disciplines exists outside of the NPPO in the National Institute for Plant Protection (NIPP), Hanoi Agricultural University, and the Rice Institute.

Current equipment is outdated, while new technology using high definition digital imaging systems is available for transmitting digital pictures of insects and pathogens via the Internet to taxonomists located throughout the world. Documented systems need to be

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<sup>66</sup> Phytosanitary Capacity Development Strategic Plan 2004-2009.

developed, as well as a computerized management information system that would better enable technical personnel to coordinate laboratory activities. Plant health safeguarding systems and market access initiatives are dependent on a high-quality arthropod collection and disease herbarium to serve as a reference source when identifying organisms and validating the pest status of a country. Currently, the generally poorly maintained collections are scattered among various institutions and housed in inadequate facilities. The Institute of Ecology and Biological Resources (IEBR) also has taxonomic capacity; it maintains the largest arthropod collection in Vietnam, but there seems to be little coordination between the various institutions.

**Pesticide monitoring** PPD also has the functional responsibility for regulating pesticides and implementing pesticide residue control for agro-forest products. Four central units are involved in pesticide regulatory activities: the Pesticide Division, the Legislative Inspection Division, the Northern Pesticide Control Center, and the Southern Pesticide Control Center. The two central laboratories are internationally accredited and process about 2,000 plant residue samples for 40 active ingredients annually. Vietnam has approved 329 active ingredients for use. Approximately 80 staff at the central level are devoted to pesticide regulatory functions. Additionally, it is estimated that 5 to 10 inspectors per province are involved in pesticide enforcement activities as part of their normal duties.

#### ***Short-term Action***

- *Analyze all strategic options for providing specialized virology and bacteriology taxonomic diagnostic services, including centers of taxonomic expertise located outside Vietnam, for the commodities with immediate export potential.*

#### ***Medium-term Actions***

- *Provide advanced training for PPD and NIPP staff in most taxonomic disciplines, including weed science, and especially in the use of modern rapid diagnostic methods;*
- *Provide modern diagnostic equipment, including high definition digital imaging systems for transmitting digital pictures of insects and pathogens via the Internet to taxonomists located throughout the world; and*
- *Develop a documented information management system to increase coordination and collaboration between diagnostic laboratories.*

#### ***Long-term Action***

- *Rehabilitate the NIPP reference collections or establish a new national center for arthropod and pathogen reference collections, including climate-controlled facilities, data basing, modernize taxonomic methodologies, diagnostic software, and so on, to support plant quarantine, pest surveys, and IPM work.*

**Information management** Significant information gaps in PPD's capacity to meet international standards have been identified. Import inspection, phytosanitary certification of agricultural commodities, and pest surveillance are major activity areas for PPD. Most frontline work is undertaken by staff employed by the nine regional plant quarantine subdepartments and the sixty-four provinces. To meet international and national standards, nationally consistent systems need to be developed by the NPPO, including documented systems on all processes and procedures relating to inspection activities, record-keeping systems, certification systems, pest surveillance activities, and so on. Because inspection, certification, and pest surveillance activities are undertaken at various regional offices, land border ports, airports, and seaports and

provincial stations, reliable information exchange between the NPPO central office and field offices is very important but is currently often lacking or cumbersome. The NZAID-ASEAN Phytosanitary Capacity Development program has devoted considerable resources over the past four years to developing and installing a server-based integrated database developed by GBS & Associates, NZ, called the National Phytosanitary Database (NPD). The NPD can provide the platform for a national plant health information management system. Efforts should continue to develop the software information modules, expand geographical installations to fieldwork stations, and provide connectivity through a wide area network. Stand-alone versions of the NPD were also installed in Ho Chi Minh City subdepartment offices. The NPD would provide the platform for the national plant health information management system necessary to meet international and national standards, including documentation on all processes and procedures relating to inspection activities, record-keeping systems, certification systems, pest surveillance activities, and so on, as well as all data from inspections, certifications, and pest surveillances carried out.

**Information management systems** Information is an essential component in the success of a safeguarding system and in particular in the preparation of reliable risk assessments. The current system of work of the Plant Quarantine and Plant Protection divisions is conducted at widely dispersed locations by both centralized and decentralized units (regional offices, land border ports, airports, and seaports, and provincial stations). An integrated National Phytosanitary Database, updating connectivity and geographical coverage as presented in Figure 10, would be an essential part of addressing this fragmentation and developing risk assessment capacity.

#### ***Short-term Actions***

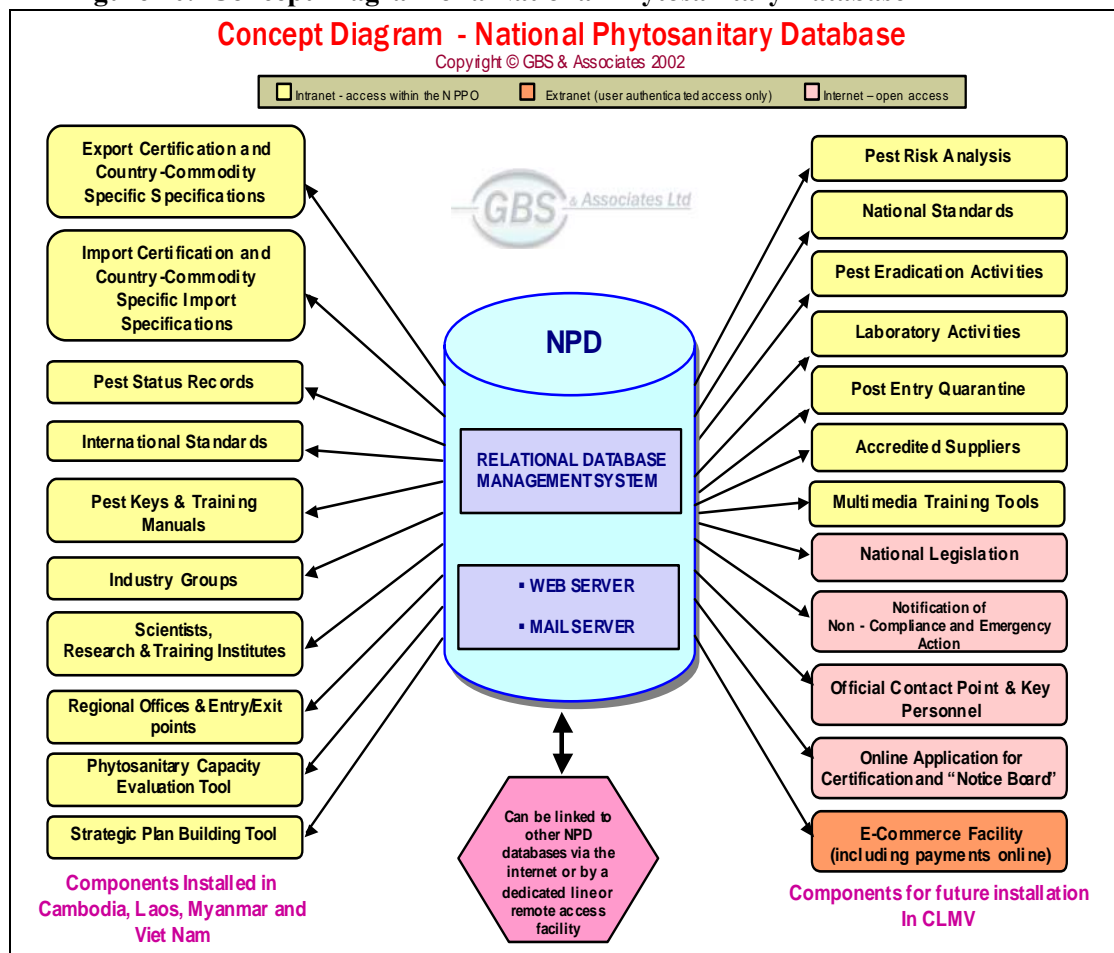
- *Continue to develop the software information modules, expand geographical installation to field stations, and provide connectivity through a wide area network;*
- *Continue data collection but improve its focus and cost effectiveness by tailoring data collection according to risk analysis data needs of likely commodities and markets.*

## **4. Response**

### **a. Overview**

A rapid response to invading alien pests can significantly reduce the cost of control programs, the direct economic losses resulting from phytosanitary restrictions, and adverse impacts on natural ecosystems. Effective response activities are designed to react to any breach of the pest exclusion effort. This critical intervention point was not addressed in the 2001 PCE assessment. Rapid detection and diagnosis are critical for eradicating or mitigating the effects of newly introduced plant pests. An Emergency Response Command Network (ERCN) is required to provide an operational framework for confronting plant health emergencies such as the introduction or outbreak of plant pests, threats to domestic agricultural production and international trade, or market access and food security in Vietnam. The ERCN provides for a consistent nationwide approach for national, provincial, and local governments to work effectively and efficiently together to prepare for and respond to plant health emergencies. The ERCN would include an overall response organizational structure that defines the functions, roles, and responsibilities for each position in the command and general staffs. The personnel are pre-identified individuals trained in functions essential to the appropriate response to a pest problem. A clearly defined plant pest emergency response capability does not currently exist in Vietnam.

**Figure 10. Concept Diagram of a National Phytosanitary Database**



Source: GBS and Associates 2002.

### Short-term Actions

- Develop a clearly defined system for screening, identifying, and reporting to the Plant Protection Division plant pests detected by passive detection and active surveillance; and
- Review the capacity of MARD and of the provincial governments to respond to alien pest detections in a coordinated and timely manner, in particular assessing the role of the provincial governments in the declaration of pest (and disease) outbreaks.

### Long-term Action

- Establish an Emergency Response Command Network (ERNC) to respond to plant pest emergencies, bringing together multiple responding agencies, including those from different jurisdictions, under a single overall command structure, to manage facilities, equipment, personnel, procedures, and communications. This would involve an early detection capability and a national plant pest identification and reporting system, with a supporting database, a staff trained to identify foreign organisms, and adequately equipped diagnostic laboratories, as well as a rapid-response cadre under a unified command structure.



## **b. Pest Control and Management Options**

Pest management options may vary by commodity, market, and the characteristic of the pest, all based on the pest risk assessment. The main options are described below.

**Establishment of pest-free areas, places of production, and production sites** ISPM No. 4, “Requirements for the Establishment of Pest-Free Areas,” defines a pest-free area (PFA) as “an area in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained.” The PFA should be adequately isolated in relation to the biology of the pest. Delimiting and detection surveys, phytosanitary regulations on the movement of host material out of the infested area to the uninfested area to prevent spread of the pest, and ongoing monitoring surveys would be required for this type of PFA. The establishment and use of a PFA by NPPO could enable the export of plants, plant products, and other regulated articles from Vietnam without the need for application of additional phytosanitary measures. Thus, the pest-free status of an area may be used as the basis for the phytosanitary certification of plants, plant products, and other regulated articles with respect to the stated pest(s). ISPM No.10, “Requirements for the Establishment of Pest Free Places of Production and Pest Free Production Sites,” uses the concept of “pest freedom” to allow exporting countries to provide assurance to importing countries that plants, plant products, and other regulated articles are free from a specific pest or pests and meet the phytosanitary requirements of the importing country when imported from a pest-free place of production. In circumstances where a defined portion of a place of production is managed as a separate unit and can be maintained pest-free, it may be regarded as a pest-free production site. The use of pest-free places of production or pest-free production sites is dependent on the use of criteria concerning the biology of the pest, the characteristics of the place of production, the operational capabilities of the producer, and the requirements and responsibilities of NPPO. Currently, no production areas or production sites in Vietnam are officially designated by the NPPO as free of fruit flies. Identifying and maintaining such areas is generally resource-intensive for both the public and private sector, and with the availability of good postharvest treatment technologies, PFAs don’t seem to warrant a high priority in the fruit and vegetables sectors. Resources required for establishing pest-free production areas and sites are generally predominately borne by the private sector.

**Postharvest disinfection treatments** The following postharvest treatments reduce the risk associated with fruit flies to an appropriate level of phytosanitary protection for the *importing* country: (i) cold disinfestation treatment; (ii) vapor heat treatment; (iii) hot water immersion; (iv) ionizing radiation; (v) methyl bromide fumigation; and (vi) a combination of cold treatment and methyl bromide. Additional research is needed on specific commodities to verify treatment efficacy and impact on quality. New Zealand recently completed research on a postharvest vapor heat treatment schedule for *B. dorsalis* and *B. correcta* in dragon fruit.<sup>67</sup> After review, the proposed treatment may also be accepted by Australia and the United States. No approved commercial vapor heat chambers are currently operational in Vietnam, however. Japan is conducting additional postharvest treatment assessments for dragon fruit and other fruits of interest there. Ionizing radiation has been accepted by the IPPC as well as by Australia, New Zealand, and the United States as an approved quarantine treatment for fruit flies. Ionizing radiation could also address the risk posed by other quarantine pests such as fruit borers, mealy

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<sup>67</sup> SOFRI Report 2005.

bugs, and soft scales.<sup>68</sup> Only one commercial irradiation facility capable of meeting international standards is currently operational in Vietnam.

### ***c. Additional Risk Management Operating Procedures***

To ensure the appropriate level of risk, importing countries often require one or more of the following operational procedures to ensure that risk mitigation measures are being met and maintained:

- registration of export orchards and packing houses;
- orchard control programs;
- pre-export inspection by the NPPO;
- packaging and labeling compliance;
- phytosanitary certification by the NPPO;
- approved treatment facilities;
- specific conditions for storage and movement; and
- on-arrival inspection by the NPPO of the importing country.

#### ***Short-term Actions***

- *Conduct a review of existing phytosanitary legislation to ensure legislative compliance with all the international agreements (SPS, IPPC [all ISPMs]); and*
- *Clarify the authority for PPD to take emergency phytosanitary measures, including eradication programs, against newly established alien pests.*

#### ***Medium-term Actions***

- *Establish, in partnership with the private sector, pilot commercial vapor heat chambers for postharvest treatment of fruit fly host material for export; and*
- *Conduct feasibility studies to determine the potential application of establishing a pest-free area for fruit flies as an alternative to postharvest treatment.*

**Special attention to pesticides** Contamination of produce and the environment with pesticides is now hampering agro-industry development and damaging human and environmental health. The annual use of pesticides is about 1.5 kg of active ingredient per ha (not including the illegal trade), which is below that in countries such as the United States (2.8 kg/ha in 1995) and Germany (2.2 kg per ha), but, as seen in Chapter II, application is heavily concentrated on some crops, such as tea, fruit, and vegetables. Good agricultural practices are available for the application of pesticides on these crops, and Vietnam has a well-established national IPM program with an objective of minimizing the use of chemicals to control endemic pests. Continued expansion of IPM programs, where economically justified with increased private sector support, is recommended to increase farmer awareness of proper use of pesticides and the impact of pesticide residues on product marketability.

Additionally, internal peer pressure and control as exercised through a supply chain approach can be another strategy to improve overall quality and reduce pesticide use. The recent (June 24, 2002) decree on contract farming provides the legal framework, although enforcement of contract compliance by both producers and—mostly parastatal—processors is still weak, as described above. The development of farmer-based organizations could provide greater ownership of the contracting parties and should be the future supply chain strategy.

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<sup>68</sup> Corcoran and Waddell 2003.

Control of imported pesticides for quality and efficiency is still weak. Several registered pesticides are not yet tested on their biological efficiency, and capacity building in those areas to ensure quality analysis and residue control is needed.

Taxation of pesticides, to encourage their more rational use has been often advocated, including in Vietnam.<sup>69</sup> From a social and policy conceptual viewpoint, it would be justified to include the health and environmental costs caused by the application of insecticides in the price of the product. Tactically, however, this would only make sense for those products that are excessively used, if the share of illegally imported pesticides is small compared to the formally imported products, or if contraband can be adequately stopped. No exact data are available, but an estimate of contraband pesticides of 10 percent was given. Increasing the costs so that the price reflects the environmental and human health costs might decrease pesticide use, but more expensive products might also encourage more illegal trade. More research on the internalization of the environmental and public health costs into the costs of the pesticides is, therefore, needed.

#### ***Medium-term Actions***

- *Develop an education program for all farmers, based on reliable data, concerning the violation of national pesticide law, with the emphasis on the application of GAP as describe above, which can include IPM where economically justified and other disease control measures;*
- *Strengthen supply chain management arrangements with clear downstream and upstream quality control linkages by strengthening the legislation, providing training and other capacity building actions, progressively leaving certification to private agencies, and paying major attention to contract enforcement compliance from the different contracting parties;*
- *Improve the capacity of two Pesticide Testing Centers; and*
- *Assess the implications of increasing the costs of pesticides so that their costs reflect the environmental and public health costs related to their use, with due consideration to the risk of increasing illegal trade possibly resulting from a tax increase .*

**Demonstrating a commodity approach** Successfully gaining access to and maintaining new international markets for fresh fruits and vegetables is a complicated process involving the inputs of the private and public sectors from the farmer to the foreign consumer. To demonstrate this partnership, a commodity-based approach is proposed that would serve as a model for future fresh fruit and vegetable product exports. The primary objectives would be to gain market access and build capacity in the private and public sectors.

#### ***Medium-term Actions***

*Demonstrate the coordinated chain approach on fresh fruit (for example, longan, litchi, and rambutan) for developed country markets, developing a program that would identify barriers to market access and prepare a plan of action to address each barrier. This would include:*

- *Preparing a market analysis of possible commodities and selection of two to three commodities with potential OECD country markets;*
- *Defining of phytosanitary requirements of those main markets;*

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<sup>69</sup> Nguyen Huu Dung and Tran Thi Thanh Dung 1999.

- *Implementing targeted pest surveys for those commodities, conducting host susceptibility studies and pest risk assessments;*
- *Developing a comprehensive system of good agricultural practices and pesticide management, supported by pest monitoring systems;*
- *Developing postharvest treatment(s) and handling procedures in light of results of pest risk assessments;*
- *Identifying key quality standards, for example, shelf life and effects of treatments;*
- *Defining and establishing key infrastructure needs in packing houses and packaging, transportation and storage, and marketing; and*
- *Defining and implementing public and private sector responsibilities for and investments in such programs.*

**Skills** New market access requirements, implementation of more stringent national and international standards, and new initiatives, such as the proposed national plant pest surveillance program, an emergency plant pest response network, and a national pesticide residue monitoring program, will require significant training resources to ensure creditable implementation. Plant protection inspectors hold basic university degrees in plant protection or related disciplines but centralized formal classroom and on-the-job operational training of inspectors will be needed to meet these new challenges.

#### ***Short-term Action***

- *Continue to utilize training opportunities provided by international organizations and bilateral donors, in particular in the areas where clear weaknesses have been identified, such as in virology, weed science, and risk analysis.*

#### ***Medium-term Action***

- *Establish a center that would administer and manage training programs in support of the plant health safeguarding mission. These programs would be designed to train, educate, and certify new PPI employees, customs officers, provincial inspectors, and other cooperators in areas such as alien pest exclusion, risk assessment, smuggling interdiction, safeguarding techniques, pest surveillance, and pesticide compliance. Curriculum components could include legal authorities; commodity and pest identification; import/export procedures; inspection techniques; quarantine treatments; pesticide application, management, and enforcement; emergency response training; and pest surveillance. The center would deliver basic training for all new professional employees, provide technical translation services, develop operating manuals and instructions in Vietnamese, and develop and deliver training modules to meet special or new training needs as they are identified.*

**Risk assessment capacity** In plant protection, the PPD has limited capacity or competencies to undertake PRA to international standards. Establishing a core group of trained risk assessors with the needed disciplines, composed primarily of PPD and NIPP specialists, could serve as the focal point for this work in the longer term. Further, concentrating this specialized expertise in a Center for Plant Pest Risk Assessment would allow for more effective use of resources and create a more collaborative work environment. The center would apply state-of-the-art research and science-based processes to the plant health safeguarding system.

Risk management decisions would remain the responsibility of PPD. Establishing a PRA curriculum at a university to increase the availability of basically qualified risk assessors would help to assure the long-term sustainability of this critical need. Moreover, extensive PRA work is needed in Vietnam to assure scientific justification for its list of regulated pests, to support its application of phytosanitary import measures, and to utilize effectively its available resources.

***Short-term Action***

- *Conduct an intensive PRA training program for PPD and NIPP specialists using outside sources, continue awareness building for senior staff, acquire computer-assisted tools for PRA, and improve access to basic PRA information resources.*

***Medium-term Action***

- *Establish a core group of trained risk assessors with the needed disciplines, composed primarily of PPD and NIPP specialists, to serve as the focal point for pest risk assessment.*

***Long-term Actions***

- *Progressively develop the Plant Risk Assessment Center into a more general training center, which would administer and manage training programs in support of the plant health safeguarding mission; and*
- *Establish a PRA curriculum at a university.*

***d. Communication***

In plant protection and pest management, the focus should be on farmers' education and training, in particular on reducing pesticide use. As noted above, much has been done already in the area of Integrated Pest Management (IPM), in particular for rice and, more recently, for vegetables. IPM is knowledge intensive, however, and it is not always the most cost-effective way of producing safe food. For international market access, for example under EurepGAP, more attention to educating farmers in the broader concept of Good Agricultural Practices (GAP), including the management of pesticides, is required. Linkages between PPD, research institutes, and the private sector, in particular the Producer Associations, to develop relevant innovations, and between PPD and the MARD's crop extension service (now working as separate units) is therefore essential and needs to be strengthened. Some excellent work is being carried out at the national research institutes, but this work needs to become more demand driven, following the requirements of the private sector, and the resulting information must be distributed to producers more quickly if Vietnam is to access successfully the international markets. While this subject falls outside the immediate scope of this Action Plan, it is an essential part of the sector's competitiveness.

***Medium-term Action***

- *Strengthen farmers' education and advisory services in the technologies of producing safe food, with major attention paid to the integration of producers associations, research institutes, and the crop extension services with PPD's field staff.*

## **International support**

NZAID has a three-year project (2005-2008) that will focus on improving the phytosanitary service in Cambodia, Laos, Myanmar, and Vietnam. This current project will build on the outputs of the previous Phytosanitary Capacity Building Project (PCBP), the most important of which is the establishment of the National Phytosanitary Database (NPD). With the assistance of the FAO, the project will review relevant legislations to ensure compliance with international requirements. The project will build capacities for pest surveillance and phytosanitary inspections at key entry/exit points by providing training materials on surveillance methods and inspection operations. Basic equipment and supplies for inspection operations at international airports, seaports, and key land border posts will be provided. Training on pest risk analysis will be provided either in-country or as postgraduate studies in New Zealand.

The Australian Agency for International Development (AusAID) has a three-year SPS Capacity Building Program (SPSCBP), the aim of which is to enhance the capacity of ASEAN countries<sup>70</sup> to meet international SPS standards. The project focuses on plant and animal health since most plant and animal diseases have transboundary characteristics that require regional coordination and resources. For plant health, the program will provide assistance in the construction of national pest lists (underpinned by specimen-based records of plant pests) and the undertaking pest risk analyses, both of which are requirements of the basic plant infrastructure.

The ASEAN Australia Development Cooperation Program (AADCP), funded jointly by the Australian Agency for International Development (AusAID) and ASEAN, has a program stream component on plant health, “Strengthening ASEAN Plant Health Capacity Project.” This two-year project is expected to start 2005. The focus is on regional pest list development and the management of collections.

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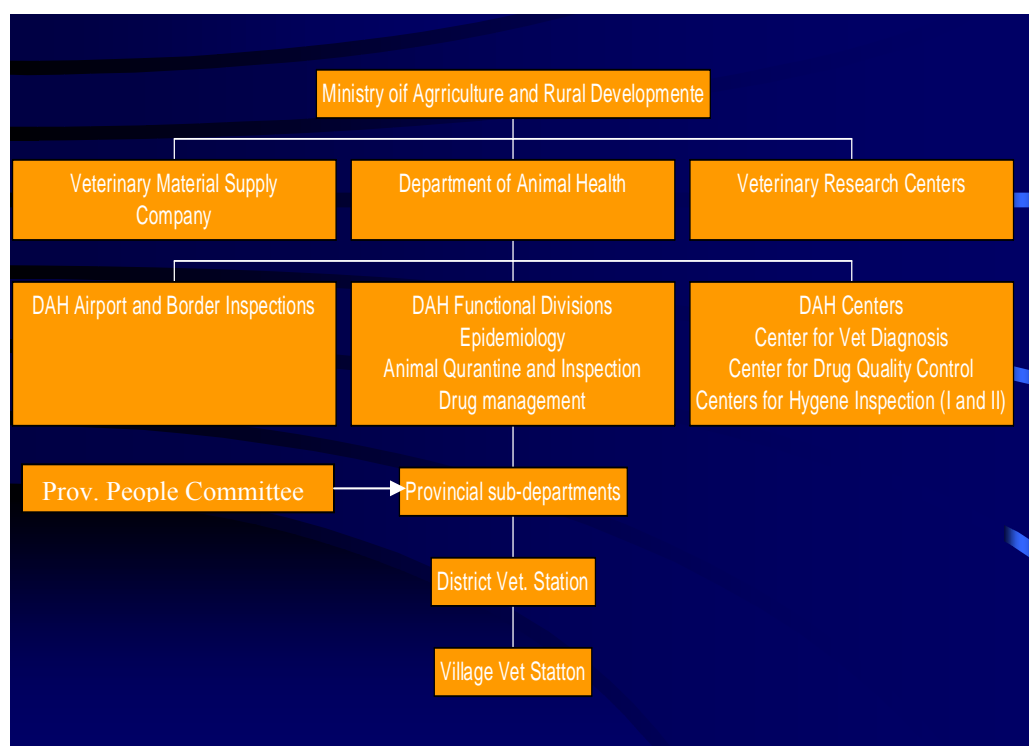
<sup>70</sup> The ASEAN countries included are Indonesia, Thailand, Malaysia, the Philippines, Cambodia, Lao PDR, Vietnam, and Myanmar. Malaysia, though not eligible for direct AusAID assistance, has a role in the program with its expertise and training facilities.

## Chapter VI STRENGTHENING ANIMAL HEALTH PROTECTION

### 1. The Livestock Sector

**Overall Organization** The organization of Vietnam's Department of Animal Health (DAH) follows an organizational pattern similar to that adopted for the protection of plant health. The Department has a total staff of about 270 distributed over an Epidemiology Division, in charge of disease surveillance and monitoring; the Animal Inspection and Quarantine Division; the Veterinary Drug Management Division; and the usual administrative divisions. Furthermore, it has the responsibility for the National Center for Veterinary Diagnostics, two national centers for veterinary drug and bio-products inspection, and two national centers for veterinary hygiene inspection, six regional centers, and forty-five airport and border inspection stations. The organizational structure of the department is provided in Figure 11.

**Figure 11. Institutional Arrangements for Animal Health**



Source: MARD

Of DAH's professional staff, 16 percent have postgraduate degrees and 63 percent have full university degrees. Its total budget is about VND 20 billion (US\$ 12 million), of which about 50 percent is reportedly spent on salaries, leaving an appropriate share of 50 percent for operating expenditures. Seventy percent of the budget of the service comes from direct contributions from the Government budget; the remaining 30 percent is from the income of services provided by DAH, mainly from fees for inspection and diagnostic services. Clinical treatment of individual animals is considered a private good, requiring private payment. Training of veterinarians is carried out in four universities.

**International activities** Vietnam is member of the OIE and normally participates in the annual meetings with one or two representatives. It has signed bilateral agreements and Memoranda of Understanding on animal health and quarantine with fifteen countries, including Argentina, Australia, Bulgaria, Canada, Chile, Hong Kong, Russia, South Korea, and the United States.

#### **a. Veterinary legislation**

**Ordinance** Vietnam's Veterinary Ordinance was approved by the National Assembly in March 2004 and was put into effect on October 1, 2004. It specifies the responsibilities of MARD for terrestrial animals and of MOFI for aquatic animals and products. It covers the areas of disease prevention and control, quarantine and veterinary hygiene, drug management, and the requisites of veterinary practice, although in a very general fashion.

**National standards** Five national standards have been set for meat processing, and more than fifty for residue and bacterial contamination, but in general they are lower than the corresponding international standards. A more detailed assessment on the desirable level of congruency between international and national standards, to decide which standards should be strengthened, is required and is proposed in this Action Plan.

**Gaps** Vietnam reported that it has more than fifty regulatory documents with standards and processes in accordance with the OIE and Codex requirements. The review undertaken as part of the preparation of the Action Plan pointed to satisfactory harmonization of regulations concerning the quality control and management of veterinary drugs, vaccines, and other biologicals. Major regulations, however, need to be reinforced, including those concerning the following:<sup>71</sup>

- Disease surveillance, as there are significant differences between the simple disease surveillance system in the legal text on Animal Health Management and the much more detailed guidelines of the Animal Health Code of the OIE, for example in disease reporting procedures, particularly those involving the provincial authorities;
- Quarantine, as there is no legal document that stipulates quarantine requirements and few border posts have adequate facilities;
- Establishment of disease-free zones, as provisions for the declaration of such zones, disease surveillance, and management are inconsistent with the new OIE standards;
- Descriptions of food safety systems as Good Manufacturing Practices (GMP) and Hazard and Critical Control Points (HACCP);
- Role of the service and private practitioners and paraveterinarians in public veterinary hygiene and food inspection; and
- Streamlined procedures for registration of veterinary drugs and biologicals.

**Implementation** Like the situation in the phytosanitary sector, the main weakness in the animal sector lies in poor implementation of the existing standards, not only regarding the implementation of movement control and other emergency measures, as described in Box 10, but also regarding meat inspection and drug and vaccine quality control and use.

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<sup>71</sup> Hagedoorn et al. 2005.



### ***Short-term Action***

- *Based on the work already done in preparing this Plan, identify the main areas in which strengthening regulations is a priority, such as surveillance, establishment of disease-free zones, and distribution of responsibilities between the public and private sector, and draft the corresponding regulations.*

### ***Medium-term Action***

- *Implement the corresponding regulations (see also below for more details).*

## ***b. Port-of-Entry Disease Exclusion and Quarantine***

DAH manages forty-five airport and border inspection stations; it has adequate quarantine facilities at Hanoi, Tan Son Nhat, and Haiphong but requires increased capacity, in particular, at the HCMC and Lang Son borders. The strategy of disease quarantine and border inspection requires further thought. Within the CLMV countries, and even including Thailand, disease patterns of the major OIE list A diseases are very similar, and key diseases such as FMD are endemic in all countries (although different strains of FMD are reportedly emerging from Cambodia). The major threat, however, seems to come from the introduction of new diseases from other parts of the world, and with current trade patterns, China could be a likely entry point for new diseases and pests. It is, therefore, recommended that the MAH first assess the likelihood of disease introduction through an in-depth disease pathway risk analysis, assessing the risk of the introduction of new diseases, covering all neighboring countries, followed by the search for a common disease control approach in areas on both sides of the border, supported, if necessary, by a reinforcement of the border quarantine facilities.

### ***Short-term Action***

- *Carry out detailed pathway and risk analysis regarding the most likely disease entry points from other countries, with particular attention to the northern and southern borders, and explore the possibilities of cooperative disease control mechanisms with China.*

### ***Medium-term Actions***

- *Construct and equip quarantine facilities at the HCMC and Lang Son border crossings and, eventually, establish joint disease control systems or, based on the outcome of the risk analysis recommended above and in the absence of the development of cooperative disease control mechanisms, strengthen the quarantine facilities at the northern and southern borders due to the special risk of disease introduction from these areas; and*
- *Integrate plant and animal quarantine facilities to benefit from economies of scale.*

## ***c. Disease Detection and Surveillance***

**Disease surveillance** Actual field-level disease surveillance and control is carried out by provincial Subdepartments of Animal Health (SDAHs), which are directly responsible to the provincial government and the People's Committee concerned and only indirectly to the national authorities. Total subdepartmental staff paid by the public sector amounts to about 5,845. In addition, about 23,000 paraveterinarians operate at the grassroots level, some on a purely private basis, some partially paid by the communes. They are the frontline staff and could have a critical role in the disease surveillance system; however, their training level varies from two weeks to

three years, with the majority being poorly trained and poorly integrated into the overall disease management system. In addition, there are about 250 veterinarians operating in the private sector, but the majority of these reportedly work in other sectors or in urban areas, focusing on companion animals. Thus, overall staffing levels are adequate, with about 300 Veterinary Livestock Units (VLU)<sup>72</sup> per public sector staff, compared with international accepted levels of about 500 to 1000 VLU per staff.

While in principle these are adequate staffing numbers, however, the system lacks coherence in the effective use of these staff resources (in particular, the paraveterinary staff) and the connectivity between the different levels, from the commune to the national level, necessary for a fast flow of reliable information. In particular, the role of the People's Committees in declaring disease outbreaks should be reassessed. Moreover, the system is mainly a passive surveillance system, reacting to disease reported by field staff; it has very limited capacity in carrying out targeted field surveys or assessing pathogen loads and disease occurrence.

#### ***Short-term Actions***

- *Prepare guidelines for the greater participation of the different staff levels (farmers, private veterinarians, paraveterinarians, and so on) in the disease surveillance system, in particular regarding their mandates and responsibilities and the required financial incentives for such increased participation;*
- *Train and equip those staff in field level disease recognition; and*
- *Reassess the role of the Provincial People's Committees and assure that disease alert systems have direct communication from the field to the national levels.*

#### ***Medium-term Actions***

- *Adopt the above prepared guidelines as a formal regulation, as part of the Veterinary Ordinance; and*
- *Strengthen the connectivity between the different levels involved in disease reporting, ensuring direct lines of communication in disease reporting between field and national levels on a daily basis.*

**Diagnostic capacity** The national diagnostic center, together with the regional center in HCMC, operate under international standards, but the other regional centers have not yet reached that level and should be brought to level 3. Outside of some peak demands during disease outbreak periods, such as the recent HPAI outbreak, the capacity of the central laboratories and two regional laboratories seems adequate. Indeed, in the absence of an active surveillance system, these laboratories seem currently underutilized, although with the HPAI outbreak demand has picked up, and under the active surveillance program proposed under this Action Plan, demand can be expected to increase even more. Major strengthening is required at the four remaining regional laboratories, which need better equipment and staff training; these laboratories should also receive clear responsibility for early alert and response systems.

The Canadian International Development Agency prepared a detailed capacity assessment of the national and regional veterinary laboratories, which might lead to further support. Additional support is also expected under the ADB Transboundary Animal Disease Control Project in the Greater Mekong Delta, which will provide assistance to the ASEAN

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<sup>72</sup> VLU is used to aggregate different classes of livestock, based on their work load requirements for veterinary services; 1 VLU equals one cattle, two pigs, ten sheep or goats, and one hundred chickens or ducks. Based on FAOSTAT 2004, the total VLUs in Vietnam is about 18 million.

countries in strengthening the control of transboundary diseases, including equipping regional laboratories.

#### ***Short-term Action***

- *Prepare a needs assessment of the different laboratories, taking account of the on-going activities from ADB and CIDA and the expanding workload as Vietnam moves to an active surveillance system.*

#### ***Medium-term Action***

- *Bring the remaining regional laboratories up to international standards and equip the provincial laboratories for initial diagnostics and sample preparation.*

### **d. Disease Control and Eradication**

**Response system** The response to the HPAI outbreak (Box 14) highlights the importance of a national emergency strategy and center, which can provide immediate responses, and, regionally, the need for greater capacity in disease surveillance and alert systems and for coherent policies on vaccination.

#### **Box 14. HPAI: The Importance of Early Alerts and Response Systems**

The response to HPAI throughout East Asia, including Vietnam, was slow and inadequate. The disease was first observed, unofficially, in August 2003, but it was only formally declared in January 2004 by practically all countries. Lack of adequate laboratory facilities and skilled staff, as well as (in some countries) the political pressure from other sectors not to declare the disease because of anticipated spillover effects (for example, on tourism), caused this delay. Vietnam declared the disease on January 8, making it one of the first countries to do so.

The regional follow-up response was also inadequate. No vaccines were available for this particular strain, and as vaccination would hurt trade (because of the difficulty of distinguishing between pathogen- and vaccine-induced immunity), the policy of stamping out the disease was generally chosen.

This experience highlights the importance of a national emergency strategy and center, which can provide immediate responses, and, regionally, a greater capacity in disease surveillance and alert systems and coherent policies on vaccination.

*Source:* Dolberg F. Guerne Bleich and A Mcleod. Emergency Regional Support for Post Avian Influenza FAO, February 2005.

**Control strategies** For the control of the three major contagious diseases currently affecting cross-border trade, that is, HPAI, FMD, and CSF, Vietnam has adopted the following strategies:

For **HPAI**, stamping out (that is, culling all infected and noninfected animals) in areas with a disease outbreak has been the major strategy. While the official standards prescribe culling to cover an area with a radius of 3 km, in Vietnam, because of lack of adequate diagnostic facilities and the weakness of the field level surveillance teams, the culling operation often covered a greater area than the 3 km radius prescribed. Moreover, because of inadequate control and compensation, not all animals were captured; for example, a survey carried out by FAO showed that only 80 percent of the farms had culled all birds, with the remaining 20 percent culling only a part. Movement restriction and closure of markets were also only partially followed. For example, the same survey showed that 12 percent of the farms continued to sell poultry in spite of the movement ban. The culling strategy was supported by a compensation scheme, but the level of compensation was inadequate (VND 7000), about one/fifth of the value, and grossly under-funded, so that only a small part of the affected animals were compensated for. The initial compensation came from the national budget, but it is now paid from provincial

budgets, resulting in even more severe underfunding in the more marginal provinces where social needs are greatest. Also of major concern is the circulation of the virus in ducks and wild birds. Vietnam is now experimenting with vaccination for HPAI in two provinces. In light of the major risks that HPAI carries, comprehensive strategies, possibly including early alerts, culling of all diseased and suspect animals, and ring vaccination of surrounding populations, need to be developed. A national vaccination campaign has recently been started.

For FMD and CSF, DAH adopted a policy of disease-free zones. Under this concept, meat and meat products can be exported from the disease-free areas rather than having to suspend all exports until the entire country is disease free. It has recently been introduced in the Animal Health Code of OIE and provides interesting opportunities for countries such as Vietnam, where resources and often even the physical characteristics of the region prohibit carrying out national eradication schemes. In Vietnam, a number of FMD-free zones have been established in which no disease outbreaks have been reported for the last ten years and in which sero-surveillance was carried out in 2001 and 2003. The quarantine surveillance and recording systems do not meet the OIE requirements, however, and this will prevent Vietnam from obtaining international recognition in the near future. In addition, because decisions about the establishment of disease-free zones are made at the district level, the zones are extremely fragmented, with costly and complicated control systems. For a final decision on the possible eventual expansion of this approach, more study is needed on their economics (level of losses) and potential market access. In this light, the regional efforts with China (Yunnan province), Lao PDR, Myanmar, and Thailand, with support from OIE and FAO, to study the feasibility of the establishment of a much larger regional FMD-free zone in the Upper Mekong Delta deserve support.

The establishment of a system of traceability (individual animal recording) that would, enable the tracking of animals and animal products back to their origins (farm) will be a critical component of an internationally accepted disease-control system and should be envisaged as part of a disease-free zone system, but, in view of the costs, it would not yet be attractive at a national scale.

#### ***Short-term Actions***

- *In cooperation with the ongoing World Bank funded Emergency Project and the FAO/OIE actions on HPAI, develop comprehensive strategies, including culling, vaccination, and the development of improved guidelines for farmers' compensation at a level adequate to ensure full coverage of diseased and suspected animals;*
- *Develop a vaccination strategy for FMD and CSF; and*
- *Prepare a risk analysis for the establishment of disease-free zones; assess, for each of the major animal diseases, whether such zones are justified from the viewpoint of the reduction of current losses and gains in future market access, and propose alternatives to the current fragmented establishment.*

#### ***Medium-term Action***

- *Based on the work described above, implement a pilot compensation scheme, a vaccination strategy for HPAI, and disease-free zones for FMD or CFS, depending on level of economic losses and on market access potentials.*

### **e. Risk Assessment Capacity**

Almost no capacity exists at the Department of Animal Health or, in particular, at the Epidemiology Division in risk assessment. Only five staff having been trained in short courses in risk analysis, providing them with a basic understanding of the why but certainly not of the how of carrying out the detailed probability and economic analysis required in a risk analysis.

#### ***Short-term Actions***

- *Strengthen training of central staff in the basics skills required for risk analysis, that is, estimating probabilities and basic economic evaluations of disease interventions; and*
- *Develop a risk analysis capacity within DAH to help policymakers in setting priorities in disease and food safety risk control strategies.*

**Information management** The epidemiological information being produced at different frontline points, such as public and private clinics, national and regional diagnostic laboratories, border check points, and slaughterhouses is not now being integrated into epidemiological databases, thus making the assessment of disease probabilities, the basis of any risk assessment, difficult.

#### ***Medium-term Action***

- *Develop an integrated information system, which would effectively bring together, in a form suitable for epidemiological and risk analysis, the key required frontline data on disease occurrence.*

### **f. Public Health and Animal Products**

Vietnam has 290 slaughterhouses, and four types can be distinguished. First, the three integrated companies, Vissan, Animex and Ha Long Canned Foods, all fully or majority public sector companies, produce more than 50,000 tons of meat per year. The second type is a series of regional companies, with a production between 5,000 and 50,000 tons, mainly supplying regional urban clients. The third type is a small number of slaughter and freezing companies, mostly with a production below 5000 tons per year. The fourth group is the large number of small enterprises and informal slaughterhouses, supplying fresh meat to the local market. Reportedly only three (of the 290) slaughterhouses meet international standards, as most of the equipment is old, although recently, and aided by government policies to subsidize investments in agro-industry, several companies have upgraded their facilities. Inspection of animal products, of meat in particular, is poor, resulting in one of the main causes of food-borne diseases, because of lack of training of and weak incentives for meat inspectors and because of interruptions in the supply chain, in particular between the slaughterhouse and the marketplace. Hygienically slaughtered meat is often directly sold on open, fresh food (wet) markets and can become heavily contaminated there. The link with the Ministry of Health in managing the supply chain until meat reaches the consumer is weak. Use of antibiotics in livestock feed, while not widespread yet in terrestrial livestock, is becoming an issue, in particular in commercial poultry operations.

#### ***Short-term Actions***

- *Develop training programs for meat inspection staff, avoiding conflict of interest and developing adequate compensation to farmers for condemned meat;*
- *Pilot, with private partners, integrated supply chain systems for meat, including marketing and retailing; and*

- *Develop education and control programs for the use of antibiotics.*

#### **Medium-term Action**

- *Implement training and compensation schemes.*

**Demonstrating a commodity approach** As in the fruit sector, a commodity-based approach is proposed for animal products which would serve as a model for future meat exports. The primary objectives would be to gain international market access and to build capacity in the private and public sectors. The most likely commodity focus would be pork, depending on the competitiveness studies recommended above.

#### **Medium-term Actions**

*Demonstrate the commodity-chain approach for pork sold to developed country markets, by developing a program to identify barriers to market access and by preparing a plan of action to address each barrier, including:*

- *Preparing an analysis on some of the potentially attractive markets for high-quality pork (most likely the more sophisticated markets of the region, such as Malaysia, Japan, and Korea);*
- *Defining sanitary and quality requirements of those potentially attractive markets;*
- *Developing a database and preparing (commissioning) a risk analysis for those markets;*
- *Developing and implementing a comprehensive quality improvement strategy, including genetic improvement of feed conversion, carcass quality, and so on;*
- *Developing an integrated supply chain system (including traceability systems) and defining and establishing key infrastructure needs in packing house and for slaughtering, packaging, transportation and storage, and marketing; and*
- *Defining public and private sector responsibilities and investment contributions to such a program.*

#### **g. Communication**

Farmers in the livestock sector need education and training in animal health issues, in particular in the identification of the major diseases, and reporting and control strategies, but also in the improvement of overall competitiveness. Farmer training and awareness raising in the areas of the genetic improvement of their stock to foster improved slaughter quality and feed conversion will be essential for longer term competitiveness. Since the emergence of HPAI, the Government and donors have paid — correctly — considerable attention to the animal disease side and to strengthening DAH. For the medium-term future of the livestock sector, a concerted effort to strengthen the animal production (genetics, nutrition, and management) will also be essential.

### **International Support**

The animal health component of AusAID's supported SPSCBP<sup>73</sup> aims to strengthen regional capacity in SPS measures to control transboundary animal diseases. The project plans to conduct a major study of existing and potential livestock and meat trading patterns within the

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<sup>73</sup> Asia Regional Development Cooperation Program, October 2003.

region and with trading partners outside the region. The study will identify SPS barriers to trade and consider economically feasible options to reduce the impact of these trade barriers. To enable countries to implement integrated approaches to disease control management options (zoning, epidemiology surveillance, and general risk analysis), the project will provide workshops and training to assist in the planning and implementation of such options.

The ASEAN Australia Development Cooperation Program (AADCP), funded jointly by the Australian Agency for International Development (AusAID) and ASEAN, has a program stream component on animal health, “Strengthening Animal Health Management and Biosecurity Project.” It is an ongoing project that aims to strengthen regional capabilities in risk analysis and disease surveillance, and to establish a regional animal health information system.

FAO is supporting DAH with a Technical Cooperation Project in the area of Epidemiology, which could be an important input into the establishment of risk analysis capacity, and it has prepared (April 2005) a project for US\$ 7.3 million over eighteen months to support DAH in its campaign against HPAI, with the proposed establishment of a central HPAI technical support unit, to combat the current outbreak of HPAI.

The World Bank approved in 2004 the Emergency Project on HPAI for US\$ 5 million over a two-year period to strengthen disease surveillance and diagnostic capacity to control this disease and detect new outbreaks and to safeguard human health by improving public awareness and information.

OIE, with support from FAO, has established the Sub-Commission for Foot and Mouth Disease in South-East Asia (SEAFMD) to provide effective coordination among the veterinary services of the countries with regard to FMD in particular through the creation of control and buffer zones.

## **2. The Fisheries Sector**

### ***a. Fisheries Law***

The Ministry of Fisheries has entrusted NAFIQUVED with the responsibility for all aquatic health and food safety issues. It is organized around six regional and thirty-five provincial laboratories.

The Fishery Law (2004) sets out the framework for fisheries development and management in Vietnam, including food safety and SPS aspects affecting the fisheries sector. It is supported by thirty regulatory documents that follow CODEX closely; reportedly no gaps exist between Vietnamese and International standards and regulations. The need remains, however, for additional regulations and for revision of the above mentioned regulatory documents.

In the area of aquatic animal health, the existing regulatory framework is not fully consistent with the new Veterinary Ordinance of 2004 for terrestrial animals and with the OIE Aquatic Animal Health Code. Additional preparation of regulations and standards guiding implementation of veterinary ordinance in aquaculture is therefore required.

### ***Short-term Action***

- *Identify the main areas, where the strengthening of regulations is priority such as surveillance and distribution of responsibilities between the public and private sector, and draft the corresponding regulations.*

### ***Medium-term Action***

- *Implement the corresponding regulations (see also below for more details).*

## ***b. Disease Detection and Surveillance***

Vietnam does not yet have an adequate disease surveillance (at the farm pond level), reporting, or control systems. Reporting of disease outbreaks is delayed by the provincial subdepartments, resulting in poor and overly costly disease prevention and control measures.

### ***Short-term Actions***

- *Prepare guidelines for the greater participation of the different staff levels (farmers, private veterinarians, paraveterinarians, and so on) in aquatic disease surveillance systems, in particular regarding their mandates and responsibilities, and the required financial incentives for such increased participation;*
- *Train and equip those staff in field-level aquatic disease recognition; and*
- *Reassess the role of the Provincial People's Committees to ensure that disease alert systems have direct lines of communication from the field to the national levels.*

### ***Medium-term Actions***

- *Adopt the above prepared guidelines as a formal regulation as part of the Veterinary Ordinance; and*
- *Strengthen the connectivity between the different levels involved in disease reporting, ensuring direct lines of communication in disease reporting between field and national levels on a daily basis.*

## ***c. Diagnostic and Certification Systems***

The six laboratories of NAFIQAVED have been accredited for ISO 17025 to perform microbiological and chemical analysis. Two laboratories are accredited to use advanced analytical methods for pesticide and drug residues and heavy metals. NAFIQAVED is the national Competent Authority and is recognized by thirty-seven importing countries (the EU, the United States, Japan, Canada, Korea, New Zealand, China, and the ASEAN countries, among others) for fisheries food safety assurance and quality control. It has been chosen by ASEAN as a coordinator on fisheries laboratory activities. The current laboratory system of NAFIQAVED, however, while internationally recognized for its high standards, needs to improve the turnaround time of its export certifications to cut down on lost storage time for export products and it needs to achieve lower levels of antibiotics and other contaminants.

### ***Medium-term Action***

- *Purchase equipment for rapid testing for export certification and aquatic animal disease diagnosis for the seven regional laboratories.*



#### **d. Disease Control and Eradication**

Aquatic animal diseases such as WSSV, YHV, TSV affecting shrimp and the red spots affecting catfish are serious constraints in the aquaculture sector because of the direct losses and the high antibiotic residue levels caused when farmers are unfamiliar with appropriate prevention and control methods.

##### ***Short-term Actions***

- *Strengthen education and training of farmers in the control of fisheries diseases;*
- *Prepare a risk analysis for the establishment of disease-free zones; assess, for each of the major animal diseases, whether such zones are justified, from the viewpoint of reduction of current losses and gains in future market access; and propose alternatives to the current fragmented establishment.*

##### ***Medium-term Actions***

- *Support the training of veterinarians in aquatic diseases and equip the current network of thirty-five provincial laboratories with the required equipment; and.*
- *Prepare a national control program of WSSV, YHV, TSV in shrimp and red spots in catfish.*

#### **e. Risk Analysis**

As in the other sectors and institutions, MOFI is weak in the area of risk analysis and doesn't have the required databases and relevant information to carry out such analysis.

##### ***Short-term Actions***

- *Organize training in risk analysis in the fisheries sector and organize databases on aquatic disease occurrence; chemical and biological contamination; and genetically modified food; and*
- *Develop a database system to integrate these data.*

#### **f. Inspection and Public Health**

Fisheries export products are subjected to strict controls and are developing a good international reputation thanks to good collaboration between the public and the private sector, in particular in the face of a food safety crisis, as described in Box 15. More attention still needs to be given to the organization of producers at the farm level, to involve them more in quality and food safety control.

MOFI requires processing companies to have clean facilities and a HACCP system in place prior to granting them permission to export. The HACCP requirement is now being applied to processing companies producing for the domestic market. Currently, these companies are only required to pass the standards for the hygienic condition of their facilities. At present, about 200 companies are qualified to export: about 125 to the U.S. market and about 100 to the stricter EU market.

##### ***Short-term Action***

- *Strengthen producer organization in food safety and quality management.*

### **Box 15. Lessons from the Public-Private Partnership in Vietnam's Fisheries Sector**

The partnership between the public and private sectors in the fisheries sector has been quite successful, and lessons can be learned from this experience for other sectors, such as the fruit and meat sectors.

Quality and food safety control in the fisheries sector started with the establishment of a strong public institution, NAFIQACEN, which, thanks to strong national and international (DANIDA) support, developed in the late nineties into a well respected organization. Despite the efforts of NAFIQACEN, however, compliance with the regulation concerning antibiotics became negligent, and, in 2001, EU authorities detected banned antibiotics (chloramphenicol and nitrofurans) in shrimp exports from Vietnam (and other Asian countries). The exports were rejected and destroyed, causing significant financial losses for the exporters. For the rest of 2001 and up to 2002, the EU examined 100 percent of shrimp imported from Vietnam. Income from EU shrimp exports went down by 87 percent in the first six months of 2002 compared to the same period of the previous year. The problem had arisen from a lack of awareness and knowledge among farmers and from the easy access to chemicals arising from the lenient regulation and monitoring of the importation of and trade in chemicals from neighboring countries.

NAFIQACEN redressed the situation through a close partnership with the Vietnamese Association of Seafood Exporters and Producers (VASEP), established in 1998, and with assistance from DANIDA. VASEP is a voluntary organization of seafood processing, exporting, and importing companies. The members' share in total seafood export value is about 90 percent. As of January 2004, VASEP had 179 members.<sup>1</sup> VASEP provided assistance through its consultancy service center, providing awareness raising, offering technical advice on equipment for product development, export marketing, and, above all, quality assurance. Its staff assists processors in upgrading their facilities and implementing the HACCP system. NAFIQACEN (later renamed to NAFIQAVED, because of its expanded mandate) strengthened its quality control capacity and improved farmers' education.

As a result of the concerted efforts of NAFIQACEN, VASEP, and the exporting companies to educate farmers and regulate and control the use of banned chemicals and antibiotics, the compulsory 100 percent examination policy on shrimps imported from Vietnam was lifted in September 2002. At present, Vietnam has about 200 companies qualified to export, about 125 to the U.S. market and about 100 to the stricter EU market.

*Source:* Authors.

## **International Support**

Since 1996, the Danish International Development Agency (DANIDA) has supported the Vietnamese fisheries sector through the Seafood Export and Quality Improvement Program (SEAQIP). The first phase was completed in 1999. The second (five-year) phase started in 2000 as a component of the more comprehensive Fishery Sector Support Program (FSPS), and it has shifted the emphasis from the earlier support for food safety (in its support for NAFIQACEN) to a wider overall quality and competitiveness program, although some food safety work is still included. FSPS supports the policies and strategies in the Vietnamese Government Fisheries Master Plan Year 2010. The other components of FSPS,<sup>74</sup> aside from SEAQIP, involved in food safety are: (i) SUFA (Support to Freshwater Aquaculture); (ii) STOfA (Strengthening of Fisheries Administration), undertaking development of management information systems (including a database for a legal framework, aquaculture production, active and passive disease registration in aquaculture, hygiene conditions in handling and processing, monitoring programs for contaminants and bio-toxins, and product quality); and (iii) SUMA (Support to Marine Aquaculture), offering assistance to develop and implement a code of practice for production of brackish water shrimp (which will include food safety aspects).

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<sup>74</sup> Brenton et al. 2004.

## Chapter VII PRIORITY SETTING, FUTURE DATA NEEDS, AND FUNDING

### 1. Priority setting

Given the numerous needs in the overall SPS system identified and discussed in this Action Plan and the scarce human and financial resources available to the Government, an obvious need exists to set priorities. As they involve major trade-offs between economic (trade, growth) and social objectives (equity, public health), the final decisions concerning priority investments and policy adjustments clearly belong to the policymakers, as recommended earlier.

An appropriate tool to support policymakers in their decisions on priorities is an economic assessment using cost-benefit analysis. Such analyses are difficult to do, however, as often insufficient data are available. Investment and operational costs are often direct and tangible and can be estimated, but costs related to risks of disease outbreaks and produce rejections are uncertain by nature. Benefits from health and trade are often also uncertain as they can only be realized in the future. Investments may have multiple uses and benefits that may spill over to other areas. In the absence of quantitative data, a more qualitative approach has been taken in this Action Plan, defining first priority sectors, then activities within those sectors, and finally the sequencing of actions.

- (a) *Priority sectors* should focus on impacts on (i) public health; (ii) production, trade, and employment, for example, which sector will bring most economic growth; and (iii) social equity, that is, which sector will contribute most to economic growth. With those criteria, food safety and animal health score high, as they play major roles in public health (most food-borne diseases are caused by animal products) and have a major equity effect (food-borne diseases mainly affect the poor, and livestock is also important to the livelihoods of many rural poor, in particular ethnic minorities);
- (b) *Priority activities should* focus on (i) costs, that is, which activity can be achieved with the least cost; (ii) benefit, that is, which activity favors a greater portion of the population or is most successful in removing the hazard; (iii) sustainability, that is, which activity guarantees sustained funding of its operating costs and not just its initial start-up costs; and (iii) enforceability, that is, which activity would have sufficient resources to be effectively implemented and enforced. Given those criteria, priority should go first to building up the capacity for risk analysis in order to fill some of the information gaps encountered by this Action Plan in priority setting and second, to preventive activities (quarantine, diagnostics, and surveillance) over costlier and more difficult to sustain control and eradication activities.
- (c) *Sequencing will be necessary*, as some activities must be implemented before others can start. The implementation of an activity may require the availability of certain other capacities, although again the need for the development of an integral safeguarding system, as strongly recommended in this Action Plan, is stressed. More specifically, surveillance can only start if a good diagnostic capacity is in place; risk analysis can only be carried out if there is an appropriate database and a clear understanding of the market requirements for the analysis. Human skills development and the strengthening of laboratory facilities and equipment can go hand in hand with improvements in diagnostic capacity.

*In summary*, and stressing the need for more quantitative analysis, the message that emerges from this qualitative analysis is that high priority should be given to disease protection and prevention in the livestock sector, almost immediately followed by the need to attend to food safety, with very early emphasis placed on strategy and human skill development, in particular in the area of risk analysis.

## **2. More Information Needed to Better Tailor the Action Plan**

To better tailor the action plan, updated statistical information is needed on fruit and vegetable production, processing, cold storage, and marketing. Right now the report is using primarily international statistics. This data conflicts with many of the reports using Vietnam's Department of Commerce data and is less detailed. It would be useful to have the Department of Commerce data for better accuracy. Areas of additional data needs include the following:

- Completion of the gap analysis between international and national standards in animal (OIE) and plant (IPPC) health (WHO and the Vietnam Food Organization have already commissioned a review of the gaps between Codex and the national standards), a first review of which was carried out as part of the preparation of this Action Plan;
- Information on the sourcing and production requirements of foreign and domestic processing firms;
- An analysis of the infrastructure, such as the cold storage and marketing infrastructure, for delivery of fresh or processed products;
- Updated information on actual experience with recalls/rejections; and
- Information on the changing structure of the industry, particularly with respect to HPAI.

## **3. Resource Needs**

A key element for compliance with SPS and food safety obligations are the resources needed to fund essential activities. In the OECD countries, relatively strong public support exists for the agencies charged with meeting SPS obligations. In such cases, taxes and other public funds that supplement user fees and cost recovery programs are essential for the support of SPS functions. In developing countries, the ability of governments to provide needed resources is weak, and few well-developed programs exist for funding relevant SPS activities from funds other than those traditionally provided by governments. This is particularly problematic for small-scale producers and processors who may be overlooked in governmental efforts to comply with these new obligations.

A very approximate estimate of some key investment needs is provided in Table 12. This summary does not include infrastructure and other needs related to export, such as port facilities. The total investment costs to the public sector would be in the order of US\$ 50 million over the next five years.

Incremental operating costs are even more difficult to assess. As indicated above, staff numbers are probably adequate to carry out the increased tasks. The key incremental operating costs would likely be the following:

- Transport and increased analytical work resulting from the shift from a passive to an active surveillance system;
- Special incentives for staff, and in particular for private sector service providers, to serve as part of the frontline disease and pest alert system; and

- Increased costs associated with the operating of a strengthened disease and pest exclusion programs.

**Table 12. Proposed Budget for Action Plan (US\$)<sup>75</sup>**

	<b>Food Safety</b>	<b>Plant Health</b>	<b>Terrestrial Animal Health</b>	<b>Aquatic Animal Health</b>
WTO accession (MARD)			1,000,000	
Risk analysis, including data base	2,000,000	1,400,000	,1200,000	100,000
Training and capacity building	1,600,000	1,000,000	1,000,000	500,000
Diagnostic capacity	6,000,000	2,000,000	2,000,000	8,000,000
Surveillance and inspection systems (including pesticide monitoring)	6,000,000	4,000,000	5,000,000	1,000,000
Quarantine systems		1,000,000	1,000,000	
Disease/pest eradication and control systems		1,000,000	7,000,000	
<b>Total</b>	<b>15,600,000</b>	<b>10,400,000</b>	<b>17,200,000</b>	<b>9,600,000</b>

Source: Authors

The distribution of the costs of food safety and agricultural health services between the different stakeholders is a policy issue that should be based on economic rationale. If the main beneficiaries of the services (such as an inspection service for exports) are private individuals or groups, the service is called a private good, and the beneficiary should carry the costs. On the other hand, if the benefits of a service can't be captured by an individual but impact the society as a whole, the service is called a public good, and these are normally funded by the public sector. This doesn't mean, however, that the services must be carried out by public sector personnel; in effect, many services are subcontracted to private service providers. These distinctions lead to the indicative distribution of responsibilities seen in Table 13.

Incremental benefits are even more difficult to assess. The following assessments are based on estimates of the effectiveness of the proposed actions over the next five years.

- A reduced incidence of food-borne diseases of 10 percent would provide a benefit to the economy of about US\$ 45 million;
- Reduced losses caused by pests and diseases of about 20 percent would provide a benefit of about US\$ 40 million to the economy; and
- The opening of foreign markets for meat and fruits by about US\$ 250 million would provide a net benefit to the economy (based on a margin of 20 percent) of about US\$ 50 million.

These are clearly very approximate assumptions of the benefits, but they are based on modest assumptions regarding progress attained and, as such, illustrate clearly the approximate returns that can be expected from the investments contained in the Action Plan.

<sup>75</sup> VFA proposes a budget of US\$ 46,000,000, which includes operating costs and several items, such as the application of HACCP, which are a private sector responsibility.

**Table 13. Indicative Distribution of Cost Sharing and Implementation between the Public and Private Sectors**

	<b>Public or Private Good</b>	<b>Funding</b>	<b>Implementation</b>
<b>SPS Functions</b>			
Risk analysis	Mostly public good, but for specific commodities can be partly private good	Mostly public, but with private sector copaying for individual commodity analysis	Mostly a public sector responsibility that can be subcontracted to private institutions with government oversight
Diagnostics	For epidemics, mostly public good; for individual cases, private good	Public good for disease/pest epidemics; private for diagnostics of individual diseases	Can be subcontracted to private service providers with public sector oversight
Surveillance systems	Almost pure public; traceability has private good elements	Public	Can be subcontracted to private service providers with government oversight
Quarantine systems	Mostly public, but for specific germplasm imports for private producers public/private good	Mostly public, with fees for individual plant/animal germplasm imports	Public sector
Disease/pest control and eradication	Depending on the character of the disease: for national epidemic diseases (List A of OIE) and pests, mostly public; for more local diseases, mostly private	Mostly public, but some cost sharing possible	Control and eradication programs can be subcontracted to private service providers
<b>Quality Management and Competitive Characteristics</b>			
Production: Application of GAP	Mostly private, but public good elements in pesticide and feed additive management	Mostly private funding, with agricultural extension and control mostly public funding	Mostly private producers, extension can be subcontracted, but control best done by public sector
Processing: Application of GMP	Mostly private, but public goods elements in food additives management	Private funding, except for control functions	Private implementation, except for control functions
Packing and labeling	Mostly private, within public sector prescribed standards	Private funding, except for control functions	Private implementation, except for control functions
Wholesale marketing	Mostly private, but with public good elements in food safety and agricultural health (public hygiene, pest and disease control); infrastructure often public investment	Mostly private, with some control functions public; investment and control functions can be recovered through license fees	Private operation, except for control functions
Retail marketing	Mostly private, but with public good elements in food safety and hygiene	Private funding, except for control functions	Private operation, except for control functions

## APPENDIX. ACTION PLAN MATRIX

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Market Growth</b>	Carry out studies on export prospects of tropical fruit and competitiveness for key livestock commodities (e.g., pork)	Short term	MARD/private sector	
	Pending outcome of studies, consider commodities for integrated supply chain development, including introduction of SPS and quality management (e.g., applying HACCP)	Medium term	Private sector/ MARD	
<b>Food Safety and Agricultural Health Strategy</b>	Establish the five basic principles proposed by Action Plan as basis for future Food Safety and Agricultural Health actions	Short term	MARD, MOH	
	Integrate this Action Plan with the Food Safety Action Plan being prepared by Ministry of Health	Short term	Office of the Prime Minister, MARD, MOH	
<b>WTO Accession</b>	Improve the operation of the National Enquiry Point and Notification Authority by establishing database	Short term	MARD	
<b>Regional Quarantine and Surveillance</b>	Explore feasibility of developing regional quarantine and pest and disease control and eradication activities to capture economies of scale and because it would be impossible to control introduction of pests and diseases prevailing in the same ecosystems at both sides of Vietnam's long and porous borders	Medium term	MARD	AusAid (plant) and OIE (animal health)

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Supply Chain</b>	Assess need for cold storage, market infrastructure, and processing technologies in the main perishable food chains; develop and adopt policy guidelines for the funding and operation of infrastructure	Short term	MARD/private sector	USAID/RAISE for some fruit
	Seek to enhance enforcement of contract compliance and enforcement in supply chain arrangements with advocacy by the national political levels regarding the need for support for contract compliance by provincial and further decentralized levels	Short term	Prime Minister's Office/Minister of Trade/MARD	
	Strengthen producer and processor organizations by subcontracting quality enhancement and food safety control activities to them	Short term	MARD	
	Implement infrastructure needs, where justified under joint financing between public and private sector, under private management	Medium term	MARD and private sector	Several donors, although limited amounts
	Promote farmers' cooperatives, educating members in the production of safe and quality food and strengthening their links to larger processors, ensuring that incentives for improved food safety and quality reflect production costs and meet market demand	Medium term	MARD	
	Progressively transfer certification of food safety to private agencies	Short term	MOST (STAMEQ), Trade, MARD	France (CIRAD) and DANIDA



Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Institutional Framework</b>	Improve the coordination between agencies at the same level (horizontal coordination) by appointing lead agencies: <ul style="list-style-type: none"> <li>○ National Steering Committee and Food Safety Working Group for overall coordination and policy guidance, to be provided with clear terms of reference and mandate</li> <li>○ Vietnam Food Administration, to take the lead in domestic food safety issues</li> <li>○ The International Cooperation Department of MARD, and in particular the Enquiry Point and Notification Authority, to take the lead on SPS regulations concerning cross-border trade issues</li> </ul>	Short term	Office of the Prime Minister	EU-MUTRAP
	Improve coordination and pest/disease reporting procedures between the national and field levels by enabling direct reporting procedures	Short term	MARD	
	Integrate MOH Food Safety Strategy and Action Plan into one document	Short term	MOH, MARD	
	Prepare a Human Resource Development Plan consolidating all human resource training needs	Short term	FVA,DAH, PPD	AusAID, NZAID
	Enhance Donor Coordination with the establishment of a working group in the Technical Ad Hoc Group on Trade under MARD-ICD	Short term	MARD-ICD	All donors/WB
	Establish a much stronger capacity at the central level for early alert and response for emerging diseases and pests	Long term	MARD	
	Support the development of a central, independent food safety and agricultural health organization, not linked to any technical (health, agriculture) line agency and with a clear separation between policy (and standard) setting, implementation, and monitoring responsibilities	Long term	Office of the Prime Minister, MARD, MOH	

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>General Needs for Risk Analysis Capacity</b>	Select key commodities and markets and collect prevalence data on diseases and pests	Short term	All technical agencies involved in food safety	USDA, AUSAID, CABI, New Zealand Aid  WHO at MOH, AusAid at PPD, FAO and DAH
	Build up capacity for risk analysis by increasing awareness at the policy level and by developing basic skills	Short term	MOH, PPD, and DAH, coordinated by ICD (MARD)	
	Set up programs at specialized agencies of VFA, PPD, and DAH to conduct analysis and establish comprehensive data systems accessible to all stakeholders	Medium term	VFA, PPD, and DAH, with private sector	
	Establish university programs on risk assessment and economic analysis	Medium term	Universities of Hanoi and HCM	
	Raise the awareness of smallholder producers and traders and customers on agricultural health and food safety	Medium term	MARD and MOH	
	Expand application of RA to include different size producers and domestic consumption	Long term	VFA, PPD, and DAH	
	Consider the establishment of an independent risk analysis agency	Long term	Prime Ministers office	
	Create capacity to alter/update analyses under emergency circumstances to identify optimal control measures	Long term	ICD (MARD)	

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Integrated Food Safeguarding System</b>				
Codex compliance	Complete gaps analysis between national and international (Codex) standards and identify priority actions for harmonization of standards	Short term	VFA	FAO/WHO
Detection and surveillance	Increase awareness and training among medical professionals of appropriate diagnostic techniques and improve laboratory methods to detect and investigate diarrhea outbreaks	Short term	VFA	WHO
	Risk assessment training by two task forces for the central policymaking level (chemical contaminants and microbiological contaminants)	Short term	VFA	
	Expand the current active surveillance system in some provinces to an enhanced active surveillance system that integrates into the present weekly reports of communicable disease surveillance systems that monitor cholera and typhoid, rather than creating a separate surveillance system; these active surveillance systems should be launched in all provinces, with the outbreak investigation skills upgraded and local outbreak investigation groups trained	Medium term	Provincial authorities	NZAID, WHO
Diagnostic capacity	Prepare a detailed assessment of the current laboratory capacities and the requirements to bring at least four laboratories up to ISO 17025	Short term	VFA	UNIDO/SECO CIDA
	Provide required inputs to bring at least four laboratories up to ISO 17025 and bring local laboratory capacity in line with the needs of a national active surveillance system	Medium term	VFA Provincial authorities	



Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Plant Protection</b>  Port-of-entry pest exclusion and quarantine	Carry out in-depth assessment of entire process for handling imported plant material for propagation from PRA supporting the import permit decision to final release of the material for field planting	Short term	PPD	
	Implement ISPM No. 20 (components of phytosanitary import system) and ISPM No. 21 (PRA for regulated non-quarantine pests)	Short term	PPD	
	Carry out assessment of inspection procedures, training, and equipment and facility needs at port-of-entry Plant Quarantine Stations	Short term	PPD	
	Initiate pathway analyses on threat posed by local traffic at land border crossings (special attention on northern land border crossings)	Short term	PPD with TA	
	Conduct PRA on all currently regulated plant pests to technically justify the need to regulate them and to validate current phytosanitary measures	Medium term	PPD with TA	
	Assess feasibility of developing regional approaches for clearing high-risk germplasm (due to high cost of facilities, expertise, and testing equipment)	Medium term	MARD	
	Upgrade capacity of regional or national level (depending on the short feasibility carried out above) port-of-entry quarantine stations to process high-risk germplasm and plant materials for propagation	Long term	PPD	

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Plant Protection (cont.)</b>				
Pest detection and surveillance	Conduct comprehensive review of the plant pest surveillance systems and capabilities; develop strategic options to meet national and international standards	Short term	PPD with TA	
	Continue development of the survey tool box for current survey activities	Short term	PPD	
	Design and implement commodity-specific surveys to meet PRA data needs in support of market access requests	Short term	PPD	
	Design and implement clearly defined, comprehensive, and coordinated national plant pest surveillance program	Medium term	PPD with TA	
Pest diagnostic capacity	Analyze strategic options for specialized virology and bacteriology taxonomic diagnostic services, including expertise outside Vietnam, for commodities with immediate export potential	Short term	PPD with TA	
	Provide advanced training for PPD and NIPP staff in most taxonomic disciplines (e.g., weed science and use of modern rapid diagnostic methods)	Medium term	PPD	
	Provide modern diagnostic equipment (high definition imaging systems) for transmitting digital pictures of insects and pathogens via Internet to taxonomists located throughout the world	Medium term	PPD with TA	
	Develop a documented information management system to increase coordination and collaboration between diagnostic laboratories	Medium term	PPD	

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Plant Protection (cont.)</b>				
Pest diagnostic capacity	Rehabilitate NIPP reference collections or establish a new center for arthropod and pathogen reference collections	Long term	NIPP	AusAID
Information management system	Continue to develop software information modules, expand geographical installation to field stations, and provide connectivity through a wide area network	Short term	PPD with TA	
	Continue data collection but improve focus and cost-effectiveness by tailoring data collection to risk analysis data needs	Short term	PPD	
Rapid response capacity	Develop system for screening, identifying, and reporting plant pests detected by passive detection and active surveillance	Short term	PPD/Provincial authorities	
	Review capacity of MARD and provincial governments to respond to alien pest detections in coordinated and timely manner (role of provincial governments in declaration of pest and disease outbreaks)	Short term	MARD	
	Establish an Emergency Response Command Network (ERNC) to respond to plant pest emergencies	Long term	MARD	
Pest control and management options	Conduct review of existing phytosanitary legislation to ensure compliance with international agreements (SPS, IPPC, ISPMs)	Short term	ICD with PPD	NZAID with FAO
	Clarify PPD authority to take emergency measures against alien pests	Short term	MARD	
	Establish, in partnership with the private sector, pilot commercial vapor heat chambers for postharvest treatment of fruit fly host material	Medium term	MARD, with private processors	

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Plant (cont.)</b> Pest control and management options	Conduct feasibility studies on potential application of establishing a pest-free area for fruit flies as an alternative to postharvest treatment	Medium term	MARD	NZAID, AusAID, USAID, RAISE SPS
	Develop education program for farmers	Medium term	MARD	
	Strengthen supply chain management arrangements, with quality control linkages and attention to contract enforcement compliance	Medium term	MARD	
	Demonstrate the coordinated chain approach on fresh fruit for developed country markets	Medium term	Private sector, with MARD	
Skills	Continue to utilize training opportunities in areas with weaknesses (e.g., virology, weed science, and risk analysis)	Short term	MARD	
	Establish center that would administer and manage training programs in support of plant health safeguarding mission	Medium term	MARD	
Risk assessment capacity	Conduct intensive PRA training program for PPD and NIPP specialists, continue awareness building for senior staff, acquire computer-assisted tools for PRA, and improve access to basic PRA information resources	Short term	PPD, NIPP	
	Establish core group of trained risk assessors from among PPD and NIPP specialists, as focal point for PRA, to form PRA Center	Medium term	MARD	
	Progressively develop PRA Center into a more general training center in support of the plant health safeguarding mission	Long term	MARD	
	Establish a PRA curriculum at a university	Long-term	MARD, with universities	
Communication	Strengthen coordination between producers' groups, research institutes, and the crop extension services with PPD's field staff	Medium term	MARD (PPD and AGR) and MOST	



Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Animal Health</b> Veterinary legislation  Port-of-Entry disease exclusion and quarantine        Disease detection and surveillance	Identify priority areas to strengthen regulation	Short term	ICD with DAH	
	Implement the corresponding regulations	Medium term	ICD with DAH	
	Carry out detailed pathway and risk analysis on most likely disease entry points; explore possibilities of cooperative disease-control mechanisms with all neighboring countries, paying particular attention to the northern and southern borders	Short term	DAH	
	Construct and equip quarantine facilities in HCMC and Lang Son border crossings; establish joint disease-control systems or further strengthen quarantine at other northern and southern borders, depending on the outcome of the risk analysis mentioned above	Medium term	DAH	
	Integrate plant and animal quarantine stations	Medium term	DAH with PPD	
	Prepare guidelines for participation of different staff levels (farmers, private veterinarians, paraveterinarians, etc.) in surveillance system	Short term	DAH with TA	
	Train and equip staff in field level disease recognition	Short term	DAH	
	Reassess role of Provincial People's Committees in disease reporting	Short term	DAH/Prov.authorities	
	Adopt guidelines as formal part of the Veterinary Ordinance	Medium term	DAH	
	Strengthen connectivity between different levels involved in disease reporting; ensure direct lines of communication between field and national levels on a daily basis	Medium term	DAH with Provincial authorities	

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Animal (cont.)</b> Diagnostic capacity	Prepare needs assessment of laboratories considering the expanding workload as Vietnam moves to active surveillance system	Short term	DAH with TA	
	Bring remaining regional labs up to international standards; equip provincial labs for initial diagnostics and sample preparation	Medium term	DAH with TA	
Disease control and eradication	With WB, and FAO/OIE, develop comprehensive strategies, including culling, vaccination, and farmers' compensation	Short term	DAH	WB, FAO/OIE
	Develop a vaccination strategy for FMD and CSF	Short term	DAH	FAO/OIE
	Prepare risk analysis for establishment of disease-free zones; propose alternatives to the current fragmented establishment	Short term	DAH, with TA and private sector implementation	OIE/SEAFMD
	Implement pilot compensation scheme, a vaccination strategy for HPAI, and disease-free zones for FMD or CFS	Medium term	DAH	FAO
Risk assessment capacity	Strengthen training of central staff in skills required for risk analysis	Short term	DAH, with ICD	
	Develop a risk analysis capacity within DAH to help policymakers in setting priorities in disease and food safety risk-control strategies	Short to medium term	DAH	
Information management	Develop integrated information system with data on disease occurrence for epidemiological and risk analysis	Medium term	DAH	

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Animal health (cont.)</b> Public health and animal products	Develop training programs for meat inspection staff; develop compensation schemes for condemned meat	Short term	DAH	
	Pilot integrated supply chain systems for meat, marketing, and retailing	Short term	DAH, with private sector	
	Develop education and control programs for the use of antibiotics	Short term	DAH	
	Implement training and compensation schemes	Medium term	DAH	
	Demonstrate commodity-chain approach on pork for developed country markets	Medium term	DAH	
<b>Aquatic Animal Health</b>				
Institutional and legislative framework	Identify main areas where strengthening of regulations is priority, such as surveillance, establishment of disease-free zones, and distribution of responsibilities between the public and private sector, and draft the corresponding regulations	Short term	NAFIQAVED	DANIDA (overall support for the fisheries sector)
	Implement the corresponding regulations (see below for more details)	Medium term	NAFIQAVED	
Disease detection and surveillance	Prepare guidelines for greater participation of different staff levels (farmers, private veterinarians, paraveterinarians, etc.) in disease-surveillance system, in particular regarding their mandates and responsibilities and the required financial incentives for such increased participation	Short term	NAFIQAVED with ICD	

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Aquatic Animal Health (cont.)</b> Disease detection and surveillance      Diagnostic and certification systems  Disease control and eradication	Train and equip those staff in field level disease recognition	Short term	NAFIQAVED	DANIDA (overall support for the fisheries sector)
	Reassess role of Provincial People's Committees to ensure that disease alert systems have direct lines of communication from field to national levels	Short term	NAFIQAVED Prov. authorities	
	Adopt the above prepared guidelines as a formal regulation, as part of the Veterinary Ordinance	Medium term	NAFIQAVED and DAH	
	Strengthen the connectivity between the different levels involved in disease reporting, ensuring direct lines of communication in disease reporting between field and national levels on a daily basis	Medium term	MOFI	
	Purchase equipment for rapid testing for export certification and aquatic animal disease diagnosis for the seven regional laboratories	Medium term	NAFIQAVED with ICD	
	Strengthen education and training of farmers on own control of fisheries diseases through better engineering and management practices	Short term	NAFIQAVED	
	Prepare a risk analysis for the establishment of disease-free zones; assess, for each of the major animal diseases, whether such zones are justified, from the viewpoint of reduction of current losses and gains in future market access; and propose alternatives to the current fragmented establishment	Short term	NAFIQAVED	

Technical or Policy Issue	Actions Recommended	Time Frame	Main Responsibility	External Support
<b>Aquatic Animal Health (cont.)</b>				
Disease control and eradication	Prepare a national control program of WSSV, YHV, TSV in shrimp and red spots in catfish	Medium term	NAFIQAVED	DANIDA (overall support for the fisheries sector)
	Support training of veterinarians in aquatic diseases	Medium term	MOFI	
	Equip network of thirty-five provincial laboratories with the required equipment	Medium term	NAFIQAVED	
Risk analysis	Organize training in risk analysis in fisheries sector and organize databases on aquatic disease occurrence; chemical and biological contamination; and genetically modified food	Short term	NAFIQAVED	
	Develop a database system to integrate these data	Short term	NAFIQAVED	
Inspection and public health	Strengthen producer organization in food safety and quality management	Medium term	MOFI	

**Note:** Time Frame: A *short term* equals eighteen months; a *medium term* equals eighteen months to three years; and a *long term* equals three to five years.

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